

**DROUGHT, URBAN RESILIENCE AND URBAN FOOD SECURITY IN KAKHOZA, MANZINI,  
SWAZILAND**

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In the

**Department of Geography, Environmental Studies and Tourism**

**University of the Western Cape**

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SUPERVISOR: PROFESSOR D.S. TEVERA

## Declaration

I affirm that this work is original. As far as I know, it does not contain any material written by another author nor does it contain any published material unless where due reference is made. This work, to the best of my knowledge, has not been submitted to any institution: university or college for the award of a diploma or degree.

*S. Mamba.*

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Sipho Felix Mamba



## Abstract

Food security is the ability to secure an adequate daily supply of food that is affordable, hygienic and nutritious and it has become a chronic development problem in most urban areas of the global South. This thesis contributes to the urban food security debate by exploring the connection between drought and food security in urban Swaziland. Specifically, the study examines the effects of the 2015/16 drought on access to food in the informal settlement of kaKhoza in the city of Manzini. The study used climate change and food security conceptual framework to interrogate the connection between drought and food security in the urban context. The framework shows how climate change variables like extreme weather events (e.g. drought) impact food security drivers such as agricultural management, demographic, cultural and socio-economic variables, and how these drivers impact the four components of food security (food availability, access, utilization and stability of access).

The study drew from both the positivistic and interpretivistic paradigms and adopted a case study approach based on the mixed methods research design. Data was collected from the informal settlement of kaKhoza using a three step procedure involving a questionnaire survey, in-depth interviews, key informant interviews and focus group discussions. A questionnaire was administered to 145 heads of households using systematic sampling technique. Purposive sampling was employed to select 30 and 8 respondents for in-depth and key informant interviews, respectively. The researcher also engaged the observation method approach to capture additional information about effects of drought as observed in the study site. The researcher adhered to all legal and ethical procedures during the data collection and research writing processes. As such, participation in the research was strictly voluntary without any form of coercion, whatsoever.

The results reveal that drought contributes to food insecurity in low income urban spaces by reducing the quantity and frequency of free or low priced rural-urban food transfers. As a result, low income households have had to rely more on food purchases, thereby making them increasingly food insecure. The problem is compounded by reverse food flows from urban to rural areas. The drought induced food price hike, compelled many low-income households to be less dependent on the supermarket as the main source of their food, and to buy increased amounts of food from the vegetable markets and tuck shops. Residents employ different coping mechanisms to deal with drought induced food shortage, some of which are too risky and further expose them to food insecurity. These coping strategies include: skipping meals, begging, use of informal credit, over reliance on informal markets and selling of sexual favours, which expose respondents to HIV and AIDS infection.

**Key Words:** Food security, drought, resilience, adaptation, food transfers, poverty, spaza shops, supermarkets, kaKhoza, Manzini, Swaziland.

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To my lovely family: Zee, Siyandziswa, Sithandwayinkhosi, Sinokubonga and Sebandzile Mamba - your love, support and patience are greatly appreciated. Thank you. I am also grateful and appreciative to kaKhoza residents and every respondent who made time and contributed to this work by supplying me with the required information and responding to my questions during fieldwork. It is your kind cooperation that has made this work to be a great success. I am also obligated to pass a word of gratitude to all persons who have been a source of inspiration throughout my life journey. To all those I have not mentioned by name, your contribution is also valuable and highly appreciated, thank you.

## **Dedication**

To my lovely wife Zee Mavuso – thank you for your altruistic and incomparable support. You have been a pillar and source of strength. Thank you for believing in me always, and walking with me this long journey into the future.

And to my beloved children: Siyandziswa, Sithandwayinkhosi, Sinokubonga and Sebandzile Mamba – while you sometimes cried when I was away, putting so much pressure on me, you have always believed: ‘Dad would come back’. That alone has made me to push this work and have it concluded as soon as it possibly could.

May the gracious God richly bless you and keep you to reap the fruits of your patience and endurance

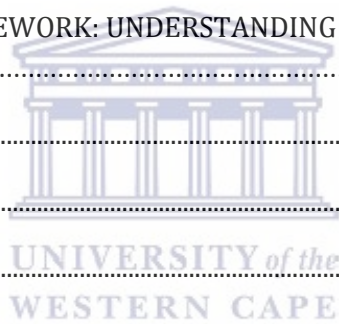
**LOVE YOU ALWAYS!**



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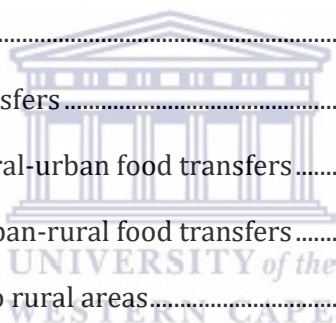


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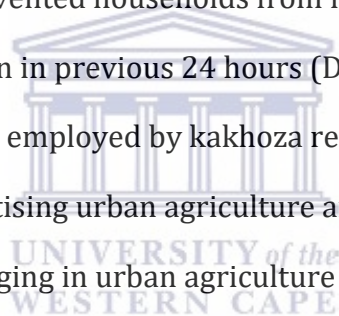
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## List of acronyms and abbreviations

ADB	African Development Bank
AFSUN	African Food Security Urban Network
AGRA	Alliance for a Green Revolution in Africa (AGRA)
BBFAP	Bureau for Food and Agricultural Policy
BVAC	Botswana Vulnerability Assessment Committee
CFSAM	Crop and Food Assessment and Analysis Committee
CPI	Consumer Price Index
CSO	Central Statistics Office
DPM	Deputy Prime Minister
EC	European Community
EEA	European Environmental Agency
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization
FEWSNET	Famine Early Warning System Network
FGD	Focus Group Discussion
FSIN	Food Security Information Network
GDP	Gross Domestic Product
GIS	Geographic Information System
GNESD	Global Network on Energy for Sustainable Development
GoS	Government of Swaziland
GPS	Global Position System
HDDS	Household Dietary Diversity Score
HFIAP	Household Food Insecurity Access Scale
IFAD	International Fund for Agricultural Development
IFPRI	The International Food Policy Research Institute
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
LIFDC	Low Income Food Deficit Countries
LVAC	Lesotho Vulnerability Assessment Committee
MAHFP	Months of Adequate Household Food Provisioning
MCM	Municipal Council of Manzini
MDG	Millennium Development Goals
MHUD	Ministry of Housing and Urban Development
MoA	Ministry of Agriculture
MozVAC	Mozambique Vulnerability Assessment Committee
MT	Metric Tons
MVAC	Malawi Vulnerability Assessment Committee
NAMBOARD	National Agriculture Marketing Board
NCP	Neighbourhood Care Points

NDMA	National Disaster Management Agency
NDMC	National Drought Mitigation Centre
NDTF	National Disaster Task Force
NEPAD	The New Partnership for Africa's Development
NERCHA	National Emergency Research Council on HIV and AIDS
NGO	Non-governmental Organization
NMC	National Maize Co-operation
NVAC	Namibia Vulnerability Assessment Committee
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Co-operation and Development
OVC	Orphan and Vulnerable Children
PMSEIC	The prime Minister's Science, Engineering and Innovation Council
PPME	Policy Planning, Monitoring and Evaluation
RDAP	Rural Development Areas Programme
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SEG	The Scientific Expert Group on Climate Change and Sustainable Development
SNL	Swazi Nation Land
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
SVAC	Swaziland Vulnerability Assessment Committee
SWSC	Swaziland Water Services Cooperation
UA	Urban Agriculture
UN	United Nations
UNDESA	United Nation Department of Economic and Social Affairs
UNDP	United Nation Development Programme
UNFPA	United Nation Population Fund
UN-Habitat	United Nations Human Settlements Programme
USAID	United States Agency for International Development
USDA	United State Development Agency
WB	World Bank
WFP	World Food Programme
ZimVAC	Zimbabwe Vulnerability Assessment Committee

## CHAPTER 1: BACKGROUND AND OVERVIEW

### 1.1 Introduction

Food insecurity is a situation which exists when people lack physical and economic access to adequate food that meets their dietary needs and food preferences for a healthy lifestyle (FAO, 2016a). It is a phenomenon known to plague many countries, and remains a global concern and major development challenge facing most cities of the global South (Crush *et al*, 2012; Ragasa *et al.* 2019). Since the World Food Summit in 1996, food security has entered the lexicon of most nations and has been part of development agendas for most countries globally. Different countries, since then, have been striving to ensure adequate access to nutritious food for their citizens; hence food security is enshrined in the 2030 Agenda for Sustainable Development (Goal 2).

According to the United Nations, the world's urban population has grown from 746 million (approximately 29% of the total population) in 1950 to 3.9 billion (approximately 54%) in 2014 (UNDESA, 2014). It is currently estimated that more than half (54.5%) of the world's population live in urban areas and this is projected to increase to 60 percent by 2030 (Knorr *et al.*, 2018). About 2.5 billion people are expected to be added to this 60 percent projected future urban population by the year 2050, and 90 percent of this increase will come from African and Asian cities (UNDESA, 2016:1; WHO, 2017). Africa alone is projected to host cities that will account for 85 percent of its population by 2025, if the current urban growth rate of 3.5 percent holds until 2050 (See ADB, 2017). This has an implication for poverty and food insecurity in cities since a large population puts pressure on food reserves, and triggers a rise in food insecurity (See Figure 3.1 - conceptual framework).

For a long time, food insecurity has been perceived to be a rural problem in most countries of the global South and in sub-Saharan Africa, in particular. This misperception has been fueled, among other things, by the food security discourse which has focused on rural areas, further perpetuating this long-held misperception. Much less is known about the food security situation of the urban dwellers, which has remained largely ignored by scholars, development agencies and governments.



Needless to say even the 2017 FSIN report on global food crisis that provides current statistics about the effects of the 2015/16 drought, also displays a strong rural bias in its reporting, and so will the food security intervention that will follow. The report, for instance, captures unprecedented rise in food insecurity levels in over 20 countries of the global South, following the 2015/16 drought and largely focuses on the rural areas, with almost nothing reported about the plight of the urban population. The report records, for instance, that 196, 910 people (46%) in rural Djibouti are in food insecurity crisis and urgently need humanitarian assistance; however, nothing is said about the Djibouti urban population, which gives a false impression that they have not been affected. The same trend is observable in most national reports by the Vulnerability Assessment Committees which also focus on rural food security due to the 'productionistic' nature of the lens through which the food security problem is viewed in southern Africa, hence the greater emphasis on food availability (which is mainly achieved through increasing food production), with less emphasis on access.

What is disturbing to note is that the same report recognizes that urban food insecurity is endemic in some countries in the South, such as Afghanistan, where urban food insecurity is higher than in rural Afghanistan owing to lack of sustainable income to purchase food (FSIN, 2017). The same trend is noticeable in the existing few studies on urban food security in the region, which also show that in some cities, the food insecurity problem has reached a crisis level. For example, in Sudan's urban areas of Wau, Aweil and Juaba, about 400 000 people were found to be food insecure due to the 2015/16 drought (FSIN, 2017). A study by Birhane *et al.* (2014) conducted in urban Ethiopia on urban food security found that about 75 percent of 550 surveyed low income households in Addis Ababa were food insecure. In Nairobi (Kenya), 85 percent of 3000 slum dwellers were also found to be food insecure (Kimani-Murage *et al.*, 2014). Maitra (2017) in his study conducted in India found that 17.6 percent of slum dwellers in Kolkata were severely food insecure.

In the context of southern Africa, the most recent shift of interest from rural to urban food security has yielded fundamental insights about the food situation of urban dwellers, following a number of studies which vividly capture the levels of food insecurity in southern African cities. One such study by Frayne *et al.* (2010) does not

only capture the dynamics of urban livelihoods for better understanding and contextualization of the urban food insecurity problem, but also demonstrates that food insecurity is prevalent in southern African cities. Several other studies (Battersby, 2011a; Rudolph *et al.*, 2012; Acquah *et al.*, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015) further highlight the magnitude of the food insecurity problem in urban spaces in southern Africa. Studies conducted in low income areas of Gaborone, Blantyre, Harare, Cape Town, Johannesburg, Manzini, Maseru, Maputo, Windhoek, Masunduzi and Lusaka, for instance, found high levels of food insecurity in these cities (See Legwegoh, 2012; Rudolph *et al.*, 2012; Tevera *et al.*, 2012; Tawodzera *et al.*, 2012; Mvula & Chiweza, 2013; Acquah *et al.*, 2013; Caesar *et al.*, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015). Across all the 11 cities surveyed, 77 percent of households were found to be either severely or moderately food insecure (Frayne *et al.*, 2010).

Several factors account for the high level of food insecurity in the global South and in southern Africa, in particular. These include conflicts (mainly in Syria, Sudan & Yemen), loss of agricultural labour due to HIV and AIDS (Botswana & Swaziland<sup>1</sup>), rural-urban migration, unequal access to land and agricultural inputs (with women being the less privileged), reduced employment opportunities, high food prices and recurring drought (mainly in Somalia, Uganda, Ethiopia and Swaziland) (GoS, 1997; FSIN, 2017; FAO, 2018b). Drought is regarded as a major contributing factor to the rising levels of food insecurity in southern Africa and in some countries in the global North (Miyan, 2015). While some scholars have noted that drought reduces crop productivity and compromises food availability at household level (both in terms of quantity and variety), other scholars argue that drought actually triggers an increase in food price and makes certain foods inaccessible, particularly to the poor (Salazar-espinoza *et al.*, 2015; Gautier *et al.*, 2017). Although most of the food security studies which capture this drought-food security nexus are mainly rural based, they provide a good framework for understanding how drought impacts urban food security.

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<sup>1</sup> The Kingdom of Swaziland is now formally known as the Kingdom of Eswatini. However, the old name is used throughout the thesis because the change of name took place after the study had been completed.

Studies show that the drought problem and the accompanying effects on crop yield and food security are not new in countries of the global South. Due to their over reliance on rain-fed agriculture, these countries have been battling with drought-induced food shortages and the accompanying steep (and sudden) increases in food prices, particularly of the staple crop (FAO *et al.*, 2018; Mishra *et al.*, 2019). The drought-food price cock-tail has worsened the food insecurity situation in the region. The most profound and probably most illustrative example is the world food crisis of 2007-2008, which had the most devastating effects on most countries of the South, and helped to highlight their vulnerability to shock. Although there is a debate on the causes of this earlier global crisis, scholars concur that drought is at the heart of the problem.

Causes of the 2007-2008 food crisis, as captured in the report of the International Food Policy Research Institution entitled '*Reflections on the Global Food Crisis*', include diverting food production to the production of bio-fuels, rising demand for meat and grain from rapidly growing countries (e.g. China), poor weather (Drought), increase in oil price (which worsened the costs of farming) and import restrictions (Headey & Fan, 2010; Johnston & Bargawi, 2010; Spivack, 2012). Worth noting is that all these disturbances resulted to an increase in food prices. Even more important to note is that weather shocks and trade restrictions were the significant drivers. Consecutive droughts experienced by Australia (major cereal exporter) in 2005/2006 resulted to a decline in cereal production (mainly wheat), which triggered increase in wheat price (almost doubled).

The production shortfall, export restrictions (resulting from drought-induced production shortfalls), and high costs of production (due to oil price) caused high increase in food price. Maize, wheat and rice prices rose sharply by 115 percent between 2008 and 2010 and by the end of 2011, cereal prices had increased by 204 percent (Spivack, 2012). The IFPRI report on the global food crisis states that about three-fourths of cereal price increases occurred in the peak of the drought season (2008) during which great exporters banned exports (IFPRI, 2010). This reflects the impacts of drought on food prices, more so in countries of the global South, which remain the most vulnerable due to their agrarian-based economy. Needless to reiterate

FAO's observation that even the briefest drought period has a significant and lasting impression on food price, and, consequently, food access and food security of the poor.

The 2015/16 drought also had similar effects, if not worst consequences, on countries in the region. The El Nino-induced drought, for example, resulted in widespread crop failure, which also triggered increase in food prices, whose effects were felt disproportionately across the region (See FAO/WFP, 2018; FAO, 2018b). In almost all the regions, the below average rainfall that was received was also marked with a late onset, irregular start and shifting in its timing, causing uncertainty to farmers and resulting to major crop loss. In Latin America and the Caribbean, for instance, late and irregular start of the 2015/16 rainy season and shifting in farming calendar, caused major maize loss ranging from 50 to 100 percent in most areas. This resulted in over 2 million people recorded to be food insecure by the end of 2016 (OCHA, 2016).

The other regions were equally impacted, such as East Africa (suffered severe crop loss, death of livestock, food price increase and severe malnutrition of 435, 000 children), Asia and the Pacific (Six percent of 411 wells dried up and over 500,000 people survived on unclean water, top rice producers recorded a decline in rice production for the first time) and Southern Africa where below average rainfall was received which was also marked with late onset (OCHA, 2016). About 32 million people were found to be food insecure in the regions and drought emergencies were declared in most affected countries such as Swaziland, Lesotho, Zimbabwe and Malawi (OCHA, 2016).

A variation in the effects of the 2015/16 drought was noticeable also within the regions and between countries, with other countries feeling the full blast of the impact. For instance, one third of the population of Guatemala was in food crisis, with 1.5 million in the severely food insecure category and in need of emergency assistance (OCHA, 2016). OCHA further records that over 130, 000 children suffered from severe malnutrition in the same country. Haiti experienced 50 percent crop loss, which triggered steep increase in food price (OCHA, 2016). Production shortfall in Ethiopia exposed 10.2 million Ethiopians to severe food shortage. In Somalia, over 4.7 million (38% Somalians) were found to be food insecure by the end of 2015 (FEWSNET, 2016a).

FEWSNET further records that, below average rainfall, coupled with intermittent dry spells, caused widespread crop failure in Sudan's key agricultural areas and left 4.6 million Sudanese acutely food insecure. Death of livestock in the 2015/16 drought period contributed to a decline in purchasing power of pastoral farmers and disrupted livelihood activities in southern Africa, and in Swaziland in particular. The same season was marked with steep increase in staple crop (FEWSNET, 2016b). In Mongolia, the 2015/16 drought resulted to the death of 1.1 million national livestock, leaving a larger proportion of livestock farmers with no source of food and income. In Vietnam, about 2 million people were left without access to adequate water as water sources dried up, leading to 429 500 hectares of crops getting damaged, causing a significant disruption of livelihoods and increasing the number of the food insecure to 1.1 million (OCHA, 2016).

In southern Africa, the 2015/16 drought resulted in reduced crop yield and steep increase in food prices across the region (Salazar-espinoza, *et al.*, 2015; Gautier *et al.*, 2017). One of the most affected countries was Lesotho, which experienced 68 percent decline in maize production, sharp increase in food prices (particularly maize meal), and decline in proportion of people receiving remittances from south Africa due to retrenchments (crippling households ability to purchase food)(OCHA, 2016). Swaziland faced an almost similar situation where 64 percent decline in maize (staple crop) production was experience, steep increase in food prices (maize meal was 54 percent higher than previous season) and death of large herds of cattle (80,000) during the same drought period (2015/16) (OCHA, 2016; FSIN, 2017).

Other countries which were also affected are Namibia (1.5 million subsistence farmers experienced crop loss, rising maize price resulting to a quarter of the population being food insecure), Zimbabwe (experienced extensive crop failure, rising food prices which left one third of the population food insecure), Malawi (recorded 34% decline in cereal production which triggered increase in food price due to supply and demand), Angola (crop loss estimated to be 75%, lead to increase in food prices and number of food insecure rose to 1.4 million), Madagascar (crop lose drove over 1 million people to food insecurity, triggered increase in food price, leading to implementation of negative coping strategies such as sale of asserts to purchase food), Mozambique (Crop failure and steep increase in maize price (100% increase) exposed 1.5 million to acute food

insecurity) and South Africa experienced a decline in maize yield and had to import 6 million tons of maize in 2016 (OCHA, 2016; OCHA, 2017).

In Swaziland, as already alluded to, drought has contributed to crop failure, rising food prices and rising incidence of food insecurity. The impacts of drought (a major hydrological disaster) in Swaziland's food system has been captured in several studies such as Manyatsi *et al.* (2010), Oseni and Masarirambi (2011), Manyatsi and Mhazo (2014) and SVAC (2015), which have highlighted the drought-food security nexus. These studies have demonstrated that drought in Swaziland has contributed to food insecurity by impacting on the food security components: food availability (which is largely met through food production), food access, utilization and stability of access to food. Drought-induced production shortfall is said to be in the heart of the food insecurity problem in the Kingdom and it remains a major concern in the country. This results in an ever-declining land under maize cultivation (the staple food). For instance, the area under maize cultivation declined from 84,000 ha in 1990 to 52,000 ha in 2009. By 2011, only 47459 ha were under maize cultivation. Likewise, maize harvest fell from 88,000 tons in 1990 to 62,000 tons in 2009 (Oseni & Masarirambi, 2011:389).

In the 2007 drought, close to 50 percent of the Swazi population lacked access to food and required emergency food aid due to crop failure and production shortfall (Manyatsi & Mhazo, 2014). In the 2015/16 drought, there was 64 percent decline in maize yield from 93, 653MT in 2013/14 to 33, 460MT in 2015/16 farming season. This was also supplemented by the death of over 67, 120 herd of cattle (representing 11% of the national herd) (SVAC, 2015; MoA, 2016). Total maize utilization for the 2015/16 marketing year (April/March) was estimated at 172 170 tons against an estimated domestic availability of 84 623 tons, resulting in an import requirement of 87 547 tons for 2015/16 (FAO/WFP, 2015). This had a negative effect on the Swazi population, particularly the poor households whose access to food largely depend on own production.

The shortfall in maize production resulted in an increase in food prices as the maize deficit had to be met through import from South Africa. According to the National Disaster Management Agency (NDMA), the 2015/16 drought largely contributed to the

very high maize prices experienced in the country, which made maize highly inaccessible for a majority of the poor, given the 63 percent of the population living below the poverty line. The same view is repeated by Leduka *et al.* (2015) and further supported by the Alliance for a Green Revolution in Africa [AGRA] (2017) who also hold the same view that climate extremes such as droughts affect food yields, household livelihoods and induce food prices hike, which influence dietary habits through food availability and affordability pathways. This is supported by the report issued by the Office of the Resident Coordinator of the UN Country Team in Swaziland who also observed that nearly one-third of rural population spend much of their money on food and have little capacity to cope with the combined effects of production shortfalls and increased market prices, and can quickly fall further into food insecurity.

Drought has become a common devastating natural disaster in Swaziland. The country has experienced severe drought in the last three decades, with the most severe ones occurring in 1983, 1992, 2001, 2007, 2008 and most recent, in 2015 (Manyatsi *et al.*, 2010; Manyatsi & Mhazo, 2014). Following the 1992 drought which resulted in widespread hunger (due to crop failure), souring levels of poverty, death of people (due to hunger and acute food shortage), death of livestock (over 100, 000) and severe food insecurity, the government of Swaziland established a national body for multi-sectoral coordination and collaboration in disaster risk reduction – The National Disaster Task Force (NDTF), whose task was to respond to drought. In response to the 1992 drought, the NDTF, which was chaired by the then Deputy Prime Minister, Dr Ben ‘Mshamndane’ Nsibandze, undertook a countrywide food aid distribution initiative, loosely known as ‘Mshamndane initiative’, whose goals were: to increase household food access and ability to manage shocks, reduce the impacts of HIV and AIDS on food security among vulnerable populations in high-priority districts, and meeting the nutrition needs of vulnerable groups, particularly the rural population (GoS, 2005; FAO/WFP, 2015).

Drought in Swaziland has demonstrated an increase in frequency, duration and intensity and has become more destructive (Manyatsi *et al.*, 2010; Manyatsi & Mhazo, 2014). The negative impacts of drought on agricultural production and the impacts of climate change on crop yield are projected to increase. Also, worth noting is that the fall in agricultural production has contributed to the high levels of urbanization

experienced in the country as people migrate to urban areas for better livelihood options. This does not only increase the rate of poverty in the cities but also the incidence of urban food insecurity in these cities, especially in Manzini which is the major destination for these migrants.

## **1.2 Poverty, drought and urban food security**

The connection between poverty and urban food insecurity has been captured in several studies (See Kimani-Murage *et al.*, 2014; Raimundo *et al.*, 2014; Maitra & Rao, 2015; Leduka *et al.*, 2015; Maitra, 2017). These studies have highlighted the inextricable link between poverty and urban food security. Poor urban households, due to their lack of adaptive capacity, also tend to be highly vulnerable to both internal and external shocks such as sudden increase in food price, and other external shocks such as drought (Zezza & Tasciotti, 2010). Their failure to adapt to such shocks increases their vulnerability to food insecurity, further rising their food insecurity levels to unprecedented levels.

Maitra and Rao (2015) in their study which investigated the connection between poverty and food insecurity in urban slums of Kolkata found that poorer households have a higher exposure to food insecurity. These findings mirror those by Leduka *et al.*, (2015) who also noted that the poorest households in Maseru make the majority (82%) of the severely food insecure. They found that none among the poorest was found to be food secure. These findings are further confirmed by Maitra (2017) in a study conducted in the urban slums of India, where he also found that poverty levels of the head of household strongly influence level of food security. The same was observed by Tevera *et al.* (2012) in their study conducted in Moneni, Standini and Ticanweni peri-urban areas in Manzini, in Swaziland, where the poorest households were also found to be more food insecure than their counterparts.

One other interesting thing to note which also alludes to the connection between poverty and food insecurity is that, among the significant determinants of urban food insecurity identified by scholars include education status, household income, household composition, marital status and gender (Crush & Caesar, 2014; Birhane *et al.*, 2014; Smith *et al.*, 2017). For instance, Smith *et al.* (2017) in their study conducted in Latin



America and the Caribbean, which was assessing levels of food insecurity in the region, found that households with unemployed members or those with seasonal or part-time jobs (casual laborers) face high chances of being severely food insecure. The same was found to be true with households with low income who were also highly vulnerable to food insecurity as low income can create a vicious cycle that makes it difficult for poor households to escape food insecurity.

Female-headed households also tend to be more vulnerable to food insecurity (Armar-klemesu & Ahiadeke, 2000). These findings, although more indirect, provide a link between poverty and food insecurity. It should be noted that household heads with a higher level of education (tertiary level) tend to attract permanent, secure and better paying jobs which translates to better income and better economic status, hence less vulnerable to food insecurity. Likewise, households with more members who are employed and fewer dependents tend to be less vulnerable to poverty and food insecurity.

Poor urban households usually lack adaptive capacity and hence more susceptible to shock of any form, which may range from food price shock (e.g. sudden increase in food price), food supply shock (e.g. severe food shortage) and weather related shocks (any effects from drought, storms etc.) (Armar-klemesu & Ahiadeke, 2000; Carrão *et al.*, 2016; WFP, 2016a). Existing studies show that drought is linked to food security through food production (to ensure food availability) and food prices (to ensure access to available food). Several studies show that drought impacts agriculture, resulting to decline in crop yield. A shortfall in crop yield increases the demand for food and triggers increase in food prices (Salazar-espinoza, *et al.*, 2015; Gautier *et al.*, 2017).

The 2015/16 drought resulted to an estimated crop loss of 75 percent, which triggered steep increase in food price in Angola, leaving 1.4 million of the total population food insecure (FEWSNET, 2017). The same drought (2015/16) left a trail of destruction of farmlands in Somalia, which resulted to a significant decline in crop yield, a steep increase in food prices, and increased level of food insecurity. Over 6 million people (50% of population) were in urgent need for food aid, and the number of malnourished children increased by 24 percent (FEWSNET, 2017). The same was observed in Kenya

where decline in crop yield led to an increase in the number of the food insecure from 1.3 to 2.2 million during the drought period. In addition, steep increase in food prices was witnessed, which restricted access to food for most poor households.

The same drought resulted in a steep increase in maize price (approximately 100%) in Mozambique, pushing a million people to food insecurity. Malawi recorded 15 percent decline in maize production due to erratic weather conditions. Over 0.86 million hectares of crop land were affected by drought, which led to food price increase in the country. High prices weakens the purchasing power of vulnerable households, severely restricting food access in most countries of the South (FSIN, 2017). Zimbabwe experienced 27 percent decline in maize yield, which resulted to 38 percent increase in maize price, exposing over 4 million people (42 percent of the population) to food insecurity (FEWSNET, 2016c). Lesotho was also hit hard by the 2015/16 drought which left over 510,000 people (36% of the population) food insecurity. Steep increase in food prices (e.g. 25% increases in maize meal) left poor households struggling to access adequate food in the same country. South Africa experienced a 49 percent decrease in maize yield, which led to a 104 percent increase in maize price, leading to high maize meal prices (e.g. 2.5kg maize meal price increased by 65.8%) (PPME, 2016). Swaziland, which imports maize from South Africa, was also affected by the increase in maize price.

As already indicated above, Swaziland, just like the other countries in the South, continues to grapple with increased incidence of food insecurity which is driven by different drivers, the main one being droughts. In the recent drought (2015/2016), the National Disaster Management Agency (NDMA, 2016) and the Swaziland National Vulnerability Assessment Committee (SVAC, 2015) agreed that, of the 1.2 million people, about 308, 059 are presently food insecure and require immediate food assistance. These figures were projected to increase to 414, 834 until the next harvest season 2017 (CFSAM, 2015; SVAC, 2015; NDMA, 2015). About 300,000 people were targeted for assistance because of the drought. Acute malnutrition rates increased by 2.5 per cent from the average of 3 to 5.5 percent [of the population] (ORCS/UNDP, 2016). The ORCS/UNDP reported that the country saw an increase of food insecurity, with many households unable to eat three meals a day (ORCS/UNDP, 2016).

The 2015/16 drought in Swaziland and in the global South, in general, intensified the food insecurity problem and exposed the fragility of food supply lines in cities in several countries. Empirical studies by Ziervogel and Frayne (2011), Manyatsi *et al.* (2012) and Burton *et al.* (2013) have highlighted the extreme weather events and food security nexus. Although the connection between drought and urban food security has not been explored in any detail, Ziervogel and Frayne (2011) have theorized about the possible pathways through which extreme weather events (such as drought) can impact the urban food system. They have, therefore, provided a framework for understanding the possible connection between drought and urban food security.

In their paper on food security and climate change in South African cities, Ziervogel and Frayne (2011) argue that climate change and related climatic extremes such as drought can impact urban food security indirectly through rural food production since the food consumed in cities is grown and transported from rural areas. They contend that if rural food production is impacted by drought, for example, there will be less food to the city. This argument seems to tally with Burton *et al.* (2013) who also contend that urban food supply (and security) will be affected if food grown outside the city is compromised by extreme weather events such as drought. This alludes to the idea of food sources and supply lines – a concept that Battersby has discussed in her paper: *Urban Food Security and Climate Change: A system of Flows*.

Battersby (2010) argues that urban food security does not exist in isolation, but is connected to a series of resource flows (food sources) which have their own vulnerabilities (and resiliencies) to climate shocks. In her proposed model, she advances the concept of redundancies, which promotes the use of multiple food sources which can be impacted differently by climate change. She asserts that it's possible for supply lines to be disrupted and claims that if a supply line from one source has been disrupted (broken), food can still reach the city through the other undisrupted supply lines, but the quantity may be affected. This study uses the concept of urban food sources to try to understand how drought affects urban food security and does that through looking at drought and food production (mainly rural food production), food price and how this constellation compromises access to food in the urban environment.

One way by which rural agricultural food sources are negatively impacted by drought is the reduction in food production due to changes in agro-ecological conditions, which further influence the quantity and quality of food yields (Ziervogel & Frayne, 2011; Burton *et al.*, 2013; Manyatsi *et al.*, 2012; Oseni & Masarirambi, 2011). This food deficit of the rural areas also filters into the urban environment since the urbanites consume most of the food produced in the rural areas (Holdaway, 2015; Vorley & Lançon, 2016) and transported to the city through the tradition of food sharing that is underpinned by migration. The importance of this food sharing strategy (rural-urban food transfers) in a traditional and highly mobile society such as Swaziland cannot be overemphasized and the exploration of its connection with drought becomes crucial.

While rural areas have remained the major locus of food insecurity in sub-Saharan Africa well into the 21st century, the rate at which this is shifting to urban areas requires much greater policy attention and necessitates proactive strategies that can lead to the amelioration of food insecurity, or at least reduction of the number of the food insecure in the urban environment. There is growing consensus coupled with compelling evidence that in sub-Saharan Africa, food security is endemic and is increasingly recognized as a major problem facing the urban population (See Caesar *et al.*, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015; Tawodzera *et al.*, 2016).

Recent urban food security studies conducted in 11 cities of the global South (Blantyre, Cape Town, Gaborone, Harare, Johannesburg, Lusaka, Maputo, Manzini, Maseru, Masunduzi and Windhoek) under the African Food Security Urban Network (AFSUN) unanimously portray high levels of food insecurity in South African cities (See Tevera & Simelane, 2014; Tevera *et al.*, 2012; Tawodzera *et al.*, 2012; Ziervogel & Frayne, 2011; Crush & Frayne, 2010; Battersby, 2010; Frayne *et al.*, 2009). This signals a paradigm shift in the food security discourse and counteracts the long-held perception of food insecurity being perceived as a predominantly rural problem, which has not only given rise to a pool of rural-biased food security research but also food security related policies and interventions which also demonstrate strong rural bias.

Among the factors frequently cited for the soaring levels of household food insecurity in southern African cities are: rising levels of poverty, high incidence of HIV and AIDS,

increase in global food price and climate change, among others (Crush *et al.*, 2011; Tevera & Simelane, 2014). Climate change, as confirmed by global scientific consensus, affects agricultural productivity (Lal, 2013; Palm *et al.*, 2010; Parry *et al.*, 2004; Wesche & Chan, 2010) and leads to more extreme weather events such as drought and floods which exacerbate the food insecurity problem in most countries in Africa. Reduced yields, due to drought, put pressure on grain reserves and lead to increased food imports and increased need for food aid. Increase in food scarcity and food imports often leads to increase in food prices, which makes food less affordable and inaccessible, particularly for the urban poor.

Access to food in urban areas is the most crucial food security component, and many studies underscore the importance of a stable and adequate income in ensuring access to food in the urban environment (See Tevera & Simelane, 2014; Burton *et al.*, 2013; Crush & Frayne, 2011). Increase in food prices, therefore has a real income effect in urban areas and compromises the food security situation of the poor urban dwellers due to their reliance on cash to secure food, as Burton (2013:15) rightly observed that these people have “arguably not only become increasingly disconnected from the origins of food, but are also reliant on an increasingly globalized economy of monetary exchange to access food.” Ziervogel & Frayne (2011) assert that high food prices in urban areas make certain foods unaffordable, which may in turn affect individual nutrition and health. This assertion is confirmed by von Braun (2007) who also observed that higher food prices cause the poor to shift to even less-balanced diets, with adverse impacts on health in the short and long run.

Food security has been sufficiently defined. The most frequently cited and generally acceptable definition of food security is the one crafted by the World Bank, “access by all people at all times to sufficient food for an active, healthy life” (World Bank, 1986:1). This definition has evolved and undergone modification and has given rise to different definitions the concept. For example, food security according to (FAO, 2009:8) is achieved “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. The International Food Policy Research Institute (IFPRI), on the other hand, defines food security as “a world where every person has access to

sufficient food to sustain a healthy and productive life, where malnutrition is absent, and where food originates from efficient, effective, and low-cost food systems that are compatible with sustainable use of natural resources” (International Food Policy Research Institute, “2020 Vision”).

Although over 200 definitions of food security exist (Falcon *et al.*, 2004), four key elements of a useful operational conception of food security can be discernable from these definitions. What can be deduced from the definitions is that food security, generally, extends beyond food availability (which is largely met through production) to include the issue of access (which is linked to the purchasing power of individuals), utilization and stability of supply. Scholars acknowledge that food security is a complex phenomenon with different dimensions (availability, access, utilization and stability) which contribute differently to the food security problem; however, recent work on the multi-factorial nature of this concept has provided a wealth of new insights into our understanding of the complexity of the food security problem.

As a multi-faceted challenge involving much more than just food availability, food security transcends to touch on economic issues, such as the purchasing power of individuals, which is a prerequisite to access to food, particularly in the urban environment. Food availability among the poor does not necessarily guarantee access. Food can be available in greater quantities but highly inaccessible for poor urban dwellers due to high food prices, hence affordability is also key to access to food. Burton (2013:ii), for example, observes that, “despite producing enough food than can be consumed..., certain groups in cities are finding it increasingly difficult to access nutritious and healthy food at affordable prices”.

The same view is reverberated by Crush and Frayne (2011: 528), alluding to the role food prices play on access in urban Africa who also note that in contemporary Africa, “the supermarkets are busting with fresh and processed food stuffs while on their doorsteps poor households struggle to access enough staples to feed themselves more than once a day”. This means that any increase in food prices also increases the probability of certain groups in cities to go without sufficient food to meet their food preferences and dietary requirements, thus increasing their exposure and vulnerability

to food insecurity. The most important food security dimension in urban areas is that of access to food, rather than availability of food. Adair (2015) actually maintains that food security is not an issue of availability in urban areas but rather an issue of access to the available food. He argues that with the improvement in farming technology, there is more than enough food and notes that in urban areas, many people lack accessible food sources. This view also finds support from other food security scholars, the likes of Crush (2012), Pendleton *et al.* (2012), Tevera and Simelane (2014) and Frayne and Pendleton (2015) who further emphasize the importance of a stable source of income to access food in the urban environment.

Although food security has always been in the heart of development agendas for most countries, and has been enshrined in the 2030 Agenda for Sustainable Development (Conceição *et al.*, 2016), achieving it in its totality still remains a greater challenge. The new driving forces of food insecurity, particularly climate change, act as an additional stressor on the already compromised food status, highlighting the nexus between food security and climate extremes - the main source of major disruptions to urban food supplies. Suffice to say, the rapid pace of climate induced drought and the anticipated negative effects on food security suggests a broader and pressing need for adaptation to help build resilience in the urban food systems and reduce people's vulnerability to the emerging trends and future projected changes in climate. This raises the issue of urban resilience, a principle which focuses on reducing risk and vulnerability, calling for attention and support to multiple food sourcing strategies (Battersby, 2010; White & Hamm, 2014). Among the ways in which urban households increase their resilience to shocks (such as drought) is the practice of urban agriculture which helps in improving access to food even during food price shocks.

Like many cities in sub-Saharan Africa, the City of Manzini in Swaziland is experiencing a growing inflow of population in search for better education, employment opportunities and better socio-economic opportunities, partly due to persistent crop failure induced by drought (FAO, 2018a). According to the Central Statistics Office (CSO), the urban population of Manzini grew from 46, 058 in 1997 to 78, 058 in 2007. Currently, Manzini has a population of 110, 537. For many of these urban dwellers, living in the city is a temporary arrangement, evidenced by the growing patterns of

what is referred to in the urban and peri-urban areas as ‘train<sup>2</sup>’ accommodation. These are high density accommodations which attract most rural migrants since they offer low rent which is usually within the income bracket of most poor urban households. They are found towards the city boundary and are highly accessible.

The purpose, therefore, of this study is to examine how the cocktail of drought and poverty has influenced the food security (or insecurity) of urban dwellers while influencing their strategies on urban resilience in urban Swaziland. The study contributes to the urban food security debate in Swaziland by exploring the connection between food security and drought in the urban environment and the coping strategies employed by the urban poor to ensure food security in the context of recurrent drought in Swaziland. This study builds on a growing body of literature on food security in Swaziland (Mamba & Peter, 2016; Mamba *et al.*, 2015; Tevera *et al.*, 2012; Manyatsi *et al.*, 2010; Masuku & Sithole, 2009; Mkhabela *et al.*, 2005) to examine the effects of drought on urban food security in the Kingdom of Swaziland.

### 1.3 Problem statement

Drought has become a serious hydrological disaster which is well recognized by scholars to have resulted in a sudden decline in food production in the Kingdom of Swaziland, consequently compromising, to a larger extent, the food security situation of thousands of households in the country (Manyatsi & Mhazo, 2014; SVAC, 2016; UN, 2017). Drought has become a common and quite recurrent natural disaster, with the most severe ones experienced in 1983, 1992, 2001, 2007, 2008, and most recently, 2015. The effects of drought on Swaziland’s agricultural system, particularly with regards to food production, cannot be overemphasized.

Drought has not only resulted in an incredible decline in food production (due to crop failure) but has also caused death of countless number of livestock (a major economic asset), pushing thousands of Swazis over the cliff of hunger. In 2007, close to 50 percent of the population of the Kingdom needed food aid due to crop failure (Manyatsi

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<sup>2</sup> These are one-room buildings usually very long because they are attached to each other. They characterize most shanty towns in Swaziland and are occupied by poor urban dweller due to low rents.



& Mhazo, 2014; Manyatsi *et al.*, 2012). The 2015/16 drought, on which this study focuses, left over 55 percent of the Swazi population in food crisis, following drought-induced crop failure (over 60% decline in maize yield) leading to increase (over 50%) in maize price. This resulted in high food expenditure (most households spending 75% of their income on food)(FSIN, 2017). This shows the magnitude and severity of the drought problem in the Kingdom of Swaziland.

Several studies focusing on the effects of drought on food production in Swaziland have been conducted (Manyatsi *et al.*, 2010; Oseni & Masarirambi, 2011; SVAC, 2016; UN, 2017). These studies have helped to facilitate and enhance our understanding of the connection between drought and rural food production. Among the things brought to our attention by these scholars is that due to the impacted agriculturally based economy, Swaziland has fared worse in food security over the past decade, owing to the past drought events. Food security discourse on Swaziland also reveals that drought contributes, to no lesser extent, to high incidence of food insecurity of the rural population through reduced crop yields and high food prices (Manyatsi & Mhaza, 2014; MoA, 2016). While drought is held responsible for widespread crop failure, food shortage and ultimately food security in rural Swaziland, we don't know how the urban population is affected by drought in the Kingdom. There is a gap in literature on the effects of drought on the food security of urban households which are likely to be affected by rural drought conditions. The rising levels of urban poverty and food insecurity in urban Swaziland (which seems to keep pace with rural food insecurity) necessitates an investigation of possible connections between drought and urban food security in the Kingdom. The fact that urban food insecurity is on the rise in the country (Tevera *et al.*, 2012; Frayne *et al.*, 2010) necessitates an investigation of other possible factors that may contribute to this rise.

Given the extensive impacts of the 2015/16 drought on rural livelihoods, and the rural-biased assesment of drought effects on food security in the country, this inquiry becomes crucial. This study will contribute to the food security debate and add to the existing urban food security literature in the country hence help widen our understanding of urban food dynamics, particularly in a drought context. While efforts to capture impacts of drought on food production, hence availability, has been made in

Swaziland, nonetheless, the impacts of drought on access to food require to be addressed further and much of the evidence is qualitative if not anecdotal. Information deficit, therefore, exists on the connection between drought and urban food security which remains a conjecture and very ambiguous. Therefore, our understanding of how drought influences the food (in)security of the urban population in Africa and in the global South, in particular, is still plagued by lack of high quality and reliable data.

The argument raised by the study is that as the tide of migration to urban areas of Swaziland grows, the implications for food security of urban dwellers in the context of the present drought becomes precarious, calling for them to adopt several food security strategies and an urban resilience in the face of compounding factors such as drought. Using the drought-food security lens, the study aims to contribute to the emerging urban food security discourse by exploring the possible connection between drought and urban food security among poor urban households in Manzini, to provide illumination on the possible link between the two with regards to access to food, food dynamics and food sourcing strategies and how the poor remain resilient in the face of drought in the urban context.

#### **1.4 Research aim and objectives**

The aim of the study is to explore the effects of drought on food security in low income areas of Manzini.

The specific objectives of the study are to:

- Examine the effects of drought on food access in low income urban household in Manzini.
- Determine the levels of food insecurity among low income urban households in Manzini.
- Investigate the contribution of urban agriculture towards food security in Manzini.
- Examine the dynamics of food transfers between rural and urban households with a view to establishing if there is a connection with drought.

## 1.5 Research questions

The study addresses the following questions:

- What are the effects of drought on food access in low income urban households in Manzini?
- What is the level of food insecurity in low income areas in Manzini?
- What is the role played by urban agriculture as a response strategy to drought induced food insecurity among low income urban households in Manzini?
- What are the dynamics of food transfers between rural and urban households and how do these relate to urban food insecurity?

## 1.6 Rationale

The current literature on the impacts of extreme weather events such as drought on food security in Swaziland focuses on rural areas, with a focus on food production (see Oseni & Masarirambi, 2011; Manyatsi *et al.*, 2012; Mashinini *et al.*, 2011; Dlamini & Masuku, 2011). Little attention is paid on household food security in the urban environment, even much less is known about how urban households are affected by drought in Swaziland. There is, therefore, a gap in literature on the effects of the 2015/16 drought on urban household food security in Swaziland. Findings from this study will help pluck this existing information gap by exploring the connection between the two and thereby providing an understanding regarding the nexus between drought and urban food insecurity challenges in Swaziland.

## 1.7 Outline of thesis

Chapter one locates the research in its scholarly context by presenting a contextual background to the research, and consequently providing an insight into the main research theme. The chapter further articulates the thesis problem, the aim and the objectives of the study, and concludes by outlining the thematic structure and arguments of the research.

Chapter two provides an insight into the study and discusses relevant and contemporary scholarly literature that focuses on drought, food security and urban resilience. It is concerned also with the actual and anticipated impacts of drought on food security in urban areas.

Chapter three presents the framework for interrogating the connection between drought and food security in the urban context, to help in understanding how food security drivers are directly or indirectly impacted by climate-induced extreme weather events, the resulting impacts and how this influences food security in urban spaces.

Chapter four provides a detailed discussion of the study site in order to give a socio-cultural and economic context of the study area, and hence justify its appropriateness as a case study site.

Chapter five provides and explains the methodological approach used to investigate urban household food security in kaKhoza, Manzini. It discusses the research design used – a mixed method approach – combining both the qualitative and quantitative methodologies. This chapter also explains the tools and methods of the data-collection process and summarizes the indicators which were used for data analysis.

Chapter six – the results chapter, sets out to achieve a two-fold objective. First, is to examine the effects of drought on access to food in low income urban households in Manzini, and secondly, to analyze the dynamics of food transfers between rural and urban households in Swaziland with a view to establish if there is any connection with drought. To achieve this objective, both primary and secondary data were utilized. While primary data served to capture the drought experiences of the low income urban households in the study area, secondary data, on the other hand, was utilized to demonstrate how drought influences crop yield in Swaziland and how it contributes to increasing food prices in the Kingdom. The use of secondary data did not only help to highlight the inextricable link between drought and food security in Swaziland in general, but also helped us understand how drought can extend its influence to the urban environment and how its encroachment influences the livelihood and food security of the poor urban dwellers and how it can restrict their access to food in the urban setting.

Chapter seven also presents the findings of the study, but mainly focuses on the status of food security at kaKhoza. It assesses the extent to which drought contributes to the food insecurity of poor urban households at kaKhoza in Manzini. It further

demonstrates how these vulnerable urban households construct their livelihoods through the trying times of drought-induced food price hike as a means to remain resilient in the context of the persistent drought in the Kingdom of Swaziland.

Chapter eight synthesizes the research findings in order to provide a synopsis of the research's contribution to the urban food security discourse.



## CHAPTER 2: LITERATURE REVIEW ON DROUGHT AND FOOD SECURITY

### 2.1 Introduction

This chapter sketches an orientation of the kinds of academic debates on food security and drought by focusing on the issues surrounding food security and its drivers and how this is linked to poverty and urban food security and drought. By interrogating the relationship between poverty, drought and food security, this chapter aims to provide a theoretical framework for understanding the relationship between drought and food security in the urban context. Through the food security lens, the chapter further provides a theoretical foundation for understanding the dynamics of food flows and how the urban poor construct their livelihoods and remain resilient under urban food insecurity pressures.

### 2.2 Trends in food security studies

Food security is not a new concept but one that has been there in the time past. Its origin can be traced back to the 1970s, however, the seriousness of the issue of food security can be traced from the World Food Summit (WFS) in 1996 where governments committed themselves to halve the number of hungry people by the year 2015 (hence the development of MDG (1)). Since then, food security entered the lexicon of many countries and has remained an integral part of national development policy discourse in most states in both the global North and global South, Swaziland included. Food security has been broadly defined by the Food and Agriculture Organization as a state 'when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (FAO, 2008b:3). This definition continues to evolve and to undergo some modification from different scholars, giving rise to different definitions. Jonsson and Toole (1991), for instance, regard a household to be food secure when that household is able to access adequate quantity of food with the necessary quality to fulfill all nutritional requirements for all household members throughout the year. Staaz (1990), on the other hand, perceive a household to be food insecure when it lacks the ability to assure, on a long-term basis, that the food system provides the total population access to a timely, reliable and nutritionally adequate supply of food.

Oshaug (1985) and Eide *et al.* (1985) regard any household to be food secure if that household has access to a basket of food that is not only nutritionally adequate, but also culturally acceptable, and must be procured in keeping with human dignity and endure over time. Even more interesting and quite comprehensive is the definition by the International Food Policy Research Institute (IFPRI) in its “2020 Vision” which, according to them, food security will have been achieved as soon as there is “a world where every person has access to sufficient food to sustain a healthy and productive life, where malnutrition is absent, and where food originates from efficient, effective, and low-cost food systems that are compatible with sustainable use of natural resources” (IFPRI, “2020 Vision”). The different definitions of the food security concept (and the diversity they display) do not only capture the authors’ perception of the concept, but also reflect, as Maxwell (1996) has also observed, the nature of the food security problem and further alludes to its complexity.

An analysis of the different food security definitions and how they have changed overtime, speaks to the evolution of the food security concept since its full conceptualization, at least, in the World Food Summit in 1996. In the early 1970s, food security was solely about ensuring adequate availability of food until the mid-1970s where FAO in its coined definition included the aspect of access (Pinstrup-andersen, 2009). However, the emphasis on production still persisted and its trace can still be seen in contemporary research. This gave an impression that food security is a function of increased food productivity to ensure that adequate food is available. In fact, Allen (1999) notes that in the World Food Conference in 1974, the dominant theme was food security. However, the emphasis was on the ability of each country to produce enough food to feed its population. Such perception is reflected in earlier food security studies, which made a greater emphasis on food availability, hence the emphasis on food production.

The modification of the definition of food security to involve issues of access to food came with a paradigm shift in the food security discussion. Scholars began to recognize that food availability alone is inadequate, but an element of access to the available food is essential. This brought up heated debates on whether food availability or access is important for households to improve their food security situations. While some scholars

advocated for improving availability of food as the best strategy to improve food security in countries of the global South, others argued that access to food is an important component for a household to achieve food security. Proponents of access contended that food may be available in larger quantities but highly inaccessible (Crush & Frayne, 2011; Pendleton *et al.*, 2012). To them, access to food remains key in improving household food security because available food is of little or no use if that food is inaccessible. To substantiate this argument, Crush and Frayne (2011) state that supermarkets in cities are bursting with a variety of food stuffs (food availability) but some people die of hunger just in the door steps (since they can't access the available food due to lack of purchasing power).

This school of thought, therefore, is based on the premises that food availability does not automatically translate to access to it, hence food availability does not necessarily guarantee access. This debate triggered interests among scholars and more studies began to explore the role of access to food as a means to improve food security and this gave birth to the concept of urban food security, which emphasizes on the concept of access to food. Urban food security scholars agree that at least in the urban context, food insecurity is more an issue of access rather than availability (Frayne & Pendleton, 2015). What still seems to be an unresolved debate, however, is whether this view holds for rural food security. Garrett and Ruel (1999) in their article "*Are determinants of rural and urban food security and nutritional status different?*" tried to make a point of clarification in an attempt to contribute to ending that debate.

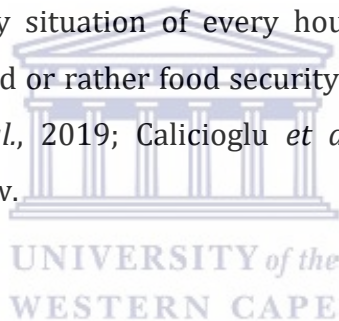
The next and probable latest debate in food security literature is with regards to utilization and nutritional content of available food. The bone of contention here is that food may be available in larger quantities and equally accessible, but nutritionally inadequate (Hwalla *et al.*, 2016). Scholars have argued that food security cannot be achieved if the available food is not properly utilized and that it is only when it has been utilized properly that a healthy and productive life can result. Again, this gave a different direction to the food security debate. As such, contemporary food security discourse is characterized by the emphasis on nutrition; hence the latest definition of food security spells out that the food must not just be available in sufficient quantities but must also be nutritionally adequate. This most recent shift has given rise to ample



literature exploring nutritional and dietary issues in the food security discussion (See Garrett & Ruel; 1999; Nugent & Egal, 2000; Mohiddin *et al.*, 2012; McGill, 2013; Rezai *et al.*, 2016). Gottlieb and Fisher (1996) add that the food security discourse, of late, take into account issues of income, food prices and access to adequate food sources, as well as access to culturally acceptable food choices, in addition to nutritional issues. This does not only show the dynamism in the concept but also alludes to its complexity.

### **2.2.1 Food security dimensions**

In any given context, food security concerns may be due to either inadequate physical availability of food supplies, poor access to food among a specific segment of the population, or inadequate utilization of the available food (FAO *et al.*, 2018). As such, four dimensions of food security have been identified for consideration in the measurement of food security: availability, access, utilization and stability (FAO, 2008a; Broca, 2002). All the four food security dimensions are important in the measure and determination of food security situation of every household since each measures a certain important aspect of food or rather food security and they are still considered in recent studies (see: Roy *et al.*, 2019; Calicioglu *et al.*, 2019). These food security dimensions are discussed below.



#### **2.2.1.1 Food availability**

Food availability is concerned with a consistent supply of sufficient quantities of food for all individuals in a given country. This food security dimension places greater emphasis on domestic food production (mainly in countries of the global South) but is also a function of a country's ability to import food and access food aid (Riely *et al.*, 1999). Turner (2009), therefore, cautions against the erroneous assumption that food security is a function of adequate food production; hence food security cannot be addressed solely by improving the quantity of produced food. It should be noted, however, that improving food production is in the forefront in improving food security and its contribution is undisputable and cannot be underestimated nor can it be ignored.

Zhou *et al.* (2010) note that it is mainly through this means that food insecurity (and poverty) is linked to low agricultural productivity, which is aggravated by extreme

weather events (like drought) and climate variability. Availability of food is, therefore, greatly affected by variation in climate, which inevitably leads to seasonal variation in supply (FAO, 2016c). The Lesotho Vulnerability Assessment Committee (LVAC) (2016), for example, records a regional decline in maize production in southern Africa following the recent El Nino event which left the region with a maize deficit of 7.9 million tons. This variation or decline in supplies and food stocks also affects urban food supply and compromises access to food in urban areas in southern Africa (See: ZimVAC, 2015; BVAC, 2016; LVAC, 2016; MozVAC, 2016; MVAC, 2016; NVAC, 2016; SVAC, 2016; USAID, 2016).

Availability of food in urban areas is said to be enhanced by the practice of urban agriculture, even though its practice and contribution is not yet recognized in most cities of the global South (See: Frayne *et al.*, 2010; Burton *et al.*, 2013; RUAf, 2014). Jatta (2013) notes that urban agriculture provides a source of income, enhances availability of highly nutritious diets, and increases the stability of household food consumption against seasonality or other temporary shortages. According to Fan and Brzeska (2014), food availability is destabilized by price spike and volatility. They recommend that there is need to take food prices into consideration when addressing issues of food availability and access, particularly in urban areas.

#### **2.2.1.2 Food access**

Jatta (2013:6) notes that the major cause of malnourishment is not lack of food but lack of access to the already available food. Access to food is concerned with the ability to obtain enough food, and emphasizes on income as a means to ensure access to food (ADB, 2013). Access to food is based on the ability to procure food and is closely linked to food availability (Thompson *et al.*, 2010). Income (purchasing power) is the major determinant to food access, particularly in the urban areas and high food prices limit access to food (FAO, 2008a; Riely *et al.*, 1999; RUAf, 2014, 2017). As documented in the FAO report, the variation in climate and increase in extreme weather events (such as drought) expose poor urbanites more to volatile food prices and consequently food insecurity due to the restricted access to food (FAO, 2008b). Africa remains highly vulnerable to price volatility since access to food, as noted by Aragrande and Argenti (2001), is compromised by high poverty levels. Access to food is, therefore, a crucial

component of food security since food may be available in greater quantities but inaccessible (ADB, 2013; Burton *et al.*, 2013; Crush & Frayne, 2011), thus the role of income and food price to ensure access to food can never be over emphasized.

### **2.2.1.3 Food utilization**

Food utilization is concerned with the proper biological use of food and how one is able to secure essential nutrients from any food consumed (FAO, 2008a). In more general terms, food utilization focuses on the capacity of a household (or individual) to consume and benefit from food (Ericksen, 2008). Poor food utilization is held accountable for the observed food insecurity in southern Africa (FSIN, 2017). Food utilization is, therefore, an essential dimension of food security (Kalibwani, 2005) and hence regarded by Zezza and Tasciotti (2010) as a product of the food access, availability and stability dimensions of food security. Food utilization is usually the most compromised food security dimension when households lack access to adequate food. Meerman and Aphane (2012:8) note, for instance, that, “poor urbanites’ most immediate reaction to an increase in the price of food will be a decrease in dietary quality, followed by a decrease in quantity if necessary”.

This is also echoed by Warren and Frongillo (2017) who note that poor households may simply be unable to afford nutritionally rich foods due to prices and issues of affordability, resulting to reliance on a lean diet. The same view is held by Dixon *et al.* (2007) who observed that in urban areas, food is usually available but a nutritionally adequate diet is too costly for at least one third of households. This then forces majority of households in urban areas to resort to less nutritious food. According to Maxwell (1995), inadequate nutrition directly contributes to multiple health problems to the urbanites and reduces their capabilities to move out of poverty. Frayne and Pendleton (2015) add that changing dietary patterns and the availability of cheap food that is low in nutritional value, but high in fat are leading to a nutritional crisis where obesity and malnutrition simultaneously threaten large proportion of people and further stress public health systems in countries of the global South.

#### **2.2.1.4 Food stability**

While food availability is important, stability of food supply, which involves continuity in the urban food supply and access to food, is also crucial although it remains largely ignored by most food security scholars. Food stability touches on both availability and access to food and is mainly concerned about the temporal availability of and access to available food in any given household. Although food may be available in greater quantities and be largely accessible to the majority of the population in a certain season, it will lead to seasonal food insecurity if such supply may be terminated in a particular season due to instability in supply. Garcia and Rosenberg (2015) observe that changing climatic conditions may lead to a period of qualitative and quantitative instability in supplies. Likewise, greater variability in weather (changing weather patterns) may lead to instability in food supply through irregular crop yield. Schmidhuber and Tubiello (2007) also add that loss (temporal or permanent) of resources needed to access adequate food and respond to income shock increases an individual's exposure to instability of food supply.

It should suffice to conclude that all these food security components or dimensions are important in the measure and determination of household food security, without any one of them claiming superiority over the other. Food cannot be accessible unless it is available. Likewise, food may be available in greater quantities, but may not be accessible to a certain population segment; hence food availability does not always guarantee access. Moreover, the available and accessible food will also need to be nutritionally adequate for a healthy and productive life; hence the issue of food utilization is also crucial.

#### **2.2.2 Food security indicators**

Food security is a complex and multidimensional phenomenon, which varies considerably in different contexts. As such, food security cannot be effectively measured or captured using a single indicator. Various indicators have been identified for consideration in the measure of food security in any given context. In most analyses of food security conditions in countries of the global South, scholars have used multiple indicators to reflect the various dimensions of the food security problem. Some of the most commonly used types of indicators in the assessment of food security conditions

include those related to: food production, income, total expenditure, and food expenditure, share of expenditure on food, calorie consumption and nutritional status (Riely *et al.*, 1999).

The commonly used food security indicators (which have also been used in various urban food security studies) to measure urban food security include: the Household Food Insecurity Access Scale (HFIAS), Household Food Insecurity Access Prevalence Indicator (HFIAP), Household Dietary Diversity Scale (HDDS) and the Months of Adequate Household Provisioning Indicator (MAHFP) (See: Acquah *et al.* 2014; Tevera *et al.*, 2012; Battersby, 2011; Crush & Frayne, 2010; Crush *et al.*, 2010). Each of these indicators is important in capturing a certain dimension of food security for the detailed description and understanding of the food security challenge. The HFIAS is a measure of a household's food security and is based on the household's perception of its level of food security situation (Hall, 2014). Participants give usual responses to nine 'frequency-of-occurrence' questions that would help to give the household's food insecurity situation. This indicator helps to determine the prevalence of varying levels of food insecurity in each visited household (Kimani-Murage *et al.*, 2014).

The HFIAP categorizes households into four levels of food insecurity: food secure and mild food insecure, moderately food insecure and severely food insecure. Households are categorized as increasingly food insecure as they respond affirmatively to more severe conditions and/or experience those conditions more frequently (Tevera *et al.*, 2012). It uses the responses to the HFIAS questions (Caesar *et al.*, 2013). On the other hand, months of adequate household food provisioning (MAHFP) captures changes in the household's ability to ensure availability of adequate food throughout the year (Bilinsky & Swindale, 2007). It measures the number of months per year in which household are adequately provisioned with food. The last one is the HDDS, which is an indicator of both quality and quantity of food (Leroy *et al.*, 2015). It captures the number of food groups consumed within a household in the previous 24 hours. This type of measure uses 12 different food groups from which the household is expected to consume. A household is said to have improved access to food if it shows an increase in the average number of different food it consumes (Swindale & Bilinsky, 2006).

### 2.3 Urban food security in the global South

Achieving food security continues to be a major challenge of the 21st century for most countries of the global South, regardless of the efforts made to increase food production in most of these countries. This seems to be consistent with the debate among food security scholars on whether increasing food production is a solution to food insecurity in countries of the South. With the current improvements and agricultural innovation in the world, increase in agricultural output and crop yields has been realized; however, levels of food insecurity continue to show an upward trend in most countries in the region. In line with this observation, the World Bank also argues that the world has ample food due to fast food production (which is faster than population growth), yet hundreds of millions of the poor in the global South still face severe food insecurity. According to World Bank, this is not because of lack of food, but rather lack of purchasing power (which can enable them to share, through food imports, from abundance of food produced from other countries)(World Bank, 1986). World Bank, therefore, alludes to the importance of access as an important food security dimension.

It is currently estimated that one in three persons, globally, suffers from at least one form of malnutrition – micronutrient deficiency or under nutrition (IFPRI, 2018). According to the 2015 estimates of the UN, nearly 780 million people in the global South lack sufficient food to live active and healthy lives. Meeting the World Food Summit target of reducing the number of people who are undernourished has not been possible for most countries in sub-Saharan Africa (SSA). It has not been possible also for the Kingdom of Swaziland, which is still struggling to reduce the number of the food insecure.

The Regional Overview of Food Insecurity in Africa report states that since 1990-92, approximately 42 million people were added to the total number of undernourished people in SSA, with an estimated 217.8 million in 2014-16 compared to 176 million in 1990-92 (FAO, 2015). The report further states that at least 840 million people (20%) in countries of the South suffer from chronic undernourishment. Although hunger rates are reported to have fallen in most countries in the global South, the number of people who are undernourished continues to increase. While some regions in the South (e.g. Northern Africa) are much closer to eradicating severe food insecurity, for other regions

such as the Caribbean, Southern Asia, Oceania, and sub-Saharan Africa, this continues to be a struggle, following the slow pace to achieve this target. Southern Asia alone is home to 281 million undernourished people (UN, 2015:21).

The factors that account for the rise in the number of undernourished and food insecure people are wide and varied, and hence differ by region. There is a general consensus that food insecurity in most regions is hampered by natural disasters such as drought, which often result in volatile prices and unpredictable changes in availability of staple foods. The 2015/16 El Nino-induced drought, and incredible food price hike experienced by Swaziland are held responsible for the current food insecurity situation that the country is still struggling to extricate itself from (SVAC, 2016; WFP, 2017; SADC Food Security Quaterly Update, 2017). The same is true with other countries such as Botswana, Namibia, Tanzania, Zimbabwe, Angola and Lesotho where climate extremes, particularly prolonged periods with little or no rainfall (drought), are recorded to have compromised the food security situation in these countries in 2015 (See SADC Regional Vulnerability Assessment & Analysis Sythesis Report, 2015).

According to the SADC Regional Vulnerability Assessment Analysis Report, drought and high food prices fuel stunted growth among children and increase their vulnerability to hunger and food insecurity. With such a high number of stunted children and undernourished individuals, it goes without saying that SSA (compared to other regions) remains highly vulnerable to drought and food price hike, which threaten the already compromised food security in this region. This, therefore, illustrates the severity of the food security challenge that confronts SSA in particular, and the countries of the global South in general. Pointless to say development agents' rural-based interventions have tried to provide food parcels in an attempt to reduce the number of the food insecure in SSA, but to little or no avail as the locus of food insecurity is shifting consistently to urban areas. According to the 2016 report of the Food and Agricultural Organization, for example, "urban areas seem to feel more food insecure than rural areas" (FAO, 2016a:10). This, therefore, alludes to the severity of the food insecurity problem in cities, more so in countries of the global South. In Ethiopia, for example, it was found that as many as 90 percent of the urban population are suffering from hunger (Smith *et al.*, 2006). These rising levels of hunger coincide

with the observed increase in incidence of poverty in the urban environment, which has risen by 50 million (from 242 to 292 million) and a 6 percent increase has been observed in countries of the global South, just in one decade (Alkire *et al.*, 2014; IFPRI, 2017). This highlights the inextricable link between poverty and food insecurity, which has been well captured in several studies (See ADB, 2012; Mozdalifa, 2012).

#### **2.4 Urban food security in southern Africa**

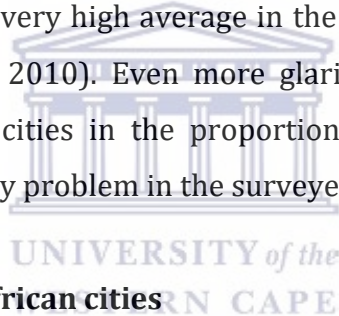
As already noted in previous sections, food insecurity continues to characterize most countries of the global South and is becoming a common feature of most cities in southern Africa. Although, for a very long time, food insecurity has been thought to be a rural problem, studies conducted as part of the AFSUN survey indicate that the food insecure are also found in urban areas, only that food insecurity in these areas has been invisible (Crush & Frayne, 2010). As a result, research on food insecurity in urban areas has been neglected by researchers, development agencies, and governments, as part of a long-standing anti-urban bias (Atkinson, 1995; Ziervogel & Frayne, 2011; Battersby, 2013). Food insecurity interventions have always been directed to rural areas due to the long held perception of food insecurity being viewed as a rural problem. It is due to the neglect of the urban sector that poverty levels and food insecurity trends have been rising unnoticed in the urban areas to such levels that they cannot be ignored. Recently, there is increasing interest on urban food security among scholars and this has led to accumulation of information which clearly describes the severity of the food insecurity problem in urban areas of the global South.

Scholars have, however, been debating and wrestling with the question on whether or not determinants of rural and urban food insecurity are the same. Although this dispute has not been resolved fully, there seems to be a common understanding that the rural framework of tackling food insecurity issues may not be appropriate in dealing with issues of food insecurity in town and cities. A common ground that seems to have been reached by most food security scholars is that the producer-oriented conceptual framework used in rural food security (which has a strong emphasis on producing enough food) may not be appropriate in urban areas (Donald *et al.*, 2010: 172). Rather, urban food security frameworks need to emphasize on consumer since the most critical issue in urban areas is access to food rather than availability. Scholars argue, therefore,



that food insecurity in urban areas cannot be sufficiently addressed without considering issues of access to food, where income plays a major role to determine this access.

Studies conducted in low income households in the peri-urban areas in eleven cities, nine of which are from the SADC countries: Cape Town, Blantyre, Gaborone, Harare, Lusaka, Maputo, Johannesburg, Manzini, Maseru, Msunduzi and Windhoek indicate high levels of food insecurity in cities of the South. These cities were studied as part the AFSUN survey which provided very important baseline data which highlights the seriousness and severity of the food insecurity problem in African cities. Until then, food insecurity has been hardly thought to be an urban problem in Africa and other countries of the global South. Findings from the AFSUN survey reveal high levels of food insecurity in all surveyed townships in the cities, with the exception of two cities: Blantyre and Johannesburg. According to the findings of the survey, levels of food insecurity in all the townships in the eleven cities studied stood at 76 percent (moderately and severely food insecure), which shows a very high average in the number of the food insecure in the region (See Frayne *et al.*, 2010). Even more glaring and quite disturbing is the significant variation between cities in the proportion of the food insecure and the magnitude of the food insecurity problem in the surveyed cities.



## **2.5 Access to food in South African cities**

The importance of access to food in reducing the number of the food insecure in cities can never be overemphasized. The food insecurity challenge in urban areas is primarily an issue of access rather than availability, as most scholars have observed (See: Battersby, 2011b; Battersby, 2012; Burton *et al.*, 2013). Of course, availability of food and stability in its supply is also crucial in ensuring access to food. As such, any seasonal variation in supply of food impacts negatively on food security. The poverty-related lack of access to food in southern Africa and other countries in the global South negatively impacts on the food security status of households. Stability in food supply (availability) and access to available food is crucial; hence it is important to know if a given household has access to food throughout the year. This is commonly done using the MAHFP indicator. The MAHFP indicator shows that food insecure urban households in the SADC region experience an average of four months without adequate food (Frayne *et al.*, 2010) and this varies significantly by city. For example, a majority of

households in low income areas of Harare and Manzini experience five to six months of inadequate food provision (see Tawodzera *et al.*, 2012; Tevera *et al.*, 2012) but in cities like Musunduzi, 19 percent had inadequate food for more than six months a year (Caesar *et al.*, 2013).

The food deficit months are attributed to the agricultural cycle of the rural areas for most cities such as Lusaka, Windhoek, Harare and Manzini where a significant proportion (over 40%) of households rely on these rural-urban food transfers to ensure adequate supply of food for their households (See: Pendleton *et al.*, 2012; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012). Although some variation exists in the level of dependence on rural supplies, and the proportion of households dependent on this source for stability of their urban food supply (e.g. with cities like Manzini, Blantyre and Maseru having a third of their population dependent on rural-urban transfers), the effects of such transfers on the urban food supplies and food security seems to be the same. All these cities, regardless of the level of dependence, tend to have adequate supplies of food in the months coinciding with the harvesting seasons of their rural populations from which they source some of the food they consume, which reflects the degree of dependence on the rural agricultural cycle (Ko *et al.*, 2018). There is a clear pattern in the months where urban households struggle to access adequate food in southern Africa, with the difficult months being June, July, August, September and October in almost all cities of the South (See: Frayne *et al.*, 2010).

Food can be available in large quantities and highly accessible but poorly utilized by households. This is true of most households in southern Africa as reflected in the HDDS of the 11 cities which were part of the AFSUN survey. In the context of southern Africa, the HDDS gives a median value of only five, indicating that people are eating food from five different food groups for insecure households. Frayne *et al.* (2010) note that the HDDS is higher (8) for food secure households, reflecting that the nutritional status of food secure households is much better since they eat eight different food groups. In general, both food secure and food insecure urban households in southern Africa eat a lot of starch staples (96% of the surveyed households), with fewer (less than half) of the sample reported to have eaten animal protein.

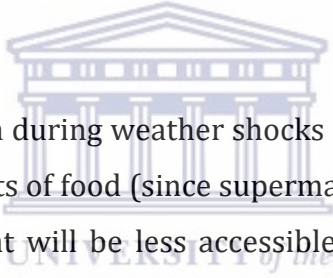
## **2.6 Sources of food for the urban poor**

Urban food sources are a critical factor to food access in the urban environment. These sources, and the accompanying food sourcing strategies, remain crucial determinants of food security in the urban setting since they determine whether or not households have access to food in this complex economy-driven food system of contemporary Africa. Urban food supply system in Southern Africa and in the whole global community is increasingly integrated into the supermarket-driven food supply chains. Income is, therefore, an important determinant of food access in cities around the world and this is no less so in cities of the global South. It is also important to note that although cities do consume food grown locally, most cities in Southern Africa import food from South Africa (Acquah *et al.*, 2014). Sourcing food from distant areas, therefore, has a bearing on the prices of food since the transportation costs are also passed to the consumers (Kherallah *et al.*, 2000; Kalibwani, 2005). Worth noting, therefore, is that locally grown food tends to be cheap, affordable and hence accessible even for the poorest households due to minimal transportation costs. In other words, although food can be imported to supplement domestic supplies, such food imports, though important, become too expensive and inaccessible to the poor and vulnerable urban household. Food purchase is, therefore, important in ensuring access to food in cities where supermarkets are a crucial food source. Supermarkets, however, are not the only food sources utilized by urban households in African cities. There is a wide range of other sources from which urban households in Southern Africa obtain food. These include the informal sector, small food outlets (grocers, corner stores, spazas, restaurants and fast-food outlets), rural-urban transfers, sourcing food from neighbors, to mention but a few. All these sources are crucial for most poor urban households which rely, unequally, on these sources.

### **2.6.1 Supermarkets**

Supermarkets are among the wide variety of sources from which poor urban households in African cities obtain most of their food. This food source is incomparably the most important source of urban food in most cities of the South, as captured in the AFSUN survey (See: Battersby, 2011a; Pendleton *et al.*, 2012; Rudolph *et al.*, 2012; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012; Caesar *et al.*, 2013; Acquah *et al.*, 2013; Mvula & Chiweza, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015). The survey

captures a rising importance of supermarkets as a food source in most cities of the South. Across the region, 79 percent of poor urban households normally source their foodstuff from supermarkets (Frayne *et al.*, 2010). This illustrates not only the importance of this source and the level of reliance on it, but also shows the extent to which the process of 'supermarketisation' has penetrated even the poorer urban communities throughout the region. The utilization of this source of food differs by county; hence a glaring difference is noticeable across the surveyed cities in terms of the level of reliance on this source. While this source is the most important and most utilized in some cities like Windhoek, Gaborone, Msunduzi, Johannesburg, Cape Town, and Manzini where at least 90 percent rely on this source, it is less so in other cities such as Harare (30%), Maputo (23%), and Lusaka (16%) where this food source is less important, hence less utilized (See: Battersby, 2011a; Pendleton *et al.*, 2012; Rudolph *et al.*, 2012; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012; Caesar *et al.*, 2013; Acquah *et al.*, 2013; Mvula & Chiweza, 2013; Mulenga, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015).



It is important to note that even during weather shocks such as droughts, supermarkets shelves can still be full with sorts of food (since supermarkets can also import food), but this will be expensive food that will be less accessible for the poor who usually lack sufficient income. The less reliance on supermarkets (and more on small shops and/or informal sector) tends to be consistent with cities in crisis, such as Harare during the economic meltdown (See Tawodzera, 2010; Tawodzera *et al.*, 2012). To further illustrate this, Tawodzera in their article: *The Returning of Food: Poverty and Urban Food Security in Zimbabwe after the Crisis* notes an increase from 30 percent (2008) to 92 percent (2012) in the patronization of supermarkets, which he attributes to the restocking of the empty shelves in Harare's supermarkets, suggesting 'normalization' of the situation (See Tawodzera *et al.*, 2016). Although supermarkets support a large proportion of the urban poor, very few households (5%) utilize supermarkets for food on a daily basis across the region (Frayne *et al.*, 2010). This is also true of Swaziland where a large proportion (65%) of the surveyed households were found to source their food from supermarkets on a monthly basis, most probably when they get paid at month end (See Tevera *et al.*, 2012).

In an attempt to provide another possible explanation for this, Battersby (2011a) speculates that this might be a result of accessibility or possibly due to the use of supermarkets for bulky purchase and purchase of selected items, hence this is likely to be on paydays when households have sufficient disposable income. Two major issues are raised by these scholars with regards to utilization of supermarkets for food. These are accessibility (which talks of the geographical location of supermarkets and issues of proximity) and affordability (which talks of adequate income for food). Although supermarkets may be physically available within the vicinity of the poor households, it can be economically inaccessible due to lack of purchasing power (Crush & Frayne, 2011). The way in which food items are packaged in supermarkets may also contribute to its infrequent utilization on a daily basis since poor households may only have enough money to purchase smaller quantities of food which supermarkets may not offer, hence households resort for the informal sector (See Tawodzera *et al.*, 2012; Tevera & Simelane, 2014).

### **2.6.2 Informal food outlets**

While supermarkets are an important food source for urban households in southern Africa, the informal sector is equally important as a source of food for poor urban households in the global South. The AFSUN survey records that in cities of the South, 70 percent of the poor rely on the informal sector. However, in cities such as Msunduzi, Gaborone, Maseru and Manzini, this source is not that important as less than 50 percent of the surveyed urban households utilize it for food (See Acquah *et al.*, 2013; Caesar *et al.*, 2013; Leduka *et al.*, 2015; Mvula & Chiweza, 2013; Raimundo *et al.*, 2014; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012). The high utilization of the informal food outlet tends to be consistent with cities which undergo economic challenges where this sector is seen to replace supermarkets, the most utilized sources under normal circumstances. The increasing popularity of the informal sector is attributed to different factors such as food prices, food packaging strategy, food stock availability, geographical location and proximity of supermarket. For instance, Mulenga (2013) attributes the higher utilization of the informal sector to the absence of supermarkets. Tawodzera, on the other hand, attributes the high utilization of the informal sector (in Harare, Zimbabwe) to shortage of food stocks, high food prices and the way in which food items are packaged in supermarkets (Tawodzera *et al.*, 2016; Tawodzera, 2010; Tawodzera *et*

*al.*, 2012). Tawodzera notes that the increase in the utilization of the informal sector in Harare during the economic crisis (2008) was partly due to food shortage in supermarkets which saw only 30 percent of poor urban households utilizing this sector. The restocking of these empty shelves soon after the economic predicament became mild in 2012 led to an increase in the patronization of supermarkets, which rose to 92 percent in 2016 (Tawodzera *et al.*, 2016). Tawodzera concluded, therefore, that the greater proportion of the livelihood activities that the urban poor engaged in during the difficult times in Harare were constructed in the informal sector, which became the backbone of survival for most poor households in the city during the economic crisis (Tawodzera, 2010). According to him, the re-packaging of food into smaller 'cheaper' quantities which are affordable for most poor households and the chance to negotiate food prices offered by the informal sector contributed to its popularity and high utilization in Harare during the economic meltdown, where 97 percent poor households relied on it for food.

Tawodzera's observation finds support from other scholars such as Tevera and Simelane (2014) and Mulenga (2013). Mulenga, for instance, observes that while the better-off urban households buy maize meal in 25kgs in Lusaka, the poor and disadvantaged ones buy from the informal sector in packets weighing between 500g and 1kg, which is what is within their income brackets. Tevera and Simelane (2014), on the other hand, discovered that poor urban households in Manzini tend to rely on the informal economy due to the 'cheap' repackaged food and that they sometimes offer food on credit. The high utilization of the informal sector (and the high daily purchases) is necessitated by unpredictable daily incomes and lack of accumulated funds which characterize most poor urban dwellers. It is for this reason that Frayne *et al.* (2010) note that the heavy reliance on ad hoc sources of food on a regular, daily bases is consistent with the behavior of poor people since they have limited food income. It is, however, important to note that although the informal food outlets offer affordable food for most poor urban households, it has a potential to erode the financial base for poor households and finally worsen their economic situation. These 'fragmentary' purchasing trends raise the unit cost per item, ultimately contributing to high households expenditure on food, which has long been identified to be a feature of poor households

(See Raimundo *et al.*, 2014). Needless to say, some food items can be much costly in the informal food outlets, raising the costs for food.

### **2.6.3 Small shops**

Small shops (restaurant/take away outlets) are utilized by a larger segment (69%) of poor urban households in southern Africa as captured by the AFSUN survey (See Frayne *et al.*, 2010). In Swaziland, particularly in Manzini, this food source is equally important as it is utilized by a reasonable number of poor urban households (38%), 13 percent of which utilize this source on a daily basis and 26 percent sourcing their food from this food outlet on a weekly basis, making this source the most frequently patronized source (Tevera *et al.*, 2012). This does not differ from the regional picture which also shows that as many as 22 percent of poor urban households use this source on a daily basis (Frayne *et al.*, 2010). The picture is not that different in other cities of the South such as Maseru (89%), Windhoek (84%), Johannesburg (80%), Maputo (78%), and Blantyre (69%) where the source is important. Just like the informal food sources, this source is also the most utilized on a daily basis in most cities. In Maputo, for instance, majority of the surveyed households (77%) use this source on a daily basis (Raimundo *et al.*, 2014). This was no different in Windhoek and Cape Town where 73 percent and 75 percent, respectively utilized this food source (Pendleton *et al.*, 2012; Battersby, 2011a). Scholars like Mulenga (2013) note that poor households tend to utilize sources in their vicinity, hence proximity to such sources inevitable contributes to its high utilization. Drawing from Reisig and Hobbiss (2000), Wrigley (2002), Short *et al.* (2007), and Raja *et al.* (2008) concept of 'food deserts', she vehemently argues that households may be well-off and endowed with adequate resources to purchase food, but their location (relative to accessibility and affordability) will still compromise their food security. This emphasizes the importance of both physical and economic access to food.

### **2.6.4 Other important food sources for the poor**

Other important food sources from which the urban poor source their food include community kitchen, remittance, food aid, borrowing food from others, sharing meals with other households, growing food and sourcing food from neighbours. According to Frayne *et al.* (2010), a reasonable number (22%) in the SADC region grow the food they eat, 21 percent rely on shared meals while 20 percent survive by borrowing food from

others. The importance of remittances (food) (utilized by 8%), community kitchen (4%) and food aid (2%) to some households in the region cannot also be ignored. Of course, a regional variation in the utilization of these sources can be detected; however, these sources tend to be important in most cities and crucial to others across the region. In Cape Town, for instance, 45 percent of the surveyed households rely on shared meals (with neighbours and/or other households) while in Blantyre, Gaborone and Maseru, at least 20 percent of the surveyed low income households rely on this source (Acquah *et al.*, 2013; Battersby, 2011a; Leduka *et al.*, 2015; Mvula & Chiweza, 2013). To cities like Manzini, this source is not that important as fewer (9%) share meals with their neighbours (Tevera *et al.*, 2012). Borrowing food tends to be a dominate survival strategy in low income areas of Harare (42%), Maseru (41%) and not less important also in Cape Town (29%) and Msunduzi (24%) (Battersby, 2011a; Leduka *et al.*, 2015).

### **2.6.5 Rural-urban food transfers**

Rural and urban lives are interwoven through goods and services (Garrett, 2000:1) and food is among the components transferred between rural and urban households. This interconnectedness is facilitated by the mobility of people between these two geographical spaces. As already noted, urban households source some of the food they consume from rural relatives. This rural-urban transfer is regarded as a strategy by which most disadvantaged urban households (the urban poor) ensure access to food in the often harsh urban environment. Since agriculture is a major source of livelihoods to the poor and its practice in most cities is often prohibited (Tevera *et al.*, 2012), the poor, as Garrett (2000:1) puts it, constantly “maintain links with a home community in rural areas through a plot of land or continued connections with family”. Frayne (2005) notes that urban households utilize these social links to reduce the food gap through food transfers from rural areas. The AFSUN survey also confirmed that food transfers (mainly from rural to urban households) are becoming more important in southern African cities and are actually becoming a common feature of cities of the global South and their contribution to the food security of the disadvantaged and poor urban dwellers cannot be ignored. This is further confirmed by the World Food Programme which also notes that cities and towns have depended heavily on rural areas for food, and that the volume of these food flows (from rural to urban) has grown incredibly, with 800 percent in Africa (WFP, 2016b:2). The AFSUN survey, for example, documents

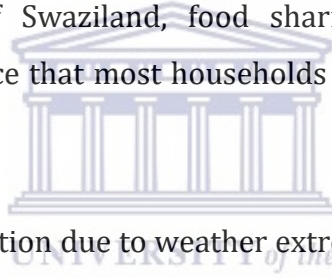


that a quarter of the regional sample (28%) use rural areas as a food source, and these were found to have received food from their rural relatives and/or friends a week prior to the survey. This is, as already alluded to above, fostered by this social network that underpins migration.

The importance of the rural food source varies considerably by country and city. In some cities such as Harare, Windhoek and Lusaka, this practice is more common where a reasonable number (over 40%) were reported to receive food through this strategy. According to the AFSUN survey, rural food transfers are very important in the informal settlements of cities like Windhoek (47%), Lusaka (42%), Harare (41%) and somewhat important to cities such as Maseru (37%), Blantyre (36%) and Manzini (34%) (Frayne, *et al.*, 2010). Adair (2015) further notes that different surveys conducted in Namibia record that people in the country tend to migrate to urban areas for work but are much reliant upon rural relatives for their food in the urban areas, a link he calls 'urban reciprocity'. According to Adair, the more people migrate to urban areas, the more serious the issue of food sustainability and security becomes in urban spaces. Regardless of the overall proportion receiving these transfers, to the households relying on this food source, this source was found to be very important to some households (89%) while to others (11%) it was found to be crucial for their survival. Interestingly, these figures mirror those obtained in Windhoek in 2000 in a research much similar to this one where 81 percent of the sample also reported rural-urban food transfers to be very important to their households, with a further 11 percent considering the food transfers to be critical to their survival (Frayne, 2001).

There is also a variation in the type of food flows within and between cities of the South. According to the findings of the AFSUN survey, most urban households transfer cereals, which were found to have been transferred by the urban majority (89%) in the surveyed cities. This seemed to characterize all eleven cities, irrespective of their geographical location and economic status. Other significant food types that were transferred include vegetables (40%), beans (31%) meat (29%) and other food items made of roots or tubers, which were transferred by 25 percent of the surveyed urban households (Frayne *et al.*, 2010). It is not surprising then that in most cities, cereals tend to be the most consumed food type as reflected by the household dietary diversity

measure (HDDS). Swaziland also presents a similar pattern with regards to transfers. According to Tevera and Simelane (2014) many urban dwellers in the Kingdom maintain links with their rural relatives and utilize these links to secure food for their urban households. These linkages (rural-urban links) provide support to migrants in times of chronic food shortages. The study shows that as many as 35 percent of the surveyed households in the peri-urban zone of Manzini were found to maintain such links and received food from their rural relatives. Needless to reiterate that maintaining the rural-urban link tends to be important for poor urban households as rural areas also provide yet another important food source for deprived urban households. In fact, Crush (2012) in his study *Migration, Development and Urban Food Security* confirms that the most vulnerable households are those that have poor rural connections. In a related article on the links between food security, development and migration, Crush (2013) notes that the existence of rural-urban links tends to enhance the food security status of poor urban households. Food transfers seem to be a common feature of African societies. In the Kingdom of Swaziland, food sharing between rural and urban households is a cultural practice that most households engage in, especially when they have a little surplus food.



A shortfall in rural food production due to weather extremes such as drought is likely to have a significant impact on food transfers between rural and urban areas. Burton *et al.* (2013:15) have rightly observed that vulnerabilities in cities are exacerbated when food grown outside of the city is compromised due to climatic variability and extreme weather events. Since Swaziland is prone to droughts, it is highly likely that shortfalls in rural food production might have a negative effect on urban households, particularly those that survive by sourcing food from the rural areas. As the International Food Policy Research Institute report clearly states, “strong rural-urban linkages help propel economic development and improvements in food security and nutrition...where links between rural and urban spaces are broken or weak...urban areas suffer” (IFPRI, 2017:15).

Ayesha in a study conducted in Kayima community in Jamaica notes that for rural households, food security is largely determined by what they are able to produce and less by their income and that they usually lack safety nets, hence are highly vulnerable

to shocks such as drought (Ayesha, 2017). Similarly, poor performance of commercial agriculture (mainly crops, although this can also include livestock) due to drought can see large companies reducing areas under cultivation, resulting in loss of employment due to retrenchments (DPM, 2016). As a consequence, the purchasing power of the affected individuals will be compromised which also limit their access to food in the urban environment, where income is a key determinant of food access (Ericksen, 2008). Sen (1981) in his article: *Poverty and Famines: An Essay on Entitlement and Deprivation* makes an interesting argument that households employ several coping strategies such as food sharing when household food security is threatened by shocks such as drought. Sen also emphasizes the importance of food transfers during challenging times where access to food might be compromised.

Frayne (2005:37) argues that “it is impossible to understand this household-level coping mechanism in the urban areas without also understanding the complexity of rural-urban linkages and the high degree of social reciprocity that underpins the economic linkages evident between rural and urban households.” In light of the importance of rural-urban food transfers to poor urban households in cities of the global South, Crush and Caesar (2017) advocate for a broader lens on the rural-urban linkages that would not only concentrate on cash-based transfers but also on the bidirectional flows of food and its impact on food security, particularly given the increased reliance on this food sourcing strategy in the South (See also IIED, 2017; Crush & Caesar, 2017). Djurfeldt (2015) notes that in Africa, transfers of food are invisible because they run within the family, outside market channels, hence are not recognized and so is their contribution to the food security of the poor.

#### **2.6.6 Urban agriculture**

Growing interest in urban agriculture (UA) is being manifested by government agencies, policy makers and academics in both global North and South countries. Multiple benefits of urban agriculture have been documented in several studies which include improvement of sustainability in cities, enhancement of environmental quality by adding green spaces, improvement of building quality, improvement of food and nutritional security, alleviation of poverty, source of healthy food, and ensuring cost-effective food supplies and reduction of food prices in urban spaces (See Minkoff-Zern,

2012: Rezai *et al.*, 2016). In most countries in the global South, urban agriculture is highly motivated by the quest to improve access to cost effective food, alleviation of poverty and improvement of food and nutritional security. According to the FAO, urban food production is in many cases a response of the urban poor to inadequate, unreliable and irregular access to food supplies due to either lack of such food (availability) or lack of purchasing power (access to available food) (FAO, 2001:3).

Urban agriculture has been defined differently by different scholars. However, just like any other concept, a point of consensus is also detected from these definitions. Urban agriculture is defined as “the production of food and non-food plant and tree crops and animal husbandry (livestock, fowl, fish, and so forth), both within (intra-) and fringing (peri-) built-up urban areas.” (Mougeot, 1994a, 1994b:1). Jatta (2013), on the other hand, regards urban agriculture as simply the rearing of livestock and production of crops within towns and cities. Yet to the Food and Agricultural Organization, urban agriculture is any agricultural activity which raises, grows or processes (and distributes) agricultural products in cities and towns, regardless of the size and number of human resources in that urban area (FAO, 2001). Based on these various definitions, urban agriculture can therefore be considered as an agricultural activity that can take place in urban or peri-urban involving the production of crops (and vegetables) and/or keeping of livestock for family consumption or for sale to improve life in urban areas. As already alluded to, urban agriculture in one means by which households increase their access to fresh and nutritious food in most urban areas in the global South and in southern Africa, in particular (Heynen *et al.*, 2012; Smart *et al.*, 2015). It is no surprise that most of the existing food security discourse continues to show the dependency and growing interest in the use of urban agriculture to address food insecurity and poverty in the world cities, more so in cities of the global South. In fact, Rezai *et al.* (2016) observe that the practice of urban agriculture is now gaining importance in countries of the South as a result of the rising level of urban poverty in these countries, coupled with rapid population growth. They add that urban agriculture becomes handy in this regard since it ensures that even the urban poor have access to cost-effective food to improve their food security, simultaneously reducing their food bills.

Several studies continue to provide evidence that urban agriculture contributes, in no small measure, to the food security of many major cities, both as an important component of the urban food system, and as a means for vulnerable groups to minimize their food-insecurity problems (see: FAO, 2001; Battersby, 2011a, 2012; Tawodzera *et al.*, 2012; Battersby & Marshak, 2013; Burton *et al.*, 2013; Taylor & Lovell, 2014; Rezai *et al.*, 2016). It is currently estimated that about 40 percent of urban dwellers in African countries are engaged in some sort of urban agriculture, and these figures are growing rapidly in Latin America where an estimated 50 percent of the urbanites in the region engage in some agricultural activities (Jatta, 2013). The 2001 report of the Food and Agricultural Organization records that urban agriculture was found to improve access to food of people living in and around cities in Nairobi, Dar es Salaam, and many cities in Thailand, Philippines and Indonesia.

The same was true with most cities in southern Africa where urban agriculture was also found not only to be a source of cheap food for the poor, but also found to be an important source of income, although this differed from city to city. Cities in which more than half of the households grow some of their own food include Blantyre (66% of households) and Harare (60%), with Maseru at 47 percent. Cities at the other end of the spectrum include Johannesburg (9%), Cape Town (5%), Gaborone (5%) and Windhoek (3%). In general, the survey found that, 22 percent of the surveyed households grow food for their own consumption (Frayne *et al.*, 2010).

Given the degree of dependence in urban agriculture and the growing interest in its practice in southern Africa, Merwe (2011) notes that urban agriculture in this region is viewed as one policy option to strengthen the asset base of the urban poor. As a result, urban agriculture is currently and most commonly used as an adaptation strategy to shock and a means to create resilience in the household food situation in most urban households. According to the FAO report of 2001, urban agriculture is indeed a source of cost effective food and an important source of income for many urban households in the global South (FAO, 2001). Urban agriculture has gained greater recognition as a means of ensuring increased availability and access to low-cost nutritious food in urban areas, and further increased income and job opportunities in most cities both in the global South and global North (Listya, 2016). However, its contribution in Swaziland is

still very low. For example, according to a study conducted in urban Manzini in the low income households of Moneni, Ticanweni and Standini, very few urban residents engage in urban agriculture in the country and only 10 percent of urban households were found to produce any of the food they consume in urban Manzini (Tevera *et al.*, 2012). The study found that as little as 4 percent of these households who engage in urban agriculture were found to have consumed home-grown produce in the week prior to the survey. This highlights the insignificant contribution of urban agriculture in Manzini, compared to other cities in the region such as Harare and Blantyre where more than half of the urban dwellers engaged in urban agriculture (see: Mvula & Chiweza, 2013; Tawodzera *et al.*, 2012). Manzini's urban farming experience is similar to that of Johannesburg, Cape Town and Gaborone, where this practice is also not common among poor urban dwellers (See Battersby, 2011a; Rudolph *et al.*, 2012; Acquah *et al.*, 2013).

In the context of Swaziland, the limited engagement in urban agriculture is due to several factors. First is lack of space to practice urban agriculture. This is demonstrated by an earlier survey which found that 82 percent of those households who had home gardens cultivated less than 0.5 acres of land in Swaziland (SVAC & UNWFP, 2008). Second, the activity is not supported by policy makers despite its supposed benefits to household food security and nutrition. Third, some urban dwellers cultivate land in rural areas with the goal of transporting food from those areas to their urban homes. For example, a study by Tevera and Simelane (2014) revealed that overall 25 percent of households in the low income settlements of Manzini cultivated 'other land' apart from the home garden and this land is likely to be in the peri-urban zone or on Swazi Nation Land. Consequently, any shortfall in rural food production has been observed to affect the food security situation of these urban households, particularly those who rely on rural food sources.

The urban agriculture discourse advocates the practice of urban agriculture in most cities due to its advantages, mainly to the poor urban dwellers. Some scholars such as Miccoli *et al.* (2016) argue that urban agriculture will be important in meeting the ever increasing food demand in cities, more so with the current rate of urbanization and proportion of urban population (which is expected to increase to 60% by 2030) (Knorr *et al.*, 2018). They suggest that urban agriculture should aim to integrate traditional

agricultural production if the demand for food in cities is to be met. Although the practice of urban agriculture was found to be less in Swaziland, the contribution of this food sourcing strategy to food security in cities is widely recognized by scholars and its practice even under restrictive policy environments that criminalize this activity, such as Manzini, is revealing the perception people have about its potential to enhance food security in urban areas.

## **2.7 Urbanization and urban food security**

The rising trends in urbanization and urbanization patterns in the global South have implications for poverty and food insecurity levels. In fact, the close association between poverty, food security and urbanization provides a reason for the increasing trends of urban food insecurity and poverty in countries of the global South. Scholars argue that although poverty and food insecurity are still predominantly rural in countries of the South (Chen & Ravallion, 2007; Garrett, 2000), this will soon change given the pace of urbanization that characterizes most countries in the global South. Ravallion (2001; 2007) and Bloom and Khanna (2007) concur that the poor urbanize faster than the population as a whole in the global South. In Latin America, the geographic center of poverty has already shifted from rural to urban (Fay, 2005), with two thirds of the total population being urban, making it the most urbanized region (UNDESA, 2016). There is a consensus among scholars that Africa might outpace all regions in terms of being urbanized, considering the current urbanization trends (See ADB, 2014; World Bank, 2017).

United Nations estimates show that the world's urban population has grown from 746 million (approximately 29%) in 1950 to 3.9 billion (approximately 54%) in 2014 (UNDESA, 2014). It is currently estimated that in 2018, approximately 4.2 billion (55% of world population) live in urban areas (UN, 2018). The 55 percent urban population will increase to 60 percent by 2030 (UNDESA, 2016; UN, 2018) and by 2050, about 2.5 billion would have been added to the 60 percent and 90 percent of this increase will come from African and Asian cities (UNDESA, 2016:1; WHO, 2017; UN, 2018). Africa alone, studies show, is projected to host cities that will account for 85 percent of its population by 2025 if the current urban growth rate of 3.5 percent holds until 2050 (See ADB, 2017). Literature indicates that of the world's 31 megacities (cities with a

population of 10 million), 24 are located in the “global South”. In addition, all the 10 cities that are projected to assume the status of megacities between 2016 and 2030 are all situated in the global South as well. The number of megacities with a population of more than 500,000 is also expected to grow by 30 percent in Asia and 80 percent in Africa between 2016 and 2030, each being home to at least 1 million people (UNDESA, 2016:5; UN, 2018a).

The rising number of the urban population in Manzini also has an implication for poverty levels and levels of food insecurity in urban Manzini and may account for the rising level of food insecurity in the city. The population growth trends of Manzini has been on the rise from 6, 081 in 1966; 10, 019 in 1976; 16,396 in 1997; and 28,744 in 2007. The then night-time population size of 28,744, as recorded by National Population Census (2007), is today estimated at around 40, 000 people while the daytime population is currently estimated at about 120, 000 people (MCM, 2017b). A similar pattern is observed in its peri-urban population, which has increased from 10,025 in 1966 to 19211 in 1997, and currently stands at 24 985 people. Given the current growth rate, it is projected that the peri-urban population of Manzini may increase to 44, 726 people in the next decade (MCM, 2017a). This, as already indicated, has an implication for food security in the country.



## **2.8 Poverty and urban food security**

Food security and poverty are intertwined and there seems to be a consensus among scholars that food insecurity cannot be dealt with sufficiently without addressing issues of poverty. Until recently, poverty has remained a feature of countries in the global South and a major challenge to rural and urban development alike. The World Bank records show that, although poverty is shrinking worldwide, it is still widespread in Africa, and more so in sub-Saharan Africa (WB, 2018a). Of the 766.6 million poor in the world, 388.7 million (51%) live in Sub-Saharan Africa (World Bank, 2016b:4). Sub-Saharan Africa also has the highest proportion (49%) of children living in extreme poverty and the largest share of the world’s poor children (WB & Unicef, 2016). Just as the World Bank (2016a; 2018b) reports also records, poverty levels in Africa are still unacceptably high, even though the proportion of the poor is shrinking worldwide.



Poverty, according to the United Nations (UN) is a condition characterized by severe deprivation of basic human needs which includes food, clean water, shelter, education, health and sanitation facilities (UN, 1995). These conditions can manifest in both rural and urban populations, and thereby be referred to as rural or urban poverty, respectively. The International Labour Organization (ILO), considers a person to be living in poverty if his level of living (measured in terms of income) is below a particular standard (ILO, 1995: 6). This definition is more or less similar to that of the World Bank which considers someone to be living in poverty if that individual is unable to attain a minimal standard of living (WB, 1990:26).

Even more fascinating is the definition of poverty by the European Community (EC) which considers a person to be poor if that person has limited resources that make him to be excluded from the minimum acceptable way of life in any country in which he lives (EC, 1985). This definition introduces the concept of exclusion. Most important also to note is that this definition goes beyond the experience of deprivation, social rejection and marginalization, as it were, to further embrace the notion of relative poverty (income lower than median level of income within a country) as opposed to absolute poverty (lack of sufficient income to meet basic needs).

A similarity can be discerned from these definitions. All the definitions embrace the concepts of dignity of individual by highlighting the importance of access to income, although access to basic services (indicators used to measure poverty) is also none ignorable. According to the World Bank, anyone surviving by less than US\$1.90 a day (below the international poverty line) is poor (See: World Bank, 2016a; WB & Unicef, 2016). As already alluded to, it is worth noting that there is still an ongoing debate on whether or not income alone is a sufficient measure of poverty. While majority of scholars (Deleeck *et al.*, 1992; Brandolini *et al.*, 2009; Dewilde, 2004) argue that poverty cannot be restricted to income alone since it manifests itself through different domains of life (which include education, health, housing, and access to social services and other basic needs such as food), other scholars such as Abdalla *et al.* (2011) are of the view that sufficient income will enable one to have access to all basic needs of life like food, services and shelter. To the latter, money is an answer to all things. Once there is sufficient money, basic needs will be met.

According to Spicker (1993), for one to be considered poor, that person must have experienced deprivation over a period of time. Spicker's point of view is that, a person who is struck by a natural disaster such as floods may experience a temporal deprivation like homelessness without this being sufficient to constitute poverty, since such a person can still be able to command resources that are sufficient enough to ensure his needs are met. Whelan and Whelan (1995) agree with Spicker's argument and add that although needs are an important indicator of poverty, the existence of a pattern of deprivation (which Narayan *et al.* (2000) refers to as the web of deprivation), rather than the deprivation itself is crucial. This emphasizes the importance of the time dimension in the definition of poverty.

Drawing from these different definitions of poverty, the urban poor - as they are frequently referred to in this study - shall be taken to mean persons or households whose resources (money and/or material) are so limited that they are excluded from the minimum acceptable way of life in Swaziland, and usually reside in informal settlements. The World Bank (2016b:5) further adds that the poor are usually "...poorly educated...mostly employed on the agricultural sector (or not employed at all) and live in larger households with more children". Likewise, these people may also be deprived of common necessities that determine quality of life such as clothing, food, employment, education, among other essential necessities that are vital for them to escape poverty and enjoy respect as fellow citizens in society.

Although poverty, just like food insecurity, has been associated with rural areas, an increasing percentage of urban households in the global South suffer from chronic poverty (GNESD, 2013). Urban studies conducted in these countries demonstrate that most towns and cities of the South fit the World Bank's description - surviving on \$1.90 per day, poorly educated, have many children and live in large households, mostly with no formal employment. It is for this reason that majority of scholars have noted that poverty finds expression in towns and cities (See the AFSUN series). Ravallion *et al.* (2007) in their paper, *New Evidence on the Urbanization of Global Poverty*, estimate that one-quarter of the poor in the global South live in urban areas and that the proportion has been rising remarkably over time. They further observe that the poor are actually urbanizing faster than the population as a whole, more so in Latin America.

Scholars agree that the increasing rate of urban poverty (caused by rapid urbanization) is shifting the historical locus of food insecurity from rural to urban areas in the global South, and in Africa in particular (Crush *et al.*, 2012). Urban food security scholars continue to highlight the link between poverty and food insecurity. Just like poverty which has a higher concentration in countries of the global South, so is food insecurity. Out of the 815 million (approximately 12% of the world's population) world's food insecure, 8 percent is found in countries of the global South (FAO *et al.*, 2017). A study conducted in Sudan's urban areas of Wau, Aweil and Juaba towns shows that about 400 000 people were found to be food insecure (FSIN, 2017). The findings are further complemented by Birhane *et al.* (2014) in their study conducted in Ethiopia which also found that poor households tend to be more food insecure. They found that over 75 percent of the 550 surveyed low income earners were food insecure. Kenya is not an exception, where Kimani-Murage *et al.* (2014) found that 85 percent (of 3000 slum dwellers) were food insecure in Nairobi. Maitra and Rao (2015) in their study which investigated the connection between poverty and food insecurity in urban slums of Kolkata found that poorer households have a higher exposure to food insecurity.

These findings mirror those by Leduka *et al.* (2015) who found that the poorest households in Maseru make the majority (82%) of the severely food insecure in the city. None was found to be food secure among the poorest urban households. However, among the least poor, at least 8 percent were found to be food secure, with fewer (46%), compared to the poorest households, who were found to be severely food insecure. These findings are further confirmed by Maitra (2017) in a study conducted in urban slums of India where he also found that poverty levels of the head of household strongly influence the level of food security of that household. The same was observed by Tevera *et al.* (2012) in their study conducted in the peri urban zone of Manzini (Swaziland) where the poorest households were also found to be more food insecure than their counterparts.

A study conducted in the low income households of Tafara, Mabvuku and Dzivarasekwa in Harare (Zimbabwe) by Tawodzera records that the most food insecure households were found to be the poor households (Tawodzera *et al.*, 2012). To further highlight the relationship between poverty and food insecurity, the AFSUN survey indicated that the

level of income and the food security status of a given household are positively correlated (Crush & Frayne, 2010). Low income exposes poor urban households to food insecurity since access to food in urban areas, as Atkinson (1995) observes, largely concerns the relationship between income and food prices. This means that at the household level, regular and stable income is necessary for food security. Food may be economically accessible (affordable) but spatially inaccessible when food outlets are located too far away or are difficult to get to. On the other hand, it may be spatially accessible (with supermarkets springing up everywhere) but economically inaccessible (the food on the supermarket shelves is unaffordable to the poor). The absence of a sustained or reliable income source constitutes the major obstacle to food access by the urban poor in southern Africa (Crush & Frayne, 2010).

Even more revealing on the link between poverty and urban food security are findings about the determinants of poverty in countries of the global South. Educational status, household income, household composition, marital status and gender were found to influence food security (Crush & Caesar, 2014; Birhane *et al.*, 2014; Smith *et al.*, 2017). For instance, Smith *et al.* (2017) in their study conducted in Latin America and the Caribbean which was assessing levels of food insecurity in the region found that households with unemployed members or those with seasonal or part-time jobs (casual laborers) face high chances of being severely food insecure. The same was found to be true of households with low income who were also highly vulnerable to food insecurity as low income can create a vicious cycle that makes it difficult for poor households to escape food insecurity. Female-headed households also tend to be more vulnerable to food insecurity and poverty (Armar-klemesu & Ahiadeke, 2000). This is because they lack adaptive capacity to shocks such as rising food prices and other shocks like sudden food shortage (Armar-klemesu & Ahiadeke, 2000; Carrão *et al.*, 2016; WFP, 2016a).

Emphasizing on the same connection, the FAO report of 2008 highlights that persistently high prices force poor people to reduce consumption below the minimum required for a healthy and active life. Thomsen and Metz (1998) observe that increase in food prices has a real income effect, with low-income households often suffering most, as they tend to devote large shares of their incomes on food than higher-income households do. To validate this observation, the World Economic Forum (2018) also

notes that the poor (and poor countries, in general) tend to spend a larger proportion of their income on food. When they cannot afford food, these poor households adjust by eating less of their preferred foods or reducing total quantities consumed as food prices increase (Bandara & Cai, 2014).

## **2.9 Poverty and urban food security in Swaziland**

Compared to other cities in southern Africa (Maputo, Maseru and Gaborone), Manzini has one of the highest levels of food insecurity in the region (Frayne *et al.*, 2010). In addition, food security in urban Swaziland has a temporal dimension, with households having certain months where they have adequate food in a given year. Months of adequate food provision include April, May and December (Tevera & Simelane, 2014). Poor urban households in Swaziland cities obtain food from a wide variety of sources. These sources include supermarkets, the informal sector, and small outlets (grocers, corner stores, spazas, restaurants and fast-food outlets. Supermarkets remain the most important food source (Tevera *et al.*, 2012). Food transfers (rural to urban & urban to rural), borrowing food, and sourcing food from neighbours as well as remittances are also used as food sourcing strategies in Swaziland (Tevera *et al.*, 2012) just like in other cities such as Gaborone, Windhoek, Lusaka, Mozambique, and Maseru (See: Pendleton, *et al.*, 2012; Acquah *et al.*, 2013; Mulenga, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015). Those who receive food transfers from rural areas in Swaziland regard them as important to their household food security. This finds support from the overall findings of the AFSUN survey which depicts that 81 percent of households that receive food from their rural relatives regard such transfers as very important and others (9%) consider them to be critical to their survival (Frayne *et al.*, 2010). Emphasizing the importance of food transfers among poor urban households, Crush (2012) observes that the most vulnerable households are those who have poor rural connections.

## **2.10 Drought and urban food security in the global South**

As already alluded to above, poor urban households usually lack adaptive capacity and are hence more susceptible to shock of any form, which may range from food price shock (e.g. sudden increase in food price), food supply shock (e.g. severe food shortage) to weather related shocks (any effects from drought, storms etc.) (Carrão *et al.*, 2016; WFP, 2016a). Existing studies show that drought is linked to food security through food

production (to ensure food availability) and food prices (to ensure access to available food). Several studies show that drought impacts agriculture, resulting to decline in crop yield. A shortfall in crop yield increases the demand for food and triggers increase in food prices (Salazar-espinoza *et al.*, 2015; Gautier *et al.*, 2017).

The 2015/16 drought resulted to an estimated crop loss of 75 percent in Angola and triggered a steep increase in food price in the country, leaving 1.4 million of the total population food insecure (FEWSNET, 2017). In Somalia, the 2015/16 drought left a trail of destruction on farmlands, resulting to significant decline in crop yield, steep increase in food prices and increased levels of food insecurity. Over 6 million people (50% of population) were in urgent need for food aid, with 24 percent increase in malnourished children (FEWSNET, 2017). The same was observed in Kenya where a decline in crop yield led to an increase in the number of food insecure from 1.3 to 2.2 million during the drought period. A steep increase in food prices was witnessed, which restricted access to food for most poor households (See also FSIN, 2017).

The same drought resulted to a steep increase in maize price (approximately 100%) in Mozambique, pushing a million people to food insecurity. In Malawi, lower production reduced food availability and made households to rely more on market supplies. High food prices in Malawi weakened the purchasing power of vulnerable households in the country and severely restricted food access (FSIN, 2017). Zimbabwe experienced 27 percent decline in maize yield which resulted to 38 percent increase in maize price, exposing over 4 million people (42 percent of the population) to food insecurity (FEWSNET, 2016c). Lesotho was also hit hard by the 2015/16 drought which exposed over 510,000 people (36%) to food insecurity in the country.

Poor households had compromised access to food in Lesotho due to steep increases in food prices, which was a direct response to the drought-induced production shortfall in the country. Maize meal price in Lesotho rose by 25 percent in the same drought period. Malawi recorded 15 percent decline in maize production due to erratic weather conditions. In Malawi, about 0.86 million hectares of crop land was affected by drought, resulting in food shortage which triggered increase in food prices (FEWSNET, 2016c). South Africa experienced a 49 percent decrease in maize yield, which led to a 104

percent increase in maize price, leading to high maize meal prices (e.g. 2.5kg maize meal increase by 65.8%) (PPME, 2016). Swaziland, who imports maize from South Africa, was also affected negatively by the steep increase in maize prices, following the worst drought of 2015/16 that whipped across southern Africa. This shows the inextricable link between climate-induced extreme weather events (e.g. drought) and food prices. It is important to note that persistent drought can restrict access to food for poor households through the food-price pathway.

### **2.11 Drought and urban food security in Swaziland**

Swaziland is a predominantly rural society (70% rural population), with most of the population dependent, almost exclusively, on agriculture which is practiced under rain-fed conditions. Seasonal variation in rainfall significantly affects agricultural productivity of smallholder farmers in the Kingdom of Swaziland (Manyatsi *et al.*, 2010; Manyatsi *et al.*, 2012; Mamba *et al.*, 2015). Just over 10 per cent of the land area in Swaziland is arable (AFDB, 2016a). Maize, the staple crop, is produced on Swazi Nation Land (SNL) where agriculture is predominantly rain-fed. Maize is usually used as an index of food availability since almost all households in the country use maize or maize products. Agriculture contributes 11 percent to the country's per capita GDP of \$1,560. Subsistence agriculture employs about 60 percent of the rural population and contributes about 16.2 percent of GDP (MoA, 2016).

Agriculture in Swaziland, especially maize production, has become and continues to be a prestigious activity in the country and is practiced by most rural farmers and few urban dwellers, mainly for subsistence purposes. Traditionally, Swazis are not only subsistence farmers, but are also herders, although some work in government and in the growing urban formal economy. Livestock farming, particularly cattle rearing is very important in the Swazi culture and tradition. Cattle are a symbol of wealth in Swaziland and are used for traditional ceremonies, draught power, milk, meat (although rarely) and are usually sold during economic crisis and challenging situations (Jarvis, 1980; Doran *et al.*, 2016). Although the country has always struggled to produce enough maize to meet the national maize requirement for the entire population (mainly because maize is not a commercial crop in Swaziland), subsistence maize farmers have been able to produce enough to feed their families until the next farming season.

Although approximately 70 percent of the Swazis survive of subsistence farming as a major form of rural livelihood, the country now fails to produce enough food to meet the cereal requirement for the country. The country, as a result, has become a net importer of food, most of which comes from the Republic of South Africa. This include the staple food, maize, which is imported by National Maize Cooperation (NMC) – an organization responsible for purchasing, storing and marketing maize in the country. Among the major causes of low food production in Swaziland includes the high prevalence of HIV and AIDS (which has reduced the agriculture labour force) and recurrent droughts (which has become a feature of the country and has significantly affected crop production). Therefore, a downward trend in maize production has been observed in the country, which has corresponded with an increase in the rate of urbanization as people search for alternative forms of livelihoods due to the failure of the agricultural sector owing the recurrent droughts episodes (FAO, 2018a).

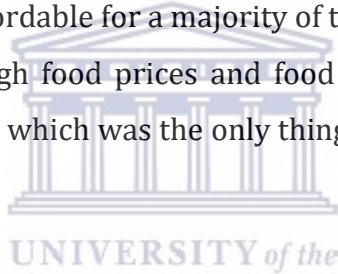
While most parts of the country have repeatedly experience decline in food production due to drought, the Lowveld region of Swaziland is the hardest hit. Drought has, therefore, induced rural-urban migration from the most affected areas of the Lowveld in particular, into the cities of Swaziland, mainly Manzini city (FAO, 2018a). The country has experienced severe drought in the last three decades, with the most severe ones occurring in 1983, 1992, 2001, 2007, 2008 and most recently in 2015/16 (Manyatsi *et al.*, 2010; Manyatsi & Mhazo, 2014). Drought in Swaziland has demonstrated an increase in frequency, duration and intensity and has become more destructive (Manyatsi *et al.*, 2010; Manyatsi & Mhazo, 2014). Given the observed changes in climate and the future climate projections, drought-induced food shortages are expected to increase.

It was reported that over 500 people lost their lives in the 1983 drought and close to 50 percent of the population required food aid in the 2007 drought as they did not have sufficient food due to crop failure (Manyatsi & Mhazo, 2014). This drought coincided with the time during which the government was less prepared, coupled with inadequate formal structure to coordinate emergencies (Oseni & Masarirambi, 2011). In the same year, about 66 per cent of the population was unable to meet basic food needs, while 43 per cent lived in chronic poverty. The United Nations World Food Programme (WFP) fed 243 000 Swazis - around a quarter of the population - during January. When drought



hit Swaziland in 2004 and 2005, more than one quarter of the country's population required emergency food aid (SVAC, 2006).

In the 2015/16 farming season, drought caused a 64 percent decline in maize production (from 93, 653MT in 2013/14 to 33, 460MT in 2015/16 farming season) and death of 67, 120 herd of cattle (SVAC, 2015). Due to the decline in maize production in the 2016 cropping season, at least 300,000 people were in dire need for food assistance (SVAC, 2015). This follows an already observed decline in land under maize production, which declined from 84,000 ha in 1990 to 52,000 ha in 2009. This corresponded with a decline in maize harvest which fell from 88,000 to 62,000 tons over the same time period (Oseni & Masarirambi, 2011:389). The shortfall in maize production resulted to an increase in maize prices as the maize deficit had to be met through imports (MoA, 2016). While prices of some food items such as maize meal became abnormally high and unaffordable, other food items such as vegetables were in short supply and hence extremely expensive and unaffordable for a majority of the poor (WB, 2015; FAO, 2017). Needless to say, due to the high food prices and food shortage experienced in 2016, some Swazis survived by bread which was the only thing they could afford to buy (WFP, 2017: 5).



According to the National Disaster Management Agency (NDMA), the 2015/16 drought has largely contributed to the very high maize prices experienced (for the first time) in the country. In the pick of the drought, for instance, food prices were very high (for example, maize meal increased by over 60%). The World Food Program notes that food prices, particularly maize meal, was at its highest at the peak of the drought (January 2016) and was even more expensive than rice, however, it showed a slight decline in January 2017 when the drought situation was normalizing (WFP, 2017:3). By August 2018, the food prices had dropped by over 14 percent due to ample national supplies, following the favourable weather conditions (FAO, 2018b). The FAO further records a decline in the number of food insecure, nationally in the same year (23 percent lower than that of 2016 where drought induced sharp cut in national maize harvest).

While the rich are less affected by high food prices, the poor's access to food is compromised when food prices go up and their vulnerability to poverty is exacerbated

since they have to spend most of their little money on food. This is supported by the report issued by the Office of the Resident Coordinator of the UN Country Team in Swaziland, who also observed that nearly one-third of rural population spend much of their money on food and have little capacity to cope with the combined effects of production shortfalls and increased market prices, and can quickly fall further into food insecurity. Drought, therefore, aggravates the vulnerability of the Swazi population to poverty and food insecurity, given that 63 percent of the population lives below the poverty line (WFP, 2018).

Drought is, therefore, is a challenge and major hydrological disaster that Swaziland has to battle with in her quest to achieve food security. Following the 1992 drought (which resulted to widespread hunger and severe food insecurity, souring levels of poverty, death of people and death of over 100, 000 livestock), the government of Swaziland established a national body for multi-sectoral coordination and collaboration in disaster risk reduction – The National Disaster Task Force (NDTF), whose task was to respond to drought. In response to the 1992 drought, the NDTF, which was chaired by the then Prime Minister, Dr Ben ‘Mshamndane’ Nsibandze, undertook a countrywide food aid distribution initiative, loosely known as ‘Mshamndane initiative’. The goals of the NDTF were: to increase household food access and ability to manage shocks, reduce the impacts of HIV and AIDS on food security among vulnerable populations in high-priority districts, and meeting the nutrition needs of vulnerable groups, particularly the rural population (GoS, 2005; FAO/WFP, 2015).The NDTF (which is now replaced by the National Disaster Management Agency [NDMA]) supplies food parcels to drought victims minimizing the number of vulnerable groups.

While the country has been experiencing moderate, near-temperate and subtropical climate, some parts of the country are becoming semi-arid (Manyatsi *et al.*, 2012). The country continues to experience highly unstable climatic conditions which are becoming a major frustration to maize farmers. In addition to the variability in climate, a 100-200mm decline in rainfall, coupled with an increase of 1.5-2.5°C in temperature, is predicted, with a corresponding decline of about 25 percent in maize yield, according to the estimates from the MIROC and CSIRO models (See Manyatsi *et al.*, 2012). In addition

to the unstable climate, the country is also predicted to be more prone and vulnerable to drought.

Drought continues to bring about tough socio-economic situations in Swaziland. The 2015/16 drought, as already alluded to, did not only lead to the poor performance of the agriculture sector (where well below average production levels were recorded), but also resulted to the death of a large number of cattle (67,120 cattle, representing 11 percent of the national herd) (MoA, 2016). As a result, the Swazi government declared a State of National Emergency on 18 February, 2016. As a result of the 2015/16 drought, the country's economic growth has shown a slight decline from 2.5 percent in 2014 to 1.7 percent in 2016 due to drought which reduced agricultural production in the country and in South Africa, which in turn reduced the country's revenues from SACU (WB, 2016; WFP, 2016a; MoA, 2016).

Needless to say that the same drought of 2015/16, from which Swaziland is still struggling to recover, led to reduction of cultivated sugar cane fields at Simunye and Mhlume, leading to a retrenchment of many people (NDMA, 2017). These people (due to loss of source of income) became exposed to food insecurity since they had limited access to food as they have less purchasing power. This means that addressing food security related issues, particularly for the poor urban households, calls for a broader understanding of the urban-food security dynamics and demands a different perspective of the food security problem. Local government and municipal policies that seek to address urban food security and urban livelihoods, particularly where the poor is the focus, must also consider the complexity of the rural-urban links and take into account that rural conditions also do affect urban livelihoods. Solutions that may be confined within the urban boundary can work but may probably not work well for the poor. While focusing on urban job creation might provide part of the solution, it may certainly not be the solution hence going beyond urban job creation to also focus on rural jobs may bring a more durable solution.

## **2.12 Other drivers of food insecurity in Swaziland**

While drought stands at the heart of the food insecurity problem, and is perhaps the major driving force of the observed high levels of food insecurity in Swaziland (through

the production pathway), there are other factors which contribute to the rising levels of food insecurity in the country. Some of these factors, which may be economical, political and socio-cultural in nature, as reflected in the conceptual framework (Figure 3.1), are embedded in national policies and governance system, while others are entrenched in societal norms, cultures, and traditions. One such factor is the unequal access to land and production processes between man and women (and the youth) which is perpetuated by the Swazi culture and the land tenure system that governs land distribution and allocation in rural Swaziland (Dlamini, 2015; Sithole *et al.*, 2015).

Other challenges linked to the land tenure system of the country, which also compromise the ability of the country to improve food production and security is the lack of security of tenure on SNL (Sikhondze, 1994; Dlamini & Masuku, 2011). Although an individual allocated land in SNL enjoys some degree of 'security' of tenure (and can pass land to his children), in this system, land can be re-possessed and reallocated (in rare and worse cases, land holder can be evicted). As a result, land under SNL cannot be used as collateral in banks to secure loans for farm inputs (Magagula, 1982).

Farmers are also reluctant to make huge investments for irrigation system; hence crop production in SNL is largely rain-fed and largely vulnerable to climate and weather variations (Manyatsi & Mhaza, 2014). Since individuals are given right to use land, but not ownership, Soil erosion and land degradation have become major challenges due to its communal nature, exposing over 60 percent of Swazis in SNL to food insecurity (Mushala, 1992). Policies towards rural development in the country (which are generally realized on SNL), through the Rural Development Areas Programme (RDAP), did not also have provision for soil erosion prevention and control which also perpetuates the loss of vast pieces of arable land to soil erosion, which also heightens the food insecurity problem (Mushala *et al.*, 1998).

Other policy issues contributing to the country's food insecurity include the country's agricultural management system (e.g. prioritization and emphasis on commercial agriculture – mainly sugarcane cultivation and restricted access to irrigation water for maize farmers), land disputes (leading to contested land lying idle for years as long as the dispute has not been resolved), food pricing policy and import policy (which restrict

import of some food items which may be cheaper outside, such as maize meal to protect domestic markets), poor adoption of new farming technologies (e.g. climate smart agriculture, use of early maturing hybrid seeds rather than relying on the late maturing traditional seeds) and farmers' biasness towards maize production (which militates against governments effort to promote the growth of drought tolerant crops in drought prone areas) as well as state bias towards rural agriculture with a parallel negate of urban agriculture (which remains a prohibited activity).

### **2.13 Food security and urban resilience**

Resilience is defined by Ahern (2011) as the ability to recuperate, reorganize and recover from change and disturbances without changing to other states. Stringer *et al.* (2009), on the other hand, define resilience as the ability and rate at which a system is able to regain function and structure after perturbation. To Adger (2000) and Folke (2006), any system is resilient if it has the ability to cope with external disturbances and stresses that may result from political, environmental or social changes. Based on these different definitions, one can conclude that resilience is the ability to withstand shock and continue to function in the midst of unprecedented externalities. The concept of resilience is an integral part of the food system and cannot be divorced from food security studies, particularly given the external forces that threaten household food security such as high food prices, weather shocks such as drought as well as epidemics and conflicts. Alinovi *et al.*'s (2010) observation that the concept of resilience has characterized contemporary food security studies is on point.

Households engage different strategies to ensure sufficient supply of food in times of unexpected shocks. Among the different means by which poor urban households ensure access to food is through the use of different food sources, a strategy that White and Hamm (2014) consider to be key in reducing risk and vulnerability to shock among urban households. White and Hamm (2014) find support from Battersby (2010) who also advocates for the use of multiple food sourcing strategies to increase resilience to shocks. In her article: *Urban Food Security and Climate Change: A system of Flows*, Battersby (2010) observes that access to food in the urban environment is affected by processes occurring in different locations relative to the site of consumption and argues that the use of diverse food sources (that may be located in different geographical

settings and impacted differently by climate change) will inevitably increase resilience of households to climate change shocks and consequently enhance their food security.

Urban households use several strategies to ensure access to food in the midst of food related challenges that may potentially restrict their access to food in urban spaces. Among the most common strategies employed by urban households to ensure access to food in the urban setting in the global South include skipping of meals, reducing number of meals, begging for food, sharing of meals with neighbours, resorting to remittances for food, reducing/cutting size of meals, eating less food than household member felt they should, sleeping without food, engaging in urban farming, resorting to informal markets for 'cheaper' food, looking for jobs (casual jobs), among other strategies (See Tawodzera, 2010; Tevera *et al.*, 2012; Mvula & Chiweza, 2013; Raimundo *et al.*, 2014; Leduka *et al.*, 2015; Crush & Caesar, 2017b). Chatterjee *et al.* (2012) found that these coping strategies are also utilized in India (Mumbai) during food challenges where they found that more than half (52%) of the surveyed population reduce meals when there is insufficient food to eat, 49 percent eat less meals, 56 percent sleep without having eaten anything when they have food challenges and 32 percent skip meals.

The same pattern was found in Cameroon, where households were found to respond to food shortage by eating less frequently, change diets, resort to wild fruits, and most increase their expenditure on food in response to high food prices (Sneyd, 2013). Belachew *et al.* (2013) in a study conducted in Ethiopia also found that a larger proportion (89%) of Ethiopians reduce meals when there is food shortage, 24 percent go the whole day without food, and 21 percent resort to begging any time they face food challenges. The same is also noticed in other countries of the global South and other parts of the world such as Swaziland, Mozambique, and Malawi where these strategies tend to characterize most poor urban households. It is worth noting that desperation for food sometimes compel other poor households to engage in risky coping mechanisms that expose them to HIV and AIDS infection such as selling of sexual favours for food and this was found to be true in Swaziland (See Mamba & Peter, 2016). Even more interesting to note is that even in Senegal, these strategies are common where 21 percent of households who were studied were found to reduce the number of meals in response to food shortage (Magueye *et al.*, 2013).

## 2.14 Conclusion

Food insecurity continues to characterize most countries of the global South and is a major problem in Swaziland. Food insecurity is linked to poverty. As such, poor people tend to be more vulnerable to food insecurity since they usually lack sufficient income, secured jobs, and hence lack adaptive capacity to shocks such as food shortage and food price shock. Among the major drivers of high incidence of food insecurity in Swaziland and in the global South, in general, are political conflicts, high prevalence of HIV and AIDS, fluctuation or increase in food prices and natural disasters such as drought and storms. Drought is one major contributor to food insecurity (and poverty) in the Kingdom of Swaziland. Drought cripples productivity of the rural areas and causes crop failure, indirectly and directly contributing to increase in food prices, whose impacts are mostly felt by the poor through limited access to food (See: WB, 2015; OCHA, 2016; Amadeo, 2018).

Since agriculture is the major source of rural livelihoods in Swaziland, its disturbance (by drought) increases the vulnerability of the rural poor to hunger and food insecurity due to limited livelihood options in rural Swaziland. As such, the poor performance of the agricultural sector, coupled with the rising levels of poverty, induce rural-urban migration as people look for other forms of livelihoods. This kind of movement ultimately increases the incidents of urban poverty and urban food insecurity. It is not surprising, therefore, that levels of poverty and food insecurity in urban Swaziland continue to rise, which coincides sharply with the increase in the frequency, duration and intensity of droughts in the country. While efforts to capture impacts of drought on food production have been made in Swaziland, nonetheless, the impacts of drought on access to food in the urban environment has not been explored. There is a gap in literature on the connection between drought and urban food security in Swaziland. Specifically, it is not known how drought impacts food security in urban Swaziland and the effects of drought on access to food remain unknown. We also don't know the role of rural-urban food transfers in shaping food security in Swaziland cities, especially during drought periods where this food exchange process can be disturbed.

## **CHAPTER 3: CONCEPTUAL FRAMEWORK: UNDERSTANDING THE DROUGHT - URBAN FOOD SECURITY NEXUS**

### **3.1 Introduction**

This chapter presents the framework for interrogating the connection between drought and food security in the urban context. This will help in understanding how food security drivers are directly or indirectly impacted by climate induced extreme weather events such as drought and how this impacts on the food security component and resulting household food insecurity. The chapter also outlines food security drivers, and further provides the variables to be considered in the assessment of household food security.

### **3.2 Conceptualization**

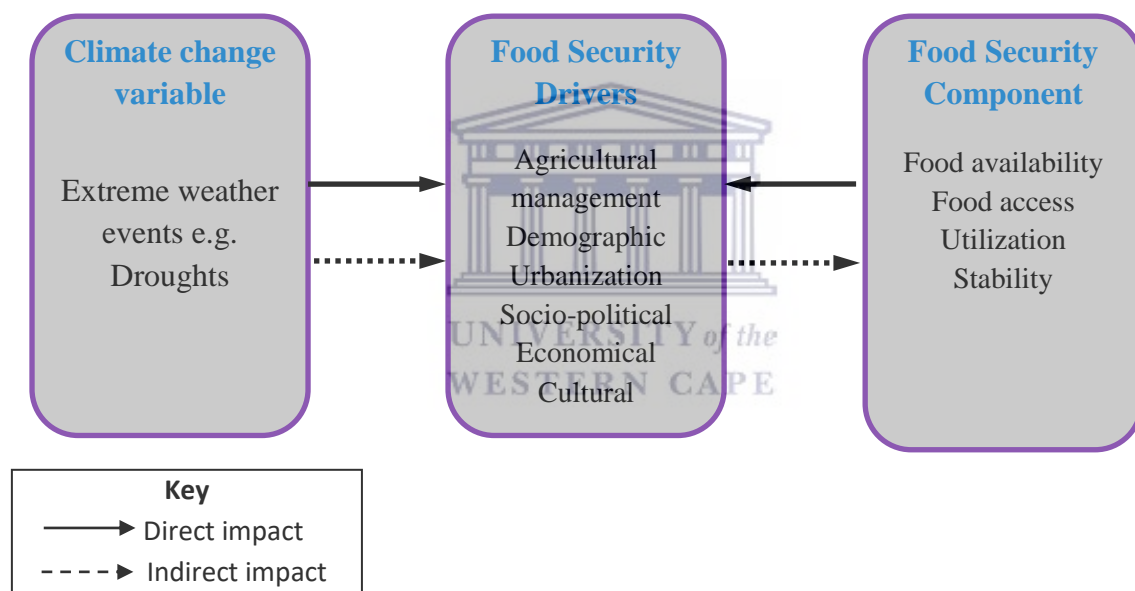
In order to understand the impacts of climate change-induced droughts on food security, it is necessary to understand the linkages between climate change, food security, and its drivers (Figure 3.1). The figure shows three boxes and the first box comprise of climate change variables which may be extreme weather events such as drought. The second box shows the drivers of food insecurity, which include agricultural management, urbanization and other drivers which may be demographic, socio-political and cultural in nature. The final box shows food security components: food availability, access, utilization and stability of access. The drivers, which can all be impacted by a change in climate variables (e.g. increase in frequency of extreme weather events, e.g. drought) in some way, can include agricultural management as well as socio-economic, demographic, cultural and political variables that can be directly or indirectly impacted by climate. Depending on the impact and ability to adapt to the shock or drought condition, food security, through its four components, will be directly or indirectly affected.

#### **3.2.1 Climate change variable**

The climate change variable - extreme weather event, which in this context is drought, can impact either directly or indirectly each of the food insecurity drivers. These include the agricultural sector where a change in the management of the sector may be needed to adapt the agricultural system to the drought condition to ensure it remains



productive even under existing drought conditions. Depending on the socio-political context and cultural forces in the affected area, people may be resistant to the necessary changes, which may include adoption of new agricultural management systems to adapt the agricultural sector to the current climatic trends. Crop failure and poor performance of the agricultural sector, due to failure to adopt new agricultural technologies, may lead to population migration from affected areas (rural areas) to ‘safer areas” (cities) (FAO, 2018a). Poor performance of the agricultural sector may also lead to loss of on-farm employment and/or increase in the prices of food items in short supply (in response to the law of demand and supply) (Bank, 2018). This will affect the economy of the affected households as they have to increase their expenditure on food, hence the economic driver in the framework (Figure 3.1).



**Figure 3.1:** Linkages between climate change induced droughts and food access

**Source:** Ziervogel & Frayne (2011)

The agricultural sector, which is highly vulnerable to drought, can be impacted by drought in different ways. Drought, which is a protracted period of deficient precipitation which results to extensive damage to crops (NDMC, 2018), may cause late onset of rainfall, shift in farming season or greater variability in rainfall which makes rainfall highly unpredictable. In any of these cases, agriculture is impacted directly (e.g. crop failure due to low moisture content) or indirectly (e.g. reduction in land under

cultivation and changes in ecological properties which makes the place no longer suitable for previously grown crops) resulting to low crop yields and lack of food variety.

Prolonged periods of dryness put too much pressure on available water resources, while high temperatures, which are associated with dry conditions (drought), also increase the rate of evaporation leading to reduction in water sources. As a result, drought can result to drying up of water sources such as wells, lakes, dams and rivers, directly impacting on the agricultural system and its productivity and to the household at large. For instance, there will be lack of sufficient water for irrigation which will result to crop failure and food shortage. There might also be shortage of water for domestic use, particularly in urban areas where the water demand is high. Water shortage may lead to water rationing, which may affect the economic activities of most households.

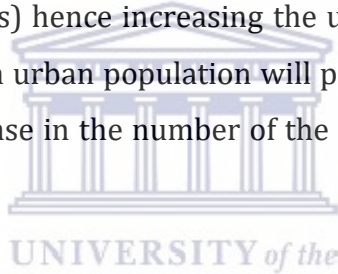
Prolonged drought can also result to assets loss, which increases the vulnerability of households in drought prone areas to the effects of drought. For instance, drought may lead to damage of rangelands resulting to death of livestock. Rearing livestock is one important form of livelihood in most rural areas in countries of the global South, and in Swaziland, in particular. Death of livestock impacts directly to the economy of most rural and urban households. Livestock are sold in times of financial challenges. They are sold during drought conditions to buy food, hence increase the adaptive capacity of affected households. Therefore, death of livestock reduces the adaptive capacity of most households and increases their vulnerability to food insecurity.

Worth noting is that the agricultural sector, which is the mostly vulnerable sector to drought effects, also provides a pathway through which the other food insecurity drivers are impacted by drought. For example, drought impacts on the agricultural sector through reduced crop yields as a result of reduced water quantity and changes in ecological properties, which may require new agricultural management technologies to adapt to the new changes. Failure to adapt (due to socio-political, cultural and sometimes economic factors) will lead to persistent crop failure, which may induce rural-urban migration (FAO, 2018a). On the other hand, adaptation may lead to

resilience in the food system and contribute positively to food security (availability of adequate food).

### 3.2.2 Food insecurity drivers

The food insecurity drivers, as indicated in the framework (Figure 3.1), are all susceptible to drought impacts and may be impacted directly or indirectly by drought, with the agricultural sector providing the connection to the other food insecurity drivers, as already noted. When the agricultural sector is directly or indirectly impacted by drought, adoption of new agricultural management technologies (which is a function of socio-political, cultural and sometimes economic factors) will make the sector resilient to drought impacts, resulting to better crop yield which contributes to food security by ensuring adequate supply of food. Failure to adapt the agricultural sector to drought impacts will result to crop failure due to insufficient rainfall which will trigger demographic shifts (mainly from affected agricultural areas in rural areas to non-agricultural area in urban areas) hence increasing the urban population (urbanization) (Knorr *et al.*, 2018). Increase in urban population will put pressure on available food in urban areas, resulting to increase in the number of the food insecure in cities (as more people will lack access to food).



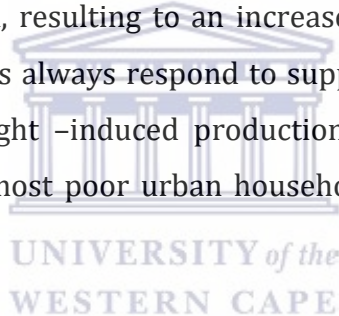
On the other hand, poor adaption strategies or failure to adapt agriculture to drought conditions will lead to crop failure and low yield. Low yields will result to food scarcity and lack of food variety, which will trigger price increase for food items in short supply making the food too costly and hence inaccessible, particularly for the poor impacting negatively on their food security status (Bank, 2018). In the same way, drought can lead to shortage of food variety which can compromise the nutritional status of majority of the affected population as people will be forced to change or even compromise their diet.

Among the socio-political factors are government systems and policies that may directly or indirectly influence urban food security such as food security policies (which sometimes fail to recognize the urban areas as home of the food insecure, hence silent about urban spaces), unequal access to land due to land tenure issues (which may sometimes marginalize women and the youth, and governance issues may include

restricting access to certain important factors of production and services (e.g. restricted access to loans for subsistence farmers and subsidies or increased access to loan for commercial farmers and implementation of subsidies for the same), among other things. Cultural issues, among others, may include cultural traditions such as restricting access to production inputs for certain groups, upholding to certain cultures and traditions that frustrate innovations and the cultural concepts of food sharing (food transfers) between households.

### **3.2.3 Food security**

Food security, the ability to access enough safe food that is nutritionally adequate, is impacted indirectly by drought through the food insecurity drivers. As already alluded to, crop loss to drought as a result of lack of adaptation will lead to food deficit that will increase the levels of food insecurity as a result of inadequate food supply. On the same point of supply, drought-induced rural-urban migration will put pressure on available food in the area of destination, resulting to an increased proportion of urbanites that lack access to food. Food prices always respond to supply and demand. Food shortage (which may result from drought –induced production shortfall) trigger food prices, making food inaccessible for most poor urban households, hence compromising their food security situation.



Drought, through the agricultural sector, can impact on food security through intermittent supply of food to cities. Drought is seasonal and can also be very recurrent. The seasonality of drought contributes to instability in food supply and ultimately contributes to urban food insecurity. Loss of on-farm employment as a result of retrenchments from agricultural industries (e.g. sugar plantations) due to reduced land under cultivation during drought periods compromises the purchasing power of households and restricts their access to food. Both drought-induced urbanization and drought-induced production decline will result to steep increase in food price which will impact on the food security outcome of individual households. High food prices will result to affordability problems for the urban poor, resulting to most of them failing to access adequate food due to low purchasing power. This will also compromise their dietary preferences and intake as they will rely on a lean diet, resulting to rising levels of food insecurity.

Food insecurity components provide a direct feedback to the food security drivers (Figure 3.1). For instance, food insecure households usually exhibit high rate of poverty and poor households spend most of their income on food as a result of high food prices. These households will be left with nothing to invest back to innovative agriculture to adapt it to drought conditions. Households will lack money to buy drought tolerant crops and early maturing seeds to adapt to short farming seasons and will not have money to invest to conservation agriculture. This will, in turn, result to poor crop yield and food insecurity. Poor and food insecure households, as already noted, spend most of their income (sometimes over 70 percent) on food (Maxwell, 2000; ADB, 2012). This worsens their already compromised economic condition and further increases their vulnerability to drought impacts, poverty and food insecurity.

#### **3.2.4 The drought-urban food security link**

Drought impacts all the food security drivers directly or indirectly (Figure 3.1). Drought can impact the agricultural sector in many ways which may include disturbing the farming calendar (shifts in farming seasons and late onset of rainfall), change the rainfall regime and cause greater variability in rainfall amount. In affected communities, the existing social, political and cultural forces may lead to resistance of most people to change and adopt new agricultural management system to increase their resistance to drought impacts. This may include the use of hybrid seeds that are more drought tolerant, adoption of new innovative farming methods such as conservation agriculture and shifting to other crop types. Failure to adapt may lead to widespread crop failure that may ravage rural areas by reducing available food in rural areas and reduce food to be transferred to the city as rural areas are a major source of food for urban centers. This would mean rural farmers would have less food to eat and nothing to trade for money to meet other family financial needs. This will cause demographic shifts as people from affected rural areas migrate to urban areas in search for better livelihood options due to failure of the agricultural sector - the key source of rural livelihood and food.

The migration of people to urban areas puts pressure on food supply in cities, resulting to food shortage and high contestation for available food leading to steep increase in food prices, which will further restrict access to food for most poor urban households

with low purchasing power. So, all these food security drivers when impacted directly or indirectly by drought will impact the four components of food security: availability, access, utilization and stability of access. But there are also feedbacks from the outcomes of food security to the drivers. For example, if there is prolonged droughts and this is not addressed by agricultural management strategies such as the provision of irrigation system or shifting to more drought tolerant crops, crop yields will decline and reduce food availability and hence access. This might then impact on the price of the crop and of food, in general.

This economic driver might then affect accessibility to food, resulting to high expenditure on food. This will erode the financial resources of poor households who are known to spend most of their income on food during food price increase. This will result to depletion of their finances, leading to lack of resources for investment in the new farming technologies to increase their resilience to the effects of drought in their agricultural system. This will lead to poor yields and increased vulnerability to food security, that is, less food will be available which will again trigger food price increase and restrict access to food for the urban poor and the cycle continues. To date, the focus on the impacts of drought on food security has been on availability and production, in particular. This is the area where the impacts of climate change-induced droughts are likely to be felt the most and the soonest. Increases in the frequency of droughts affect local production negatively, especially in subsistence sectors like Swaziland.

In addition, accessibility to food can be impacted by different extreme weather events which may also include floods in addition to droughts, the focus on this study. If infrastructure is damaged or destroyed, either through heat stress on roads or through increased frequency of flood events that destroy infrastructure, distribution of food could be impacted. These factors could also impact people's access to food and markets to purchase food. Access to food is particularly important in urban areas experiencing rapid urbanization. Some urban settlements may have access to food through sourcing it from the rural areas where it is produced, like in the case of Swaziland where rural-urban food transfers are crucial (Tevera *et al.*, 2012). Decline in food production in these areas (rural areas) as a result of drought, will restrict food flows to the urban areas and this has negative implications for food prices. There will be increased need to

purchase food, which might result to high spending on food which can affect the urban poor. Reduced crop yields due to drought can affect allocation of food to different areas, which can also impact on its availability and hence accessibility. Most frequently, food needs to be purchased in urban areas and often in rural areas as well. Food prices are therefore a direct determinant of affordability and hence access.

### **3.2.5 Other factors that shape the food security landscape in urban areas**

While drought-induced production shortfall and food price increase are considered to be the main causes of food insecurity in both rural and urban areas, there are other factors that shape the food security landscape in cities, which this study recognize to have a potential to also shape poverty and food security issues in cities, Manzini included. Some of these factors, which may be socio-cultural and political in nature, are enshrined in states policies and system of governance, while others are embedded in societal norms, cultures, and traditions and unequal access to land and production processes (e.g. irrigation infrastructure, finance and inputs), among others.

In some cities such as Manzini, for instance, the practice of urban agriculture remains an illegal activity that is strictly prohibited by Municipal policies and vending (informal food outlets) is highly discouraged, regardless of the potential of these sources to provide cost-effective food. Due to a number of factors, one of which being insufficient research, some policies are outdated and miss current issues and trends in research that may be useful to inform policy. For instance, the 2005 Food Security Policy for Swaziland is silent about urban food (in)security, the same way Municipal policies are silent about the role of the informal sector and rural-urban food transfers in enhancing urban food security (See GoS, 2005a). Needless to say this cultural concept of food sharing and food transfer (rural-urban transfers) in the country is underpinned by the high rate of rural-urban migration and serves as one example on how these socio-cultural factors directly or indirectly shape the food security landscape in cities, particularly in southern Africa (See Warshawsky, 2011; Frayne *et al.*, 2010). These rural-urban food transfers have become an important food source in Swaziland, particularly in the informal settlements of Manzini (Tincancweni, Moneni and Standini) (See Tevera *et al.*, 2012), although its impact on urban food security has not yet been ascertained.

### **3.2.6 Conclusion**

The connection between drought and urban food security is not a straight forward connection but a complex one marked with various linkages and feedbacks which help in understanding the pathways through which drought impacts the food security of the urban population, the poor as it were.





## CHAPTER 4: THE STUDY AREA: KAKHOZA INFORMAL SETTLEMENT IN MANZINI

### 4.1 Introduction

This chapter gives an overview of the study area in terms of its geographical setting and socio-economic characteristics. Specifically, the chapter gives an overview of Manzini in terms of her geographical location, population patterns or trends and zero down to kaKhoza, the study site, to provide a detailed description of the area. Among the issues included about kaKhoza is her location in Manzini and the advantages of her location as a migrant destination, socio-economic profile and characteristics of the place. The chapter concludes by providing a justification of her selection as a study site.

### 4.2 Geographical setting

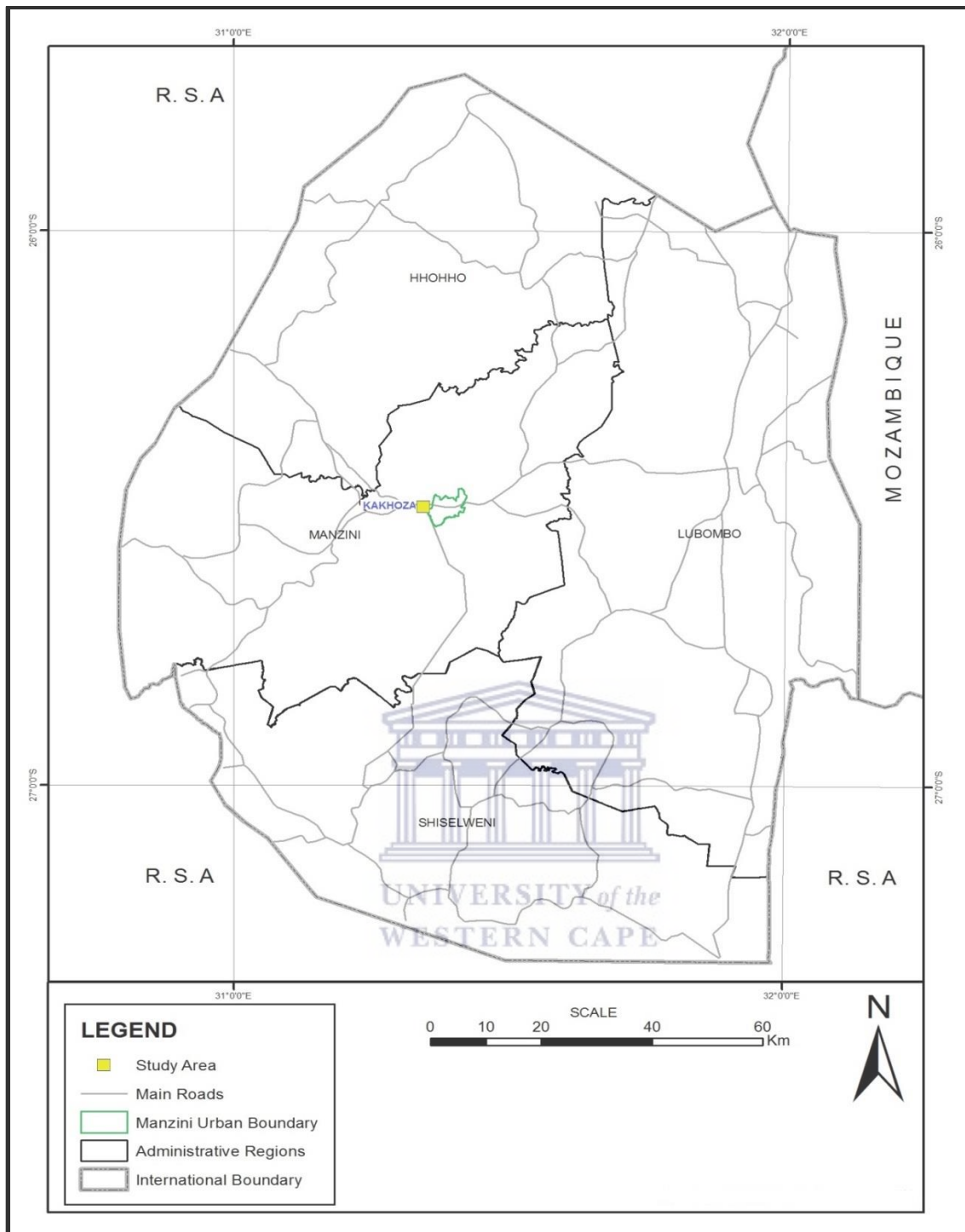
Swaziland is a landlocked country in Southern Africa, bordered by Mozambique in the East and the Republic of South Africa in the west, north and south. The country lies south of the Tropic of Capricorn, between latitudes  $25^{\circ}43'S$  and  $27^{\circ}19'S$  and longitudes  $30^{\circ}47'E$  and  $32^{\circ}08'E$  in south-eastern Africa (Dlamini & Mabaso, 2011). Manzini city lies in the Manzini region, closer to Mbabane, the country's capital, and closest to Matsapha, the major industrial estate of the Kingdom of Swaziland. Towards the western part of the city of Manzini lies kaKhoza Township, the case study site. Figure 4.1 below shows the location of Manzini in Swaziland and kaKhoza in Manzini.

The City of Manzini, formally known as Bremersdorp, is the commercial, agricultural and transportation heart of the Kingdom of Swaziland, hence the nickname 'Commercial Hub' and is the regional capital of the Manzini region. It is fairly central from any point within the Kingdom, well linked by roads to various other movement networks in all directions throughout the country, and thus serves well as the nation's 'commercial Hub'. The City forms part of the Mbabane-Matsapha-Ezulwini-Manzini Development Core of the Kingdom of Swaziland. This core hosts the primary commercial, industrial, institutional and tourism activity in the country and is thus also situated on the development corridor.

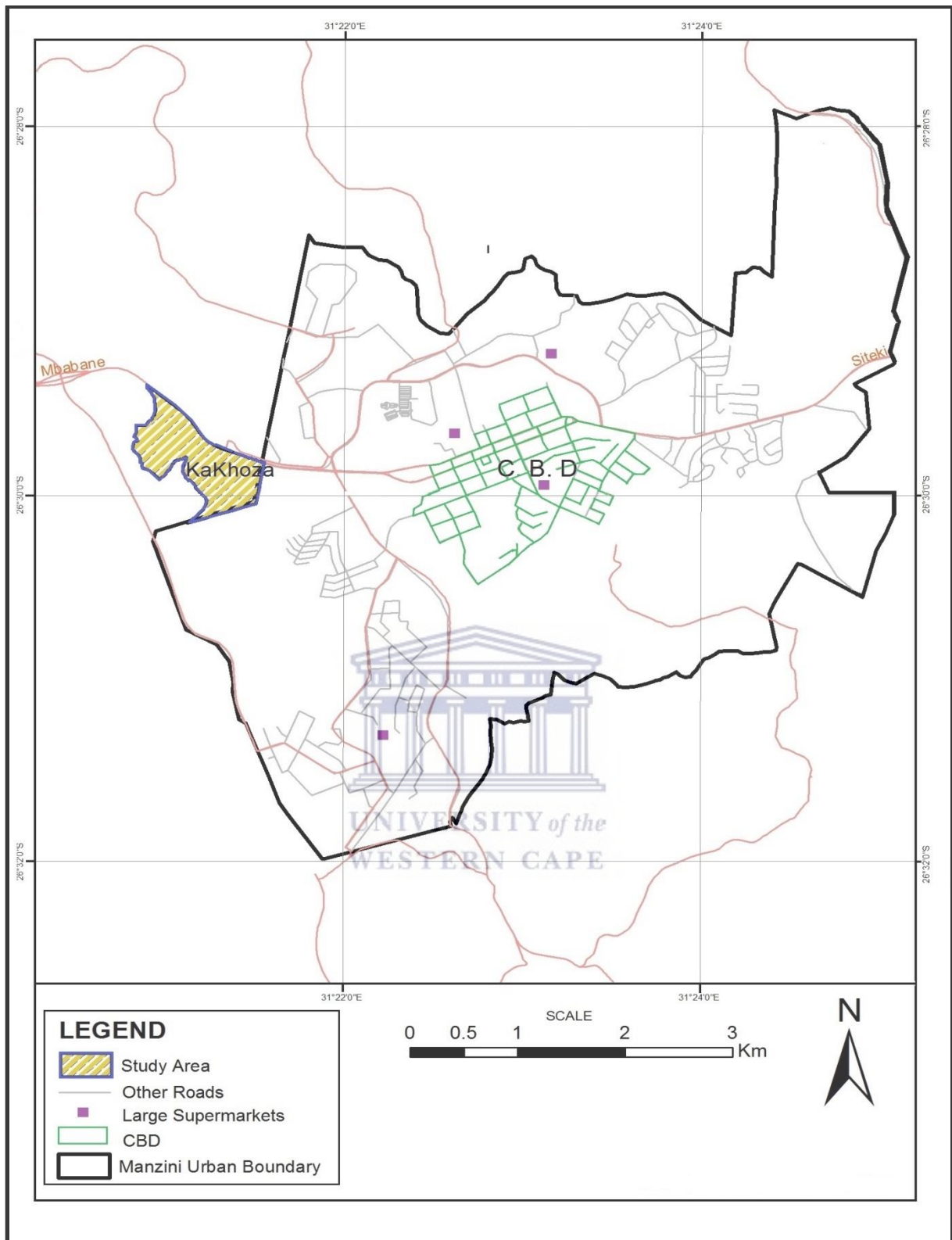
KaKhoza Township is a poor neighborhood and informal settlement located at the western terminus of Manzini city, along the Manzini-Mbabane highway (Figure 4.2). It is one of the few informal settlements that have been allowed to grow in the urban periphery of Manzini. KaKhoza is accessible and strategically located 3.3 km from Manzini city and 5.2 km from Matsapha. Its location contributes to the city being a popular destination for most of the rural migrants who come to the urban areas in search for employment in the city of Manzini and industrial estate of Matsapha.

As an informal settlement in the peri-urban zone of Manzini city, kaKhoza exhibits features of informal settlements in the rural-urban fringe of the Kingdom. Among such features include high population density, unplanned temporal and semi-permanent apartments, poor service delivery, and occupants living in poverty situations, among other things. Due to the demand for shelter/housing, agricultural land is being swallowed up by settlements and these changes in land use result to a shift in forms of livelihoods (from on-farm or agricultural based livelihood to off-farm or wage employment) and rising levels of unemployment and poverty (Sithole *et al.*, 2015). Swazi Nation Land (land governed by chiefs and held in trust by the king for the Swazi nation, acquired through a traditional process known as *kukhonta*) is slowly being replaced by Title Deed Land (privately owned land where the owner has complete ownership of land), hence the increased interest of Manzini city authorities to the area (which is currently in a process of being upgraded into a Township (Mhobodleni Township) and the extension of its laws and policies which prohibits the practice of agriculture, which has been the main form of livelihood (Simelane, 2018).

Several policies have been put in place by the government of the Kingdom of Swaziland to monitor and regulate peri-urban development to mitigate impacts of development in these areas. These policies include the National Housing Policy (focus on efficiency of the housing market and ensures households' access to essential services such as sanitation, water and waste removal), National Land Policy (controls acquisition and management of land), and Peri-Urban Growth Policy (manage the urbanization process in peri-urban areas and focus on incorporating current land use into urban areas).



**Figure 4.1:** The Location of Manzini in Swaziland



**Figure 4.2:** Location of kaKhoza in Manzini

### 4.3 Urbanization and urban growth in Swaziland

Since Manzini was declared a city by his Majesty King Mswati III in 1992, it has grown rapidly since then. Following the king's declaration, new infrastructure was set up and more services were introduced, which attracted more people to urban Manzini for jobs and investment opportunities (MCM, 2017b). Just as it was during the colonial period where Manzini was used as a central depot (as opposed to Mbabane) in which Swazis seeking employment in South African mines were recruited by South African companies, the city continues to attract rural migrants (within and outside the country) who seek employment. As such, the population growth trends of Manzini have been on the rise from 6, 081 in 1966; 10, 019 in 1976; 16, 396 in 1997; and 28,744 in 2007 (CSO, 2007). The then night-time population size of 28,744 as recorded by National Population Census (2007) is today estimated at around 40, 000 people, while the daytime population is currently estimated at about 120, 000 people (MCM, 2017b).

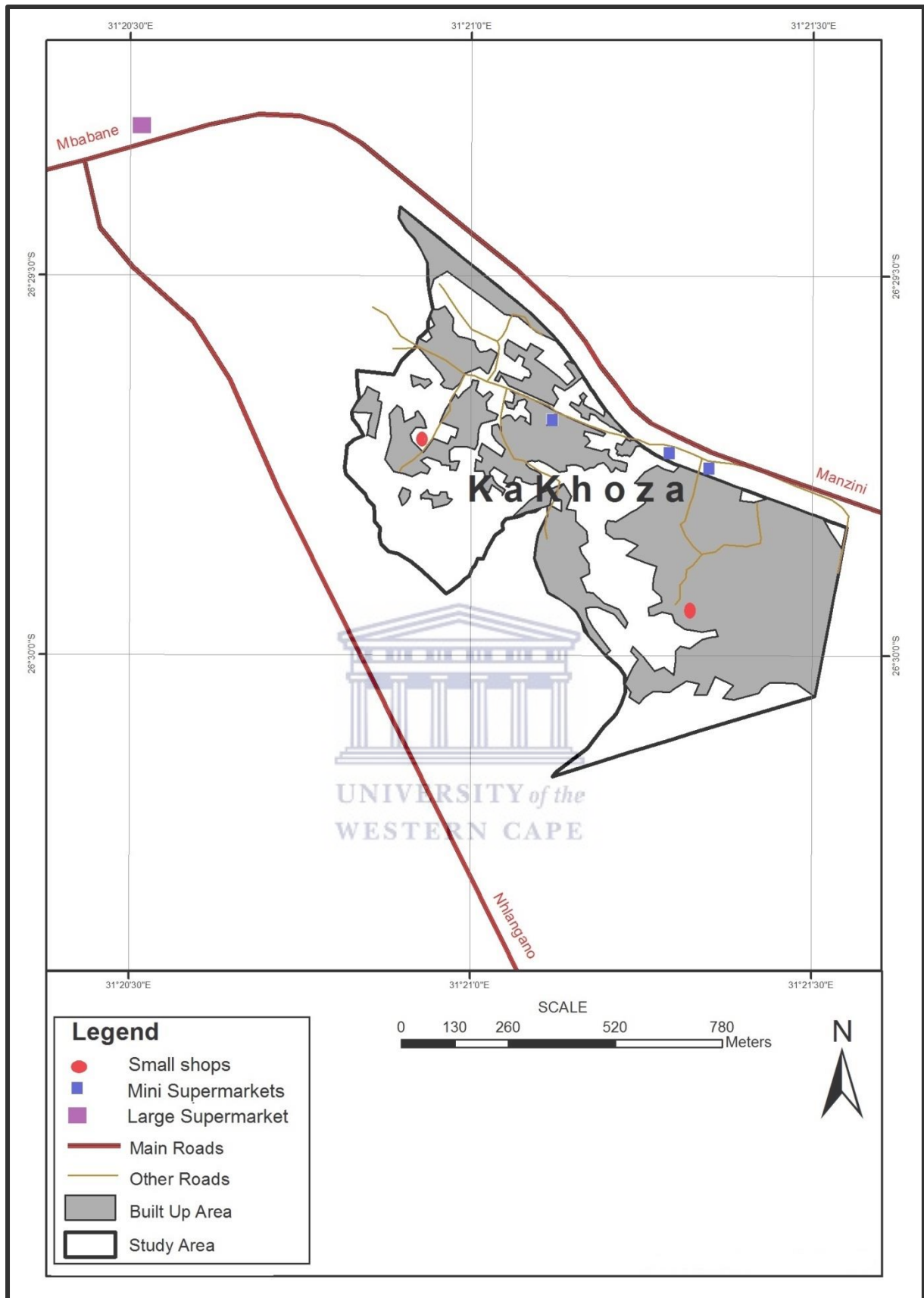
A similar pattern is observed in the City's peri-urban population which has increased from 10,025 in 1966 to 19211 in 1997 and currently stands at 24 985 people. Given the current growth rate, it is projected that the peri-urban population of Manzini may increase to 44, 726 people in the next decade (MCM, 2017a). The Manzini urban population is characterized by a large, young female population, mainly in the age group of 15-29 years. Most of these females work in the firms and textiles industries in the nearby Matsapha industrial estate. It is important to mention that most of the jobs in the firms are low paying jobs with an average monthly salary of SZL 1000.00 (approximately US\$100). As a result, a significant percentage of the population resides in informal settlements in the city's peri-urban zone. Given the average household size of 5 people per household in the peri-urban, it is estimated that an increase of 240 housing units will be needed in the next ten years to accommodate the additional 2400 households, if the current growth rate persists (MCM, 2017a).

Although not the largest in terms of area size, Manzini (4,068 hectares) has the largest population size after Mbabane, the capital of the Kingdom of Swaziland. This makes the city to have the highest population density in the country (11 people per hectare). Among the many factors which account for this include the location of the city (in the central part of the country) and its accessibility, opportunities for employment offered

by the city, opportunities for trade and the city's proximity to Matsapha, the main industrial estate. The city attracts rural migrants from all over the country who migrate to the city for different reasons, the main one being employment opportunities. Among the factors contributing to the large migrant population is drought (FAO, 2018a). As a result of the poor performance of the agricultural sector, the major employer of the rural population, people migrate to Manzini and other urban areas in search for employment (FAO, 2008b; Rain *et al.*, 2011).

Due to the economic status of most of these rural migrants, the city has seen a rapid development of informal settlements on its urban boundary, namely kaKhoza, Moneni, Tincanceni, Standini and Logoba, among others. This has been evidenced by the rate of growth (3%) of its peri-urban population between 1997 and 2007, which is the highest percentage ever recorded and the most rapid growth that has never been experienced in any other urban area in the Kingdom. KaKhoza Township is one informal settlement that has experienced the highest growth in population given its area size (0.36 km<sup>2</sup>), hence the most densely populated informal settlement in Manzini, with a population of 1509 people (CSO, 2007). This is not surprising as this Township has been absorbing most of the migrants from the rural areas of the Kingdom to the city of Manzini and the nearby industrial estate of Matsapha due to its strategic location and accessibility.

Figure 4.3 below shows the location of kaKhoza along the Mbabane-Manzini Highway, which is indicative of its accessibility which easily facilitates mobility, hence the high population density in the area.



**Figure 4.3:** Location of kaKhoza along the Mbabane-Manzini Highway

#### 4.4 Socio-economic profile of kaKhoza

Swaziland has one of the highest unemployment rates in southern Africa, which is estimated at 28.1 percent (AFDB, 2016b). About 63 percent of Swazis live below the national poverty datum (AFDB, 2016b; IFAD, 2016). This tough socio-economic situation has been further aggravated by the 2015/16 drought, the worst drought ever recorded in national history, which led to the poor performance of the agriculture sector, and triggered a new wave of rural-urban migration.

As already alluded to above, kaKhoza comprises mainly of jobless rural migrants who are attracted by the low cost accommodation (as low as E150.00 per month) offered by the area. For many of these urban dwellers, living in the city is a temporal arrangement, evidenced by the growing patterns of what is referred to in the urban and peri-urban areas as “train”<sup>3</sup> accommodation (Figure 4.4). By their design is the suggestion of a non-permanent dwelling in the urban surrounds.



**Figure 4.4:** Accommodation in kaKhoza, Manzini

**Source:** Field work, 2016

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<sup>3</sup> This building has six one-room flats which provide cheap accommodation to low income households in kaKhoza.



Due to its location and the other 'favourable conditions' already discussed above, this informal neighborhood continues to attract rural-urban migrants who are either seeking employment or are employed in low paying jobs. KaKhoza continues to be a leading informal settlement in terms of population density and overcrowding compared to other informal settlements in the City of Manzini. Most of the inhabitants at kaKhoza are mainly temporary residents employed or seek employment in Matsapha (Swaziland's main industrial estate). A good majority of the inhabitants of kaKhoza engage in piece jobs and temporary or low wage employment such as maids, garden boys, security personnel, salesman (for Japanese import cars), carwash and some are employed by the road construction company which has been upgrading the Manzini – Mbabane highway.

Most women are hawkers and sell fruits, vegetables and food which include cooked food, small packets of maize meal, beans and other food stuffs. Very few residents of kaKhoza are employment in decent jobs such as nursing, teaching and other white collar jobs. This makes many people in the area fail to afford water bills although water in the area is supplied by Swaziland Water Services Cooperation (SWSC). As a result, not all homesteads are connected to SWSC piped water. Most of the inhabitants who are not connected to pipe water 'buy' water from those who are connected to the SWSC piped water system (Mhobodleni Local Board, 2016). Majority of the unemployed residents in kaKhoza, however, are actively seeking employment in Manzini and Matsapha, among other areas. KaKhoza, therefore, due to its location (between Manzini and Matsapha) becomes an ideal residential area due to its location which facilitates mobility of labour to and from Manzini and the industrial estate of Matsapha - the main focus for most migrants. While the other informal settlements in Manzini have been the focus of the few studies done on urban food security in Manzini, kaKhoza has not been studied, in spite of it being a popular destination for most migrants.

While the country, through its decentralization policy, has tried to narrow the development gap between the rural and urban sectors by introducing rural development programmes through the Tinkhundla System of governance, this effort has been undermined by different socio-cultural factors that have shaped rural societies in the country. Examples of such factors being the unequal rights to access to land, access

to production processes (e.g. irrigation infrastructure and finance) and to agricultural input, with the former being enshrined in the country's land tenure system and perpetuating the marginalization of women and the youth. It is important, however, to note that the role of women in agriculture is recognized by the country's food security policy which acknowledges the importance of removing the barriers that hinder the full participation of women (major food producers) and the youth (which form majority of the rural population) in agriculture by giving them rights to inherit and own land (and other properties) as a step towards poverty and food insecurity alleviation, hence achieve the country's Vision 2022 and the Sustainable Development Goals.

Although the country's agriculture and food security policies recognize the role of women as food producers (which is also affirmed by the country's constitution), as already noted, this cultural concept of unequal right to access to land (perpetuated by and marginalization of women) still characterize most traditional societies in the country, more so because Swaziland is largely a patriarchal society that upholds culture and tradition. It is this culture or tradition that underpins rural-urban food transfers and food sharing between households, although this cultural practice, in most recent years, has been done more out of need and as a strategy to enhance access to food in urban areas. These are some of the socio-cultural variables that directly or indirectly influence food security in both rural and urban areas in the country.

Most of the residents of kaKhoza do not have enough land for cultivation. Those who have land practice agriculture, or allow their tenants to grow crops in backward gardens. It is important, however, to point out that the practice of agriculture in urban or peri-urban areas in Swaziland remains an illegal activity as stipulated in the municipality policies. This, therefore, encourages cultivation of smaller land and discourages large scale urban farming even for households who might have sufficient land. This militates against poverty reduction and achievement of food security in urban areas, more so because the potential of urban agriculture in alleviating poverty and food insecurity has been recognized by scholars, more so in southern Africa (Acquah *et al.*, 2013; Mvula & Chiweza, 2013; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012).

#### **4.5 Conclusion**

Against this background, one can conclude that the choice of the study area was motivated by the fact that kaKhoza is one of the poorest residential areas in Manzini and would, therefore, be likely to yield more information on how the urban poor strategized to meet their food needs during the national drought crisis of 2015 to 2016. The concentration of low-income people in the area was thought to be more likely to yield useful information on how the urban poor construct their livelihoods and contend with food insecurity challenges in the urban environment in the face of recurrent drought in the Kingdom of Swaziland.



## CHAPTER 5: METHODOLOGY AND RESEARCH DESIGN – A MIXED METHOD APPROACH

### 5.1 Introduction

This chapter details and justifies the methodological approach used to investigate the effects of drought on access to food by low income urban households in Manzini. Philosophically, this research draws from both the positivist and interpretative traditions which underpin the methodological approach adopted in this study. In addition to a detailed discussion of these two philosophical approaches adopted in this study, this section also provides an in-depth and more explicit overview of the empirical data collection process, instrumentation and the methods of analysis employed during the research inquiry. This chapter opens by a detailed discussion of the research paradigms for this research study and further outlines the proposed research design – a mixed method approach – combining both quantitative and qualitative methodologies aimed at providing a richer contextual basis for understanding household food security in an urban setting. It will conclude by providing a synopsis of the challenges and limitations encountered during the research process.

### 5.2 Research paradigm

The term ‘paradigm’ is of Greek origin and can be traced back to the 1960s from the work of Thomas Kuhn who first used this term to denote a conceptual framework shared by a community of scientists which provided them with an expedient model for examining problems and finding solutions. Different authors have used different terms to refer to the same concept of paradigm, for example, ‘philosophical assumptions’ Crotty (1998) and ‘research methodologies’ (Neuman, 2000). A paradigm, according to Kuhn (1977) is a research culture with a set of beliefs, values and assumptions that a community of researchers has in common, regarding the nature and conduct of research. This definition is in tandem with Rubin and Rubin (2005) and Guba and Lincoln (1994) who also regard a paradigm as a set of basic beliefs that deal with principles about the nature of the social world.

Other scholars such as Gilgun (2005) and Ambert *et al.* (1995) consider paradigms as epistemologies or methodological perspectives. To Taylor *et al.* (2007) a paradigm is

simply a broad view or perspective of something. A paradigm, therefore, implies a pattern, structure and framework of a system of scientific and academic ideas, values and assumptions (Olsen *et al.*, 1992). These values, according to Kuhn (1977), are attached with corresponding methodological approaches and tools.

Understanding and nominating a research paradigm is an integral part of the research process since it informs the methodological approach to be adopted in the study. Mackenzie and Knipe argue that without nominating a paradigm as the first step, there is no basis for subsequent choice regarding methods and research design to be adopted in a study (Mackenzie & Knipe, 2006). The same view is held by Guba & Lincoln, (1994:105) who also maintain that ‘questions of method are secondary to questions of paradigm... the basic belief system or world view that guides the investigation, not only in choices of method but in ontologically and epistemologically fundamental ways’. In this regard, all research is grounded on some underlying philosophical suppositions about what constitutes ‘valid’ research and which research technique is suitable for the development of knowledge in a given research study.

Scholars such as Mackenzie and Knipe (2006) advise that when conducting and evaluating any research, it is important to know these philosophical assumptions since they provide a necessary base for understanding how the world is perceived and how it could be best understood. Discussed below are the two philosophical approaches: positivism and interpretivist, which do not only underpin the methodological approaches adopted in this research study, but also reflect the researcher’s beliefs as reflected by the assumptions embraced by these two philosophical approaches and further provide the lens through which the researcher views the world. Worth noting also is that there are three philosophical underpinnings: ontology<sup>4</sup>, epistemology<sup>5</sup>, and

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<sup>4</sup> Ontology – is the branch of philosophy concerned with the study of reality, and the articulation of the nature and structure of the world (Taylor, 1959; Guba & Lincoln, 1994). It attempts to provide answers of what constitutes reality and its nature (whether it is a product of one’s mind)(Burrell & Morgan,1979).

<sup>5</sup> Epistemology is the study of knowledge, its nature and how it can be acquired using different methods of enquiry (Hall, 1990; Guba, 1990;Hartmann & Lange, 2000).

methodology<sup>6</sup> identified as being foundational to the understanding of the interpretivist and interpretivist traditions (Scotland, 2012).

### 5.2.1 Positivism

According to Walsham (1993), the positivist position maintains that scientific knowledge consists of facts while its ontology considers the reality as independent of social construction. Creswell (2003) adds that the knowledge developed through the positivist lens is based on careful observation of the objective reality that exists “out there” in the world. In the positivists perspective, this reality, as Nudzor (2009) observes, exists independently of whether or not the ‘researched’ is aware of it and whether or not the social researcher has discovered its existence. The positivists, in other words, embrace the presumption that researchers do not by themselves create the patterns and regularities of social life but rather, they discover them.

Creswell (2003) further notes that positivism is reductionist in nature, and tends to reflect a deterministic philosophy. In simpler terms, in positivist’s research, ideas are reduced into small, discrete variables that can be tested to establish cause and effect relationship. Although the positivists philosophy has been largely associated with natural sciences research (Murphy *et al.*, 1998; Roth & Mehta, 2008; Nicholls, 2011), most recently it has been widely applied in other fields of study such as social sciences (Orlikowski & Baroundi, 1991; Alavi & Carlson, 1992; Steinmetz, 2006). Bryman (1984) allows that the positivist’s tradition can be applied in social research that applies natural science.

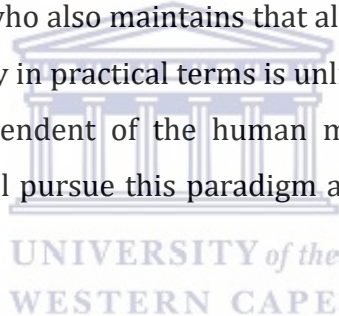
Gill and Johnson (2000) observe that positivist researchers tend to use a highly structured methodology in order to facilitate replication. Nudzor (2009) adds that methodologically, the positivists adhere to the idea of 'methodological monism' which portends that the scientific method of research is applicable as the best possible method of investigation across all disciplines. Additionally, positivist research uses largely quantifiable methods and tends to emphasize on quantifiable observations that lend

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<sup>6</sup> Methodology refers to how the researcher goes about practically finding out whatever he or she believes can be known (Guba & Lincoln, 1994). According to Crotty (1998), methodology lies behind the choice and use of particular methods.

themselves to statistical analysis (Neuman, 2004). Henning *et al.* (2004) also observe that positivist researchers are concerned with uncovering truth and presenting it by empirical means. Positivistic thinkers adopt scientific methods and systematize the knowledge generation process with the help of quantification to enhance precision in the description of parameters and the relationship among them.

Although the positivistic paradigm has continued to influence geographical research well into the twentieth century, it has faced criticism from scholars such as Gephart (1999) and Phillips and Burbules (2000) due to its lack of subjectivity in interpreting social reality. Phillips and Burbules, for example, argue that as researchers, we cannot be "positive" about our claims of knowledge, particularly when studying the behavior and actions of humans. Gephart (1999), on the other hand, contends that for effective interpretation of social reality, a certain degree of subjectivity is necessary and advocates for more practical methodological approaches. The same argument is advanced by Phillips (1990b) who also maintains that although positivism advocates for objectivity, complete objectivity in practical terms is unlikely, in spite of the fact that the object of inquiry exists independent of the human mind. These positivist scholars, however, acknowledge and still pursue this paradigm as an ideal approach to regulate our pursuit for knowledge.



### **5.2.2 Interpretivist**

Interpretive researchers believe that reality consists of people's subjective experiences of the external world thus, adopt an inter-subjective epistemology and the ontological belief that reality is socially constructed (Berger & Luckmann, 1966; Cohen *et al.*, 2007) and consistently changes. According to Deetz (1996), interpretive researchers attempt to understand phenomena through the meanings that people assign to them. Likewise, Myers (2009) argues that the premise of interpretive researchers is that access to reality is only through social constructions.

The interpretivist epistemology advocates that it is necessary for the researcher to understand differences between humans in their role as social actors. It emphasizes the difference between conducting research among people rather than objects, hence the term 'social actors' become quite significant in the interpretivist epistemology (Cohen *et*

*al.*, 2007). Unlike the positivists who advocate for highly systematized scientific methods and knowledge generation processes, interpretivists, as described by Willis (1995) in Antwi and Kasim (2015), are 'anti-foundationalists' since they believe that there is no particular method or correct route to knowledge. The same view is held by Walsham (1993) who also argues that in the interpretive tradition, there are no 'correct' or 'incorrect' theories.

The heritage of this strand of the interpretivist view comes from two intellectual traditions: Phenomenology (the way in which humans make sense of the world around them) and symbolic interactionism (the continual process of interpreting the social world around us). Interpretivists hold the view that we interpret our everyday social roles in accordance with the meaning we give to these roles and interpret the social roles of others in accordance with our own set of meanings, hence there is no objective knowledge which is independent of thinking, reasoning humans (Gephart, 1999). Interpretivists contend that it is necessary to explore the subjective meanings motivating the actions of social actors in order for the researcher to be able to understand these actions. Remenyi *et al.* (1998:35) stress the necessity to study 'the details of the situation to understand the reality or perhaps a reality working behind them'. In the interpretivist's perspective, the researcher has to adopt an empathetic stance and 'enter' the social world of their research subjects and understand their world from their point of view.

Interpretive researchers use meaning (versus measurement) oriented methodologies such as interviewing or participant observation, that rely on a subjective relationship between the researcher and subjects. Interpretivists, according to Creswell (2012) focus on the full complexity of humans, making sense of the situation as it emerges. Henning *et al.* (2004) sum up the interpretive methodology in three words: participation, collaboration and engagement. On another note, Burrell and Morgan (1979) note that the interpretivist approach is not a single paradigm but a large family of diverse paradigms. This view is supported by Weaver and Olson (2006) who also observe that the interpretive paradigm is connected with more methodological approaches that offer an opportunity for the voice, concerns, and performance of research participants to be heard.



Interpretive paradigm, as some scholars have also observed, is underpinned by observation (collection of information about events) and interpretation (making meaning of information by drawing inferences) (See Aikenhead, 1997; Kekwaletswe & Lesole, 2016). Reeves and Hedberg (2003) note that the 'interpretivist paradigm' stresses the need to put analysis in context. Scholars such as Deetz (1996) observe that interpretive approaches give the research greater scope to address issues of influence and impact, and to ask questions such as 'why' and 'how' particular technological trajectories are created. Proponents of interpretivist concur that the interpretivist tradition does not generate a new theory, but rather judges, evaluates and refine existing interpretive theories. Three uses of theory in interpretive case studies has been outlined by Walsham (1995) in his book: *Interpretive case studies in IS research: nature and method*. According to Walsham, theory in interpretivist is used to guide the design and collection of data, used as an iterative process of data collection and analysis, and finally, it is an outcome of a case study. The use of theory as an iterative process between data collection and analysis has been applied in this research study.

### **5.2.3 Positivist and interpretivist paradigms-rationale for selection**

Literature reveals that scholars base their works on certain philosophical perspectives and allow that research work to be based on a single or more paradigm(s), depending on the kind of work they are doing. Likewise, the philosophical assumptions underlying this study come mainly from positivism and interpretivist epistemologies. However, the study also has footprints of other perspectives: post positivism (a modified objectivist stance), constructivist's philosophies and postmodernism (as it supports different world views) and often uses conventional positivist and interpretivist methods.

Interpretive approach was selected as it allowed for an in-depth understanding of food security issues in Manzini, more particularly how the poor urbanites were impacted by drought in terms of access to food, which would have been rather impossible to gather using the positivists approach. The interpretive perspective was ideal for this task, as Deetz (1996) notes that it gives the research greater scope to address issues of influence and impact, and to address questions such as 'why' and 'how'. Additionally, the interpretive tradition advocates for field work and allows for context-based data collection and analysis of data and use of methods such as observation and interviews

which enable participants to be studied in their natural setting. Food security issues in Swaziland can be subjectively reported, particularly during drought situations in an effort to increase the chances to qualify for food aid, hence assessment of household food situation through observation was crucial.

Similarly, it was vital to engage in group discussions and in-depth interviews to gather details of the drought-food security experiences of the urban poor in the study area, hence the selection of the interpretivists approach. Interpretive researchers hold the view that reality consists of people's subjective experiences of the external world and believe that reality is socially constructed (Cohen *et al.*, 2007; Myers, 2013). Walsham (1993) affirms that the purpose of the interpretive approach in information science is to produce an understanding of the context and the process whereby information science influences and is influenced by the context. This assertion justifies the researcher's choice.

### **5.3 Research design: a mixed methods approach**

A research design is a framework for the collection and analysis of data (Bryman, 2007). Yin (2003:19) adds further that "colloquially, a research design is an action plan for getting from *here* to *there*, where 'here' may be defined as the initial set of questions to be answered and 'there' is some set of (conclusions) answers". Robson (1993) regards a research design as the overall strategy that researcher chooses to integrate the different components of his or her study in a coherent and logical way, so as to address the research problem.

In simpler terms, a research design is an action plan that details the steps to be followed by the researcher as he attempts to respond to the research questions in order to provide answers and draw conclusions to an investigation. It can also be viewed or thought of as a *master plan* of a research that provides illumination on how the study is to be conducted and how all the major parts of the research study work together to address the research questions (Bryman, 2015). Mouton (1996:175) observes that a research design serves to "plan, structure and execute" the research to maximize the "validity of the findings". It gives directions from the underlying philosophical assumptions to the data collection process.

The mixed method approach has been employed in this study, owing to its appropriateness in facilitating in-depth and better understanding of urban food dynamics and food security issues in the context of the recurrent drought in Swaziland. Mixed method approach refers to the combination of both qualitative and quantitative methodologies in the study of the same phenomenon (Denzin, 1978; Creswell *et. al.*, 2003). The combination of both qualitative and quantitative methods in a single study, as Sale and Brazil (2002) observe, is widely accepted and has characterized most recent research. In fact, Creswell (2014) notes that the mixed methods research has increased in popularity in recent years. As such, some researchers, the likes of Gorard and Taylor (2004), Tobin and Begley (2004), Johnson and Onwuegbuzie (2004) and Everest (2014) regard the mixed method approach as a third and distinct research paradigm.

Literature, however, reveals that scholars tend to use different terminologies to refer to this 'third and distinct' research approach. For instance, Burgess (1982) and Brannen, (1992) refer to this approach as 'multiple research strategies', Creswell (2003) and Tashakkori and Teddlie (2003) refer to it as 'multi-methods research' and 'integrated research', Teddlie and Tashakkori (2003) call it a 'mixed-methods research' while Gorard and Taylor (2004) refer to it as 'combined methods research'. Other scholars such as Bryman (2004) call the mixed method approach a 'multi-strategy approach' and to Tashakkori and Teddlie (1998), it is a 'mixed methodology'.

Scholars allow the combination of both qualitative and quantitative approaches to research (Clarke & Yaros, 1988; King *et al.*, 1994; Baum, 1995; Gorard & Taylor, 2004) and assert that this approach is compatible with any research paradigm. For instance, Guba and Lincoln (1994:105) note that 'both qualitative and quantitative methods may be used appropriately with any research paradigm...' as the researcher deemed fit. It is important, however, to acknowledge the ongoing debates concerning combining the qualitative and quantitative approaches to research. While some scholars such as Tolosa (2005) and Guba and Lincoln (1994) advocate for the combination of the two approaches, other researchers such as Knox (2004) dispute this practice.

Proponents of 'paradigm purism' discourage the amalgamation of qualitative and quantitative methods on the basis of their philosophical origin; 'constructivism' and

'positivism', respectively. On the other side of the coin is the contesting 'compatibility thesis' which contends that a researcher is permitted to combine the qualitative and quantitative approaches in the same way he is allowed to address a research problem that philosophically falls under both constructivism and positivism by choosing the most appropriate method or combining two methods.

Combining qualitative and quantitative procedures in this study was essential due to the nature of the phenomenon under investigation. Food security is a complex and multi-dimensional phenomenon with complex linkages and variables; hence the use of this dual approach provided the research with rigour, breath and an in-depth understanding of food security issues and how drought influences the food security (in terms of access to food) of the poor in the urban environment. The complexity of urban food insecurity, and more so, its complex link or connection with drought, necessitated the adoption of the positivists and interpretivists stance which underpinned and informed the methodology adopted in this research. It is on these two philosophical traditions that the mixed method approach assumed by this study hinges as Johnson and Onwuegbuzie (2004) have also noted that if a researcher employs mixed methods, it obviously implies that some elements of interpretivist and positivism will be combined since the mixed methods approach calls for the mixing of methodologies.

Scholars have identified advantages of combining the qualitative and quantitative approaches in a single study. There is a general consensus among scholars that each of the approaches (qualitative and quantitative) have limitations, thus there is no single research approach (when employed in a study) that can result to a comprehensive understanding of a phenomenon under investigation, and understanding it holistically. In fact, Turner *et al.* (2015) explicitly states that all methods, individually, are flawed but these limitations can be mitigated through mixed methods research to provide better answers to our problem of interest. Scholars such as Hancock (2002) and Karri and Colyar (2009) observe that while the quantitative inquiry is able to answer questions of 'what', 'how much' or 'how many', other important questions of 'how', 'why' and 'in what way' remain unanswered (See also Karri & Colyar, 2009; Hancock, 2002; Britten, 1995; Borrego *et al.*, 2009).

The latter questions, according to Ashatu (2009), cannot be answered through qualitative methods. Everest (2014) adds that findings from a study summarized in numerical form (quantitative study) may lack a pragmatic edification due to the silence they exert on respondents' feelings, explanations and recommendations. The qualitative method, therefore, is able to add this pragmatic edification since it allows the voice of participants to be heard (Scammell, 2010). This view is backed by Miles and Huberman, (1994) who also assert that words, especially organized into incidents or stories, have a concrete, vivid and meaningful flavour that often proves far more convincing than pages of summarized numbers. This, therefore, underscores the importance of combining both qualitative and quantitative methodologies.

Highlighting some of the benefits or advantages of combining qualitative and quantitative approaches, Ashatu (2009) observes that mixed methods helps to validate research results (See also Morse, 1991; Chi, 1998). This view is supported by Everest (2014) and Ihantola and Kihn (2011) who note that the combination of both the qualitative and quantitative methods increases the validity of theoretical propositions and gives a complete picture of the phenomenon under study, ultimately resulting to the production of high quality research findings. Fry *et al.* (1981) add that mixed methods facilitates the collection of better quality data. They further observe that mixing qualitative and quantitative methods helps researchers counter anomalies faced in analyzing quantitative data using the strengths of qualitative context. Gorard and Taylor (2004) also assert that this combined methods research and the combination of data derived through the use of different approaches, produce research claims that are not only stronger, but also claims that have increased potential of persuading policy makers. According to Pansiri (2005) and McDowell and MacLean (1998), mixed methods take advantage of the particular strengths of one approach in compensating for known limitations in the other under particular circumstances.

Writing in favour of mixed methods approach, Sale and Brazil (2002:46) argue that qualitative and quantitative methods can be combined since "they share the tenets of theory-leadness of facts, fallibility of knowledge, indetermination of theory by fact, and a value-laden inquiry process". In support, Reichardt and Rallis (1994) also add that both methods are also unified by a common obligation of disseminating knowledge

for practical use, and a shared commitment for conscientiousness, rigor and critique in the research process. King *et al.* (1994) also claim that both qualitative and quantitative research shares a unified logic, and that the same rules of inference apply to both. Actually, in Gorard and Taylor (2004) point of view, the combination of qualitative and quantitative methods can be handy when the researcher intends to explain, verify and generate a theory simultaneously. Casebeer and Verhoef (1997) argue that quantitative and qualitative methods should be viewed as part of a continuum of research with specific techniques selected based on the research objective. Clarke and Yaros (1988) consider combining research methods as crucial and useful in research, particularly when the phenomena being studied is complex and requires data from a large number of perspectives.

Gorard and Taylor (2004) portend that the use of mixed method approach cannot be circumvented when the social phenomena under investigation tend to have multiple empirical appearances. They contend that avoiding the use of mixed methods (in favour of qualitative or quantitative methods) will lead to needless disintegration of explanatory models. Haase and Myers (1988) conclude that the two approaches can be combined because both share the same goal of understanding the world in which we live. Having outlined the benefits of mixed methods and its contribution to high quality research, it is important to also highlight that scholars such as Collins *et al.* (2006) and Greene (2007) warn against taking mixed methods as a panacea for all researches and research problems in all circumstances.

Tawodzera (2010) observes that in Geography, the qualitative and quantitative approaches were conventionally regarded as two different means of assessing reality and notes that such dualism is nowadays considered or viewed as artificial in favour of the mixed methods approach which has become more tolerable. As a food security scholar that has also used the mixed method approach in his food security research works, Tawodzera notes that the combination of qualitative and quantitative methods in food security studies helps to “widen focus from the manipulation of pre- existing quantitative survey data towards issues that require subjective interpretation, including the socio-cultural context in which lived experiences are situated” (Tawodzera, 2012:76). This assertion finds support from other scholars, the likes of Merriam (2009)

and Scammell (2010) who also note that human behavior is always bound to the context in which it occurs and, for that reason, recommends that behaviour be studied holistically rather than being manipulated (Perone & Tucker, 2003).

Like many other researchers, the author of this research study believes that qualitative and quantitative data are complementary and hence subscribe to Everest's observation that "in order to produce high quality research findings...a mixture of qualitative and quantitative skills are needed" (Everest, 2014:13). Not in any way trying to engage to the century-long and unresolved paradigm debate, the researcher, however, supports Miles and Huberman's view that epistemological purity does not get research done, hence its unnecessary to be preoccupied with the quantitative-qualitative debate (Miles & Huberman, 1984).

Given the positivistic and interpretive position adopted in this research enquiry and the nature of the research, this research study adopted the case study approach (and used kaKhoza as a case study) to investigate the effects of drought on access to food by poor urban households in Manzini. The case study approach is recommended by scholars such as Yin (2003) and Ritchie and Lewis (2003) who state that the case study approach is effective when a researcher intends to study a contemporary phenomenon within its real-life context. Writing in favour of the case study approach to research, Yin (2003) notes that this approach gives a more complete picture and understanding of the phenomenon under investigation since it allows for the adoption of both qualitative and quantitative data collection methods, which presents a more coherent picture of a unique situation. Yin (2003) adds that the case study approach utilizes multiple methods of data collection which includes interviews, observation, and document reviews and, consequently, 'thick descriptions' of the phenomena under investigation.

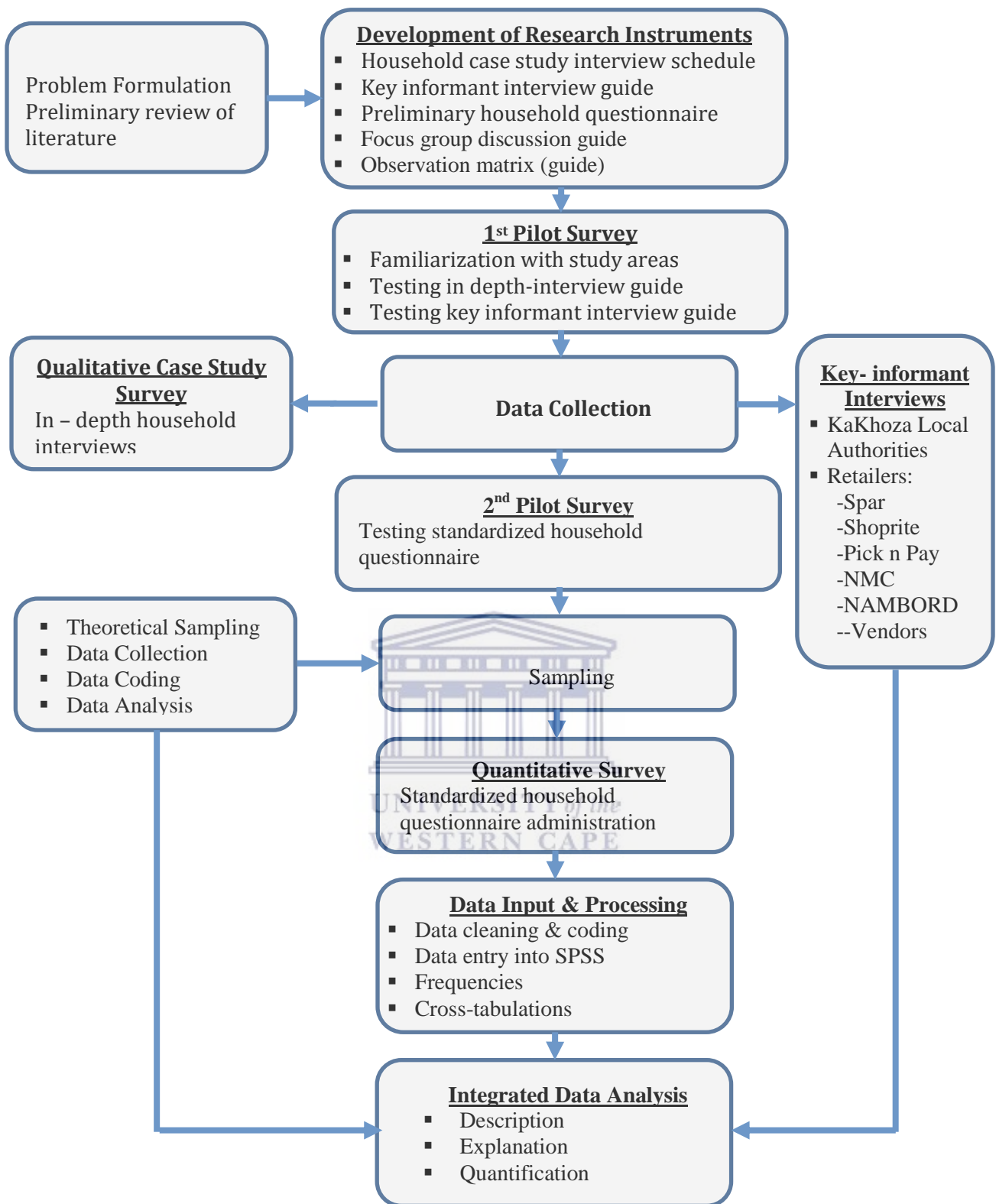
Tellis (1997) highlights that case studies do not claim to be representative, but emphasize on what can be learned from a single case and have value in advancing fundamental knowledge in the relevant knowledge domains. Food security and how it is connected to natural disasters such as drought in countries of the global South has been studied, but still not well understood, particularly in the urban context. The aim of this study is to contribute to the emerging climate change and food security debate by

exploring the effects of drought on urban food security, hence improve our understanding of urban food security issues in the context of climate change induced hydrological disasters such as drought. A single case study (of kaKhoza) was deemed to be sufficient for the purpose of this study, as Stufflebeam *et al.* (2000:283) observe that the underlying philosophy of single case study is “not to prove but to improve”.

The mixed method approach used in this study, therefore, proved to be more relevant as it provided the research with breath and rigour, and further facilitated better and deeper understanding of urban food security, how the urban poor in kaKhoza are impacted by drought, and how they construct their livelihood in drought situations. Food security on its own is a multi-dimensional phenomenon with complex linkages, which become even more complex when linked to natural hazards such as drought, hence a single method would have not been sufficient in providing in-depth understanding of urban food security in the context of drought situations.

The methodological pluralism employed in this study offered a chance to transcend many of the problems that characterize a single method, since the mixed method approach allows that the strengths of one method be used to compensate the limitations of the other. The combination of qualitative and quantitative methods, therefore, augmented the robustness of the findings through triangulation and cross-validation for a clearer and broader picture of urban food security in drought situations. Figure 5.1 below provides a detailed outline of the research process adopted by this study.





**Figure 5.1:** A detailed research process

### 5.3.1 Qualitative data collection

Qualitative research is a dynamic process of inquiry Cohen *et al.* (2007) which is employed in many different academic disciplines, and has become a common feature of social science research (Denzin & Lincoln, 2005). Murphy *et al.* (1998) and Shank and Villella (2004) note that this approach to research is now regarded as a gold standard for quantitative work due to its comprehensive approach and greater validity. This research approach has been largely associated with the interpretive philosophy (Altheide & Johnson 1994; Secker *et al.*, 1995; Denzin & Lincoln, 2005; Wilbraham, 2006) and has been prescribed by Babbie (2007) to be much suitable in social sciences research.

Scholars such as Sandelowski and Barroso (2002); Ryan *et al.* (2007) and Roth and Mehta (2008) contend that qualitative research does not regard truth as objective, but rather as subjective reality experienced differently by individuals. The benefits of qualitative approach to research are becoming increasingly recognized by academics (Marshall, 1996; Smith, 2003) and as such, both interpretivists and positivist agree that qualitative research results to good quality research due to its methodological rigour and has, therefore, gained status and popularity in recent research (Howe & Eisenhart, 1990; Davis, 2007).

As if emphasizing the importance of the use of qualitative approaches to research, Everest (2014) in his article: *Resolving the qualitative-quantitative debate in healthcare research* makes a fascinating observation that findings from a study that is purely quantitative (study whose findings are summarized in numerical form) may lack a pragmatic edification because of the silence they exert on respondents' feelings, explanations and recommendations. This is because quantitative studies (due to their use of numerical data) are usually limited and thus fail to answer questions of 'why and how'(Britten, 1995; Hancock, 2002).

Creswell (2007) asserts that qualitative research is based on distinct methodological traditions of inquiry that explore a social or human problem. It is in qualitative research that the study is conducted in a natural setting, which not only allows the researcher to gather detailed information about a phenomenon, but to also analyze the informants'

views to get a holistic picture of the phenomenon under investigation (Khan, 2014). Creswell (2007) observes that qualitative research aims to collect an in depth understanding of human behavior, and the reason that administrates such behavior. Qualitative research is, therefore, based on the premise that respondents are best positioned to describe circumstances and feelings in their own words (Bryman, 2001; Wertz *et al.*, 2011), hence researchers must try to scrutinize situations from the participants' point of view. While proponents of quantitative research usually emphasize on larger population samples, advocates of qualitative research prefer smaller but focused samples.

Being influenced by Gall *et al.*'s (1996:19) view that “social reality is constructed and that it is constructed differently by different individuals”, the researcher employed different data collection techniques to gather a wide range of qualitative data to capture the different views of respondents with regards to their food security experiences in the context of the recurrent drought in the Kingdom of Swaziland. A total of 30 in-depth case study interviews were conducted in kaKhoza from the beginning of the month of April 2016 to August 2017. The study had a seasonal aspect, so data collection had to be strategically timed. The timing of data collection allowed the researcher to capture the effects of drought during the peak of the 2015/16 drought.

In addition, the researcher was also able to make follow up interviews immediately after the 2016/17 harvesting season which begins in April. In addition to the 30 in-depth case study interviews with selected residents in the study areas, 12 more interviews were conducted with key informants (mainly retailers) from different food outlets. These include marketing (Gall *et al.*, 1996) and distribution managers from major supermarkets (Pick n Pay, Spar, and Shoprite), Stock controller from the National Maize Cooperation (NMC) (Organization responsible for purchasing maize locally & internationally for local distribution), Marketing Manager from the National Marketing Board (NAMBOARD) (Organization responsible for purchasing vegetables and fruits from local farmers for distribution) and street vendors.

The qualitative data collected through the in-depth case studies conducted in the study area was also supplemented with two focus group discussions with kaKhoza residents.

Through these data collection techniques, the researcher was able to capture the diversity in the food security experiences of respondents in kaKhoza, particularly how they have been affected by drought and how they have grappled with the drought induced challenges in their endeavor to access food in the urban environment.

### **5.3.1.1 Interviews**

Interviews are methods of gathering data through oral quiz using a set of preplanned core questions. Rubin and Rubin (2005) note that interviews can be very effective as a tool for gathering data, and much fruitful since the interviewer can pursue specific issues of concern that can lead to focused and constructive suggestions. They further observe that interviews are good when a researcher wants to obtain detailed information and further note that few participants are needed to gather this rich and detailed data. This data collection technique became handy in capturing the different views and experiences of kaKhoza residents as they shared, uninterrupted, how they have been impacted by drought and how they cope and remain resilient in the drought situation.

In selecting the 30 respondents included in the in-depth case study interviews, the researcher started with a smaller sample of 15 respondents since the sample size was not predetermined in the beginning of the interviews. Rather, the researcher decided how many additional interviews were still needed as long as new issues were still emerging from the interviews until a 'theoretical saturation point'<sup>7</sup> was reached. Coyne (1997) allows that a researcher may decide not to set a predetermined sample size since data collection is controlled by what emerges from the already collected data. Since data collection was undertaken parallel to data analysis, after interviewing the 30<sup>th</sup> respondent it became apparent that any further collection and analysis of data would not produce any new insight into how poor urban households in kaKhoza are impacted by drought and how they cope in their quest to access food in the urban environment. The interviews were then terminated since a 'theoretical saturation point' was reached.

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<sup>7</sup>This is a point at which the continued collection of data yields no new insights or identifies no new themes regarding the subject under study (Strauss & Corbin, 1990).

The sampling of the 30 respondents included in the in-depth interview was strategically undertaken using stratified sampling to include female-headed, male headed, and child headed households. This was done to capture the diversity of household food security experiences, particularly with regards to drought, and how they cope and remain resilient amidst the drought condition. The researcher used 2013 Master List for kaKhoza as a sampling frame. This list was created by the Ministry of Housing and Urban Development (MHUD) and used for a local project of upgrading kaKhoza into a township (Mhobodleni Township).

This list (which contained valuable information about each household head such as age, education level, gender and GPS coordinates of household) was used to group households into male-headed, female-headed and child headed. From each strata (treated as a unitary whole), simple random sampling was used to select respondents where each had equal probability of being selected (Monette *et al.*, 2002). Consequently, five household heads were selected for the in depth interview from each stratum, making a sample of 15 respondents with which the researcher began. Additional household heads were selected in the same manner from each stratum as long as new information was still emerging until a sample of 30 households was reached. To identify the exact location of these selected households, the Geographic Position System (GPS) was used. Once a household head was selected, the coordinates corresponding with that selected household were loaded into the GPS and the researcher pressed the 'find button' and the device was able to take the researcher straight to that household.

Each in-depth interview took roughly one and a half hours. As if to validate Saladana's (2012) assertion that in qualitative method, interviews can take a prolonged period, some interviews extended beyond one and a half hours to two hours. This was facilitated by the semi-structured nature of the interview schedule which was flexible and allowed the interviewee and interviewer to engage into a guided but fruitful conversation. The semi-structured nature of the interview guide (Appendix A) allowed the researcher to probe for additional information through follow up questions on fascinating issues and to quiz the interviewee more deeply on specific issues as they

arise. The semi-structured interview<sup>8</sup>, as Cohen *et al.* (2007) noted, proved to be a dynamic data collection process since it enabled the researcher to capture the participant's views in their own world (Wertz *et al.*, 2011), resulting to the generation of rich data since the researcher was able to tease out, even the most intricate ways of coping with food insecurity in the drought crisis, something that would have been difficult had the researcher used a structured interview guide.

All interviews were preceded by a brief 'warm-up' section that lasted for approximately five minutes where the researcher introduced himself and made some 'small talks' based on health issues, hence was able to create good rapport and atmosphere that assured maximum cooperation. A majority of participants (except for one) were keen to take part in the survey, resulting to very live discussions. What was much interesting was that when some participants were asked about health issues, they would not conclude their health story without making reference to the drought situation, which, at the time of the survey, was at its peak. From there, the conversation would flow quite well such that most of the participants even forgot that they were being interviewed.

In more cases than one, the interviewer was tempted to sit and enjoy every part of the conversation as the respondents shared their drought experiences; however, the interviewer had to occasionally interrupt to re-direct the conversation. This, to the researcher, showed how much kaKhoza residents were willing to reveal how much they were troubled by the drought situation. The study coincided with the 2015/16 drought, which is the worst drought ever experienced in the country. Coincidentally, this drought follows the 2013/14 plenteous harvest. This made the timing of the study perfect, since respondents could contrast so perfectly well their current and past food security experiences, clearly reflecting the impacts of drought on access to food in their households.

Most of the interviews conducted were tape-recorded after permission to record was sought and granted; however, notes were taken during interviews with those few

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<sup>8</sup> Semi-structured interviews use both open and closed questions and has features of structured interviews (set of short and clear worded closed ended questions to which interviewee are require to respond with precise answers in the form of a set of options) and unstructured interviews (mainly closed ended questions that allow interviewee to express his/her own opinion freely).

respondents who did not feel comfortable being recorded. Since qualitative data consists of direct quotations from respondents about their experiences, feelings, knowledge and opinion (Polkinghorne, 2005; Saladana, 2012), these quotations were captured, analyzed and presented as direct quotes depending on their relevance to the issue concerned. These 30 case studies allowed an in-depth understanding of respondents' food insecurity situation and how drought restricted their access to food as well as different coping strategies these urbanites employ in order to remain resilient in the context of challenging drought situations.

In addition to these detailed case study interviews, key informant interviews were conducted with key informants from different food distribution agents in the Kingdom. These include Retail Owners (Spar, Pick n Pay, and Shoprite), Stock Controller for NMC and Marketing Managers for NAMBOARD (Appendix D, E and F). The researcher was also privileged to have a brief discussion with the Public Relations Officer for National Disaster Management Agency (NDMA) where information about the drought, its magnitude and effects, response strategies and mitigation strategies (both implemented and those in the pipeline) were discussed. This discussion was very helpful as it did not only help to validate some of the responses gathered during the household interviews but also raised other important issues with regards to the drought impacts in the country. The National Disaster Management Agency (NDMA) is an NGO responsible for assessing damage caused by drought, quantifying damage and provides emergency food aid to affected population. They also helped to give a national perspective of the effects of drought on Swaziland's food system and their intervention to the drought problem in the country.

While key informants in kaKhoza contributed information on vending, poverty levels and magnitude of food insecurity in the community, community motivators helped to provide complementary information by uncovering, to a greater extent, the most recent effects of drought on access to food in kaKhoza since they work closely with households on a daily basis on issues of health and nutrition. NAMBOARD (responsible for marketing local vegetable produce) and NMC (responsible for purchasing maize locally and internationally for internal distribution) provided insights on drought impacts on local produce, food availability and access as well as drought impacts on food prices.

Retail owners provided complementary information, mainly on consumer prices trends and impact of drought on availability and access to food.

The data obtained from these interviews became handy in that it helped to cross-check and guard against subjective reporting and to also supplement the information gathered from the households through the questionnaire and in-depth interviews. Selection of the key informants was strategic. Only subjects who were thought to have better knowledge of the impacts of drought in the area and better understand how residents were affected by drought were thought to provide better insight of the impacts of drought on access to food, response strategies to drought effects at household and community level, as well as how drought contributes to household food insecurity in kaKhoza and urban Manzini in general. Denscombe (1998) approves this type of sample selection and asserts that it is appropriate when the researcher feels that the informant has some unique insight and special contribution to make due to the position he holds.

#### **5.3.1.2 Focus group discussions**

Two focus group discussions (FGD) were conducted with women and men (separately), in addition to the interviews. In a group, people develop and express ideas they would have hardly thought of on their own. FGD were conducted after the in-depth interviews as recommended by scholars that FGD should be carried out following a series of separate interviews, to explore even further the general nature of the comments from these individuals. FGD, as a form of qualitative research, allows for a collective opinion, perception, belief, attitude and ultimately a response towards a concept or idea (Harding, 2013).

Since in a FGD (Appendix C) questions are asked in an interactive group setting where participants are free to talk with other group members, it became handy in this study as it afforded participants free interaction among themselves and with the researcher. Focus group discussions allow a researcher to draw upon participants' attitudes, feelings, beliefs, experiences and reactions in a way in which it would not be feasible using other methods. In this study, participants were free to share their experiences in the recent drought situation, the survival strategies they employed in response to



drought as well as their attitudes towards the highly selective and rural bias drought response food aid programme.

One of the most sensitive information gathered in the FGD that would rather be hard to get through other forms was engagement of other members of the community into commercial sex for food. Researchers concur that focus groups, since they are collective in nature, suit people who cannot eloquent their thoughts easily. True to this conclusion, this method of data collection became useful as it was able to yield insights, mainly to the challenges of drought and coping strategies employed in kaKhoza – even those that others felt embarrassed to talk about. Through this method, the researcher was able to glean information that some participants were not willing to expose, but found themselves discussing due to the openness and interactive nature of this data collection method.

The female and male FGD comprised of 10 and 8 members, respectively although it was initially arranged that both groups would have 10 members. Two men could not make it to the discussions due to commitments that coincided with the time when the discussion was scheduled. Both discussions were, however, allowed to continue since both groups were regarded as ideal as recommended by Freitas *et al.* (1998) that any group ranging from six to twelve subjects is ideal for a FGD. The FGD interviews were conducted in order to supplement data from the in-depth interviews and data collected through households' questionnaires. The two FGDs were organized through the help of kaKhoza Local Authorities who did not only recommend relevant people for the task, but also assigned a community police to help the researcher in organizing the groups. Among the key people included in the group were community motivators, community police, orphanage/care point manager, traditional leaders and other general members of the community. Both discussions were very useful and informative as they yielded insights on the drought and food security challenges of the group members and those of the community since majority work closely with households in the community.

### **5.3.2 Quantitative data collection**

The quantitative approach entails representation of an observation in a numerical form, with an aim of explaining and describing the phenomenon represented by those

observation (Casebeer & Verhoef, 1997:2). Hancock (2002) and Hamilton (2003) note that quantitative research allows the collection of numerical data, making of observations and measurements of the phenomena of interest. They further add that such numerical data, as collected through quantitative means, can be subjected to statistical analysis and can be replicated under similar conditions. This means that quantitative research follows specified scientific procedures which, when repeated under similar conditions, can yield similar results and lead to same conclusions. These scientific procedures, on which the methodology is dovetailed, allow for statistical tests and analysis which qualify the results to be generalized.

Different scholars such as Levin *et al.* (1997) and Nicholls (2011) have observed that quantitative researchers have the ability to reduce voluminous data to numbers and present it in numerical form which, according to them, is a unique feature of a quantitative research. They further observe that this is the major strong point of the quantitative approach to research. As if emphasizing the same point, Marshall (1996) and Castro *et al.* (2010) assert that the reduction of voluminous data into numbers is seen as the main source of objectivity and reliability of the quantitative research findings. Furthermore, this approach to research subscribes to the tenets of positivism – the view that “social research should adopt scientific methods which consist of rigorous analysis of numerical data that takes the form of quantitative measurements” (Atkinson & Hammersley, 1994:251). Greenhalgh and Taylor (1997) claim that research findings are more likely to be accepted if they are quantified.

Quantitative approach to data collection and analysis is the most commonly used research approach in food security studies (See: Crush *et al.*, 2010; Tawodzera, 2011; Tevera *et al.*, 2012; Mulenga, 2013; Tevera & Simelane, 2014; Raimundo *et al.*, 2014; Leduka *et al.*, 2015). This is because it allows for collection and rigorous analysis of food security data, most of which is in numerical form, to uncover patterns and further allow for the quantification of the problem and ultimately the generalization of findings (Atkinson & Hammersley, 1994). Furthermore, quantitative data allows for cross tabulations to be performed to help uncover patterns and allow deeper understanding of food security issues - a complex and multi-dimensional phenomenon.

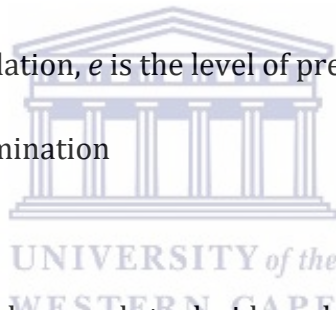
For the purpose of quantitative data gathering, the researcher used a standardized household questionnaire which was administered to 145 sampled households in kaKhoza, which were selected from a total of 456 households<sup>9</sup> (CSO, 2007). Cohen and Manion (1994) argue that the sample size for a quantitative survey cannot be determined in one way, but several ways can be used to determine an appropriate sample size. Israel (1992), therefore, suggests three methods that can be used to determine a sample size for a research study. According to Israel, a researcher can determine a sample by imitating a sample size of similar studies, can use published tables, and can apply formulas to calculate a sample size. In this study, Yamane's (1967) widely used formula for determining sample size was used (Equation 1). The same formula has also been used by scholars such as Israel (1992).

$$n = \frac{N}{1 + N(e)^2} = \frac{456}{1 + 456(.07)^2} = 141 \text{ Households}$$

Where N is the size of the population, *e* is the level of precision and *n* is the sample size.

**Equation 1:** Sample size determination

**Source:** Yamane (1967)



There are three things a researcher needs to decide on before determining a sample size that will be appropriate for his or her study and these things include: the level of precision (sampling error)<sup>10</sup>, the level of confidence or risk<sup>11</sup>, and the degree of variability<sup>12</sup> in the attributes being measured (George & Michener, 1976; Monette *et al.*, 2002). In this study, a Confidence Level of 95 percent was decided on and the researcher was willing to allow a sampling error of 7 percent. Since the variability in the population was not known, a maximum variability (*p*=5) was assumed. George and Michener (1976) and Israel (1992) concur that there should not be rigidity in terms of what one considers an appropriate sample size since in a quantitative inquiry, this, they

<sup>9</sup> A household is a unit where “a person or group of persons who may be related (family) or unrelated or both who live together and share meals (eat from the same pot)” (CSO, 2017:17).

<sup>10</sup> Level of precision or sampling error refers to the range in which the true value of the population is estimated to be (Israel, 1992).

<sup>11</sup> Level of confidence – a term that denotes that when a population is repeatedly sampled, the average value of the attribute obtained by those samples is equal to the true population value (Israel, 1992).

<sup>12</sup> Degree of variability refers to the distribution of attributes in the population.

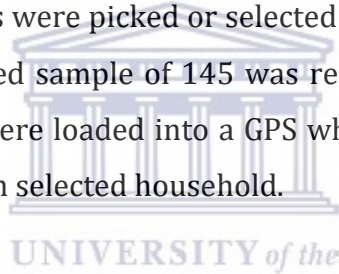
note, depends largely on the study objectives, the analysis type the study will utilize and the error margin that the researcher is willing to allow for the results. Scholars, however, agree on the issue of representativeness and concur that the sample must be representative of the total population from which it has been selected. Tawodzera (2010:81) further adds and cautions that the sample should comprise of sufficient sub-groups to afford the research study a foundation for making generalizations and comparisons.

Considering the objectives of the study, the research design used and analysis employed, the researcher found this sample size sufficient to yield the results that will address the study objectives. In fact, Israel (1992:2) allows an even smaller sample if the population is highly homogeneous, he notes “the more heterogeneous a population, the larger the sample size required to obtain a given level of precision. The less variable (more homogeneous) a population, the smaller the sample size”. The same view is endorsed by Adams and Schvaneveldt (1991) who also argue that homogenous populations do not necessarily need large samples and maintain that a smaller sample size is adequate to accurately reflect the characteristics of that population. This means that more diverse populations require larger sample size than their counterparts, to accurately reflect the total population from which they have been selected. In this study, efforts have been made to ensure representativeness. Although the acceptable sample size was 141 households (Equation 1), the researcher decided to increase the sample size to 145 households to increase the precision level.

To adhere to the scientific procedures followed when conducting scientific research, systematic sampling technique was employed to select the sample for this study. This technique allows for selection of subjects at regular intervals and is more appropriate when the target population is highly homogenous. This approach to data collection was found to be more appropriate in the selection of respondents in kaKhoza. The population of kaKhoza displays a high level of homogeneity when considering their socio-economic conditions and hence is likely to experience more or less similar food security condition and exposure to drought impacts. Very few people are permanently employed in the study area. Majority of the residents are either unemployed or temporally employed in low income jobs such as security personnel, petrol pump

attendants, salesman and other similar jobs. Likewise, their food sources and food sourcing strategies are more or less similar, hence are likely to share almost similar food security challenges and more likely to be affected similarly by drought. As such, it is expected that their adaptive responses to drought induced food shortages would not vary much. The advantage of systematic sampling as a technique is that it allows for regular coverage along the full length of study and helps to eliminate human bias.

Again, the researcher made use of kaKhoza's Master list (2014), which was used as a sampling frame. Rubin and Babbie (1997) advise that to select a representative sample, it is vital that the sampling frame includes all (or nearly all) members of the population. The Master list used in this study, therefore, contained nearly all households in kaKhoza since it was developed for the purpose of the upgrading programme and each household was captured. Each household was assigned a number from 1 to 456 which were then arranged in ascending order. A die was thrown to determine the starting point, following which, subjects were picked or selected at a regular and predetermined interval until the predetermined sample of 145 was reached. The GPS coordinates for the 145 selected households were loaded into a GPS which, again helped in identifying the geographic location for each selected household.



### **5.3.2.1 The standardized household questionnaire**

The designed structured questionnaire (Appendix B) was administered to the sampled households in kaKhoza. This standardized questionnaire, which contained mainly closed ended questions, was administered to the heads of households<sup>13</sup> in the sampled households. The household heads, as the units of analysis, were assumed to have extensive knowledge about their household's food security situation, effects of drought on access to food and strategies employed by household to cope with effects of drought to ensure adequate access to food.

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<sup>13</sup> Head of household - is a person who is a usual resident (has lived there continuously for most of the last 12 months) who is responsible for that household and makes most of the decisions (whether young or old). He may not necessarily be the eldest, but is the one who is responsible for what the household will eat and the number of meals on a daily basis (CSO, 2017:17).

The development of the questionnaire was preceded by an initial review of literature on drought and urban food security. The review, which was carried out by the researcher, helped him to familiarize himself with critical issues on the connection between drought and urban food security, more especially those that relate to the effects of drought on access to food in the urban environment. Strauss (1987) notes that reviewing literature is important since it sensitizes the researcher to existing literature that can be of great help in trying to explain the research problem. True to Strauss' observation, this review did not only help the researcher to have a general understanding of urban food security and the dynamics involved in general, but also sensitized the researcher on current debates and key variables that the researcher needed to understand in order to frame questions that would be broad enough to sufficiently capture the important issues for the inquiry, hence help fulfill the study aim and objectives.

Since data collection was undertaken parallel to data analysis, this analysis yielded very important information on how urban households' access to food was restricted by drought and to uncover the strategies they employ to remain resilient in the drought situation. Some of these insights were used to add and restructure the questionnaire to ensure that it captured, almost perfectly, the effects of drought on access to food and the strategies employed by the residents to counter the effects of drought, and how prevalent these effects are, as well as coping strategies that go with them in kaKhoza. Through the in-depth interviews, it also transpired that urban households in kaKhoza maintain links with their rural relatives from which they get food and sometimes send same. Such information gathered from the qualitative survey was crucial and needed to be quantified since it has a direct influence on the food security of the sending (or receiving) households, hence it was important to know the number of households sending and/or receiving food from rural relatives.

The questionnaire (Appendix B), which was used to collect quantitative data, was crafted in such a way that it could capture data that would make it possible to measure the validity and strength of the patterns or trends observed during the qualitative research process. Through the questionnaire, the researcher was able to capture information ranging from demographic characteristics of the household to food security issues in the context of drought. The information that was gathered through the

questionnaire survey included, but was not limited to, household income, household expenditure on food, food consumption patterns, households' food sources, impacts of drought on access to food, urban agriculture and coping strategies employed by households to secure food.

The administration of each questionnaire took approximately an hour, although in the first three days, the time could go beyond an hour. However, as the researcher got familiar with the questionnaire, the time to administer questionnaire grew lesser and lesser, which made the data collection exercise flow and become much enjoyable and exciting. The researcher was able to fill an average of 10 questionnaires per day. The researcher gained vast experience during the field work as he interacted with different kinds of people, some of which were very friendly, making the whole exercise interesting and enjoyable. There were also those who were 'difficult' to deal with. Sometimes the researcher had to negotiate for extra time when the interview took longer than an hour. In general, majority of the participants were very cooperative and keen to participate and did so happily and without duress.

The household food situation in kaKhoza was too bad in most households such that when some unsampled households heads saw the researcher passing by their households, they could sometimes call him with the idea that he was working for the NDMA which commonly distributes food aid. The researcher had to keep on explaining that the purpose of the survey was purely academic and had nothing to do with food aid distribution to affected households. In spite of their disappointment, most households happily participated in the survey, mentioning that it is only after researchers have been conducted and report written about their sad situation that the policy makers and government can know about their predicament, and probably intervene. This was of great interest to the researcher and he was actually happy for such unexpected level of understanding the importance of research.

### **5.3.2.2 Observation matrix**

During home visits in the process of quantitative data collection, the researcher was also observing some observable phenomenon in and around each household. This strategy was very much helpful in validating the data that was gathered in every

household. The researcher used an observation matrix (Appendix G) on which he was able to indicate certain important observable phenomenon in the study site. Among the variables which were observed included signs of the practice of urban agriculture (backyard gardens), crops or vegetables grown, animals kept, condition of crops grown (to see if there is any sign of dehydration on crops), land size available for cultivation and irrigation system used. It was also highly possible that respondents could inflate responses on frequency of taking meals, hence observation helped to look for any sign that shows that a meal might have been taken recently. Anytime the researcher was allowed to have the interview in the kitchen, he would look at the pots, plates, and other kitchen utensils to see the possible time of the last meal in every household visited.

#### **5.4 The pilot survey**

A pilot survey is a small scale preliminary study conducted in order to evaluate feasibility of the study, predict an appropriate sample size and improve upon the study design prior to performance of a full scale research project (Cohen *et al.*, 2013). Monette *et al.* (2002:9) define a pilot study as "... a small-scale trial run of all the procedures planned for use in the main study". A pilot survey, therefore, is a mini-research and trial version of the full-scale study conducted in preparation for the complete study and aims at testing the instruments and research techniques to be employed in the main study, hence ascertain the feasibility of the intended study. Conducting a pilot survey has become a pre-requisite and is regarded as a standard in social science research. Researchers enumerate different benefits for conducting a pilot survey. To Neuman (1997), pilot surveys serve to determine the degree of clarity of questions and to identify problem areas that need attention.

The same view is held by Welman and Kruger (1999) who also note that a pilot survey helps to identify ambiguous statements in the instruments (e.g. questionnaire). They further observe that through pilot testing, a researcher is able to detect possible flaws in measurement procedures and can help to identify non-verbal behavior of participants which gives crucial information with regards to embarrassment or discomfort experienced in the content or wording of statements in a questionnaire and other instruments. In this research, the first pilot survey was conducted in March 2016 and



the second one followed a month later - April 2016, shortly after qualitative data collection.

The pilot surveys were conducted, among other things, to test the level of clarity, ease of translation (since the interviews were conducted in local language) and interview duration. The researcher in these pre-visits was able to get to know more about the study site and, through the help of the local authorities, was able to identify respondents to be used as key informants and to select participants for the focus group discussion. The pilot interviews also assisted the researcher to structure the interview questions to the required level of the participants in order to generate sufficient data.

The second pilot survey was mainly aimed at testing the clarity of the standardized household questionnaire for the quantitative survey. This preliminary visit also proved vital, particularly in testing the clarity of the questions and whether the respondents attached the intended meaning to these questions. Although the researcher had crafted many questionnaires for similar studies before, to his surprise, some of the respondents misinterpreted some questions in the questionnaire, regardless of the effort taken to structure them in a simpler way. Just as Blaxter *et al.*, (1996:122) observes, sometimes “you may think that you know well enough what you are doing...things never work quite the way you envisage, even if you have done them many times before...” This emphasizes the importance of a pilot survey in research, particularly this kind of research where the researcher has to interact with humans.

Just as Blaxter *et al.* (2010) observe, designing the questionnaire is not a once-off and straightforward event but a process and this was also true in this research. The researcher had to rephrase all the questions most respondents misinterpreted to make sure there was no double meaning and that almost all respondents correctly interpreted all questions. In addition, through the pilot survey, the researcher was able to get the general view of how urban residents are impacted by drought. As a result, the drought-urban food security nexus encountered during the actual data collection process first emerged in the pilot survey.

The pilot survey, therefore, became handy in preparing the researcher for challenges that may emerge during the actual data collection process so that they do not catch him unaware. Recurrent challenges included the refusal to participate and misperception that the research was intended to identify people for food aid distribution. Since the researcher was now aware of such, he was able to address most of these challenges accordingly. One way through which the researcher successfully addressed this was to explicitly explain that the survey is purely academic.

## **5.5 Ethical considerations**

The study used the mixed method approach comprising of quantitative and qualitative methods. Myers and Barnes (2005) observe that the use of qualitative approaches to data collection raises ethical concerns due to the inevitable physical contact between the researchers and human subjects, and the disclosure of the participant's identity. Scholars, therefore, emphasize that ethical considerations need to be taken on board when conducting such studies, and regard this as a good scientific practice (Eriksson & Kovalainen, 2016). Since this research deals with human beings, it was essential that the researcher understands the ethical and legal responsibility of conducting research (McMillan & Schumacher, 2006), particularly because the researcher was entering the private space of participants (Silverman, 2000).

The researcher, as Creswell (2003) notes, had to fulfill the obligation to respect the needs, values, rights and desires of each informant during the research process. To achieve this, Miles and Huberman (1994) suggest few issues for consideration before, during, and after conducting a research study. These include: informed consent (study content and intentions explained to participants before their participation is elicited), harm and risk (possible risks explained to participants), privacy and confidentiality (hiding identities of participants), and lastly, honesty and trust (truthfulness in presenting data).

### **5.5.1 Informed consent**

Since the research was to be conducted on people and in a community, as Christians (2005) suggested, the researcher was obliged to explain the purpose of the research study and possible risks before he requested permission to conduct the study. Acquiring

consent from participants is the most crucial aspect of the research process. The researcher requested for permission to conduct the research in the selected study area after he has been granted ethical clearance by the University of the Western Cape. The researcher explained the contents and intention of the study to the Manzini Municipal Council and kaKhoza (the now called Mhobodleni Township) 'Local' Authorities. Since this research involved interaction with participants on sensitive issues of income, expenditure and access to food, among other confidential issues, all that was explained before permission was granted. The researcher also ensured that potential participants are also fully informed on what the research is about, its desired outcomes and what it required of them before their input was solicited. Respondents were given an information letter and a consent form which they signed after reading its contents.

Majority of participants consented to take part in the survey by signing the form given to them by the researcher and no participant took part in the study without signing the consent form. Some respondents, however, had mixed feelings about signing the consent form. By signing this consent form, they felt like they were now compelled to continue participating in the survey even when they did not feel comfortable to proceed and had a strong desire to terminate the interview for any reason. There are also those respondents who felt signing the consent form would identify them, thus to them this contradicted the pledge of anonymity which was clearly spelled out in the consent form. Participants were asked to append their signature in consent form to taking part in the survey, how the researcher made it his responsibility to keep on emphasizing that no response will be linked to any signature and to emphasize that participation in the research was strictly voluntary with no form of coercion and that they still reserved the right to withdraw from the research at any stage and for any reason whatsoever.

### **5.5.2 Harm and risk**

In this research study, the researcher assured respondents that no participants were put in a situation where they might be harmed physically or psychologically as a result of being part of this research study (Trochim, 2000). Permission to capture the interviews (in-depth case studies) using a voice recorder was sought from participants. All participants who did not feel comfortable being recorded were not recorded, but instead notes were taken by the researcher during interviews. No researcher was tape

recorded without his or her knowing and without his or her permission either. A participant's decision not to be recorded was respected and no form of coercion and intimidation was used to force respondents to unwillingly accept recording. In this way, the researcher was able to minimize the risk of harm. The researcher also took the responsibility to clarify that this study was purely academic and not linked, in any way, to food aid programs, to avoid raising false hopes among respondents.

Moreover, Swaziland is a culturally sensitive state and traditional society, thus the researcher had an obligation to observe the culture and tradition of the study area and to ensure that societal values are maintained. Since the researcher was familiar with the place and local culture, it became easy to abide by the local culture as expected. One way was to ensure that an appropriate dress code was used throughout the data collection process. In the Swazi culture, every male visitor has to announce himself as he approaches every homestead and household and must do so until someone attends to him. The researcher made sure that this practice was maintained throughout the data collection process since this is regarded as a sign of respect in the Swazi culture. Also, the researcher ensured that his hat (used to protect against scorching sun) was removed every time he entered any homestead as per the Swazi culture. Being familiar and practicing these traditions resulted to a peaceful research experience which was free from threats, cultural conflicts and intimidation.

### **5.5.3 Privacy and confidentiality**

Right to privacy was observed throughout the research process, that is, from the data collection stage to the final product of the research. The researcher ensured that all respondents were given the right to decide on a quiet and segregated place where the interviews could be conducted. This was done, not only to minimize interruption during the interview process, but also to ensure that respondents are away from relatives and family members who might influence responses. This also ensured maximum concentration during the interviews. As a result, no one was allowed to listen to the conversation during and after the interviews, except the researcher. All recorded (and written) interviews remained under the careful care of the researcher and all completed questionnaires were kept in a safe place where only the researcher had access.

Pseudonyms were used throughout the report, whenever the gathered data was reported. The careful observation of confidentiality and anonymity issues throughout the interviews and data collection process gave participants confidence to provide research data truthfully without fear. The researcher ensured that any personal information about the respondent that might make it easy to identify him or her and hence link him or her to the collected data was not captured during the interviews. The researcher made it explicit that the collected data will not be used for any other purpose, nor will information be shared that reveals their identity in anyway

## **5.6 Validity and reliability of the research findings**

Validity can be thought of as the degree at which research findings are accurate and truly reflect the real world from the point of view of the researcher and his audience (Creswell & Miller, 2000). Reliability, on the other hand, is the degree at which the same results can be obtained if the study is repeated in a similar context (Joppe, 2000) and this alludes to the degree to which necessary research procedures intended to increase the worthiness of the findings are followed. This research study adopted the mixed method approach which enabled triangulation. Scholars (Denzin, 1970; Morse, 1991; Gray, 2004; Pansiri, 2005; Krantz, 1995; Morgan, 2007; Johnson *et al.*, 2007; Borrego *et al.*, 2009; Ihantola & Kihn, 2011) note that the use of multiple methods enables triangulation to be used to add reliability and depth to the research data.

The strength of the qualitative method employed in this research enquiry was used to compensate for the weaknesses or limitations of quantitative method (Pansiri, 2005) such that what was not gathered using the qualitative approach was captured through the quantitative method for a more clearer picture (Ihantola & Kihn, 2011) on how the urbanites have been affected by drought in their quest to access food in the urban environment. As Casebeer and Verhoef (1997) advise, the qualitative and quantitative methods were not viewed as competing approaches, one claiming superiority over the other, but rather as complementary. Ensuring validity and reliability using a single method, according to Everest (2014), has remained a challenge in research, even more challenging when employing the qualitative approach alone (Pope *et al.*, 2000).

Additionally, the researcher took it up to himself and made it obligatory to create an enabling atmosphere by creating good rapport with respondents throughout the data collection process to put them at ease so that they become comfortable to share, with ease, their food security experiences, effects of drought, and how they survived these food challenges. The nature and intention of the study was constantly explained to respondents so that they were fully aware that it was purely academic, and not intended to improve their food security condition. This was done to make sure that respondents did not exaggerate their food insecurity condition and the possible impacts of drought on their access to food, ultimately giving a false picture of the prevailing situation in the study area.

The food condition was too bad in the study area and accidentally, the survey coincided with the food distribution program of the National Disaster Management Agency which had already started distributing food parcels in most rural areas. Although the urban population had always been largely ignored when it comes to food assistance, the residents in the study area had all the reasons to believe that this time they might be considered for food aid since the 2015/16 drought was declared a state of emergency by the Deputy Prime Minister's Office. As a result, some participants would constantly ask if the findings of the survey would help them get food aid, which necessitated that the researcher kept on emphasizing that the study was purely academic and not linked to any food aid distribution program.

Lastly, the researcher made sure that interviews were carried out on a secluded place, free from any form of influence. This was done to ensure that gathered responses reflected, as far as possible, the drought and food security experiences of the household in question. Any foreign element that could potentially result to distortion of information or withholding of the same was, at all cost, eliminated. Among information that would have been easily distorted or falsely reported due to outside influence could be information on household expenditure, household income, and consumption patterns which were also crucial to the study and had to be honestly and truthfully reported.

Isolating the participants and keeping them away from other household members' influence became very useful not only because it ensured undivided attention during the interview, but it also gave the researcher a chance to ask participants to respond truthfully. Also, the use of tape recorder ensured that the researcher had verbatim records of what the respondents said. This enabled the researcher to play the footages again and again to make sure responses are presented and heard accurately without distortion, hence increased the reliability of what is recorded as data. To the advantage of the researcher, approximately 90 percent or so were comfortable with and had no problem being recorded, although there were those few individuals who were uncomfortable and refused to be recorded and that had to be respected.

### **5.7 Data analysis**

Data analysis is a practice in which raw data is ordered and organized so that useful information can be extracted from it (Majhi *et al.*, 2016). Mouton (1996), on the other hand, views data analysis as a process whereby gathered data is reduced into meaningful proportions to enable easy identification of themes and patterns inherent in the data. In other words, data analysis is a process whereby the researcher brings form and order to the collected data so that meaning can be extracted from it. Best and Kahn (2006) posit that data analysis (and interpretation) involves the application of both inductive and deductive logic to the research process for one to come out with meaning. While this stage is regarded as the most fascinating stage of the research process, Schwandt (2007) warns that it does not proceed in a linear fashion, thus can be very time consuming.

Analyzing qualitative data involved organizing it into categories, patterns, and basic descriptive units, hence bringing order to the data (Tabi, 2013). The qualitative data from in-depth household survey was thematically coded - a process where material is prearranged into chunks of text and allocated a phrase to develop general sense (Creswell, 2014). The researcher endeavored to identify and merge crucial themes regarding the different ways drought influence access to food in the urban environment, as reported by households and how they cope with this tough situation. The quantitative data collected through the questionnaire was then used to complement the findings from the in-depth interviews by quantifying the identified drought effects and

copying mechanisms and to verify the strength of any existing relationship through the use of statistical tests.

This helped to better understand the drought-urban food security links, particularly the multifarious ways through which drought restricts access to food in urban Manzini and its ultimate contribution to urban food insecurity. This validated de Haan *et al.*'s (2003) argument who also noted that for a better understanding of urban food security, the mixed method approach is most ideal since the issues revealed by the qualitative data would be deeply understood if quantified and relationships among variables identified. They argue that it is not possible to entirely understand urban food security issues just by using one method either qualitative or quantitative. So, combining the two methods made it possible that the hidden issues from the qualitative interviews were uncovered through the quantitative analysis as the two methods perfectly complemented each other.

### 5.7.1 Qualitative data analysis

According to Flick (2014), qualitative data analysis refers to the classification and interpretation of linguistic material, leading to the formulation of explicit and implicit structures of social meanings, in order to describe real life issues. Therefore, the main aim of analyzing qualitative data is to describe a phenomenon in greater details and ultimately get to understand and best interpret human action and behavior. Flick (2014) further notes that qualitative analysis would have achieved its goal if it has managed to compare various cases, and finally make generalizable statements about the issue being investigated.

Qualitative data analysis for this study draws mainly from the Grounded Theory, whose aim is to explore social interactions and processes by means of organized procedures so to help understand the phenomenon under investigation (Strauss & Corbin, 2009; Punch, 2013). According to the pioneers of this theory, Glaser and Strauss (1967), data is collected to generate social theory, rather than to verify or prove existing theories. As Lacey and Luff (2009:9) rightly note, “theories would be ‘grounded’ in rigorous empirical research, rather than produced in the abstract”. Strauss and Corbin (1998)



clarifies that the grounded theory approach is distinct from other approaches to qualitative data analysis in that it emphasizes on theory as the final output of research.

Advocates of the Grounded Theory regard respondents as being central to the emerging research outcome in any given research. Thus, this adopted research approach allowed food security challenges and effects of drought on access to food to emerge from the sampled respondents of kaKhoza. Furthermore, the means through which the respondents from the study area cope with the drought situation in their quest to access sufficient food was also well captured. The grounded-theory approach to data analysis helped uncover crucial information on the various ways through which kaKhoza residents are affected by drought and how they grapple with the drought-induced food insecurity challenges in the urban setting.

The audio taped data generated from the 30 in-depth interviews was transcribed using the constant comparative method<sup>14</sup>. This was done until a 'theoretical saturation' was reached where no new ideas and insights were emerging from the collected data. All qualitative data generated from different sources was processed and analyzed using qualitative techniques. Qualitative approaches entailed employing a thematic ordering and systematization of the information generated. According to Guest *et al.* (2012), thematic analysis emphasizes pinpointing, examining, and recording patterns or themes within data. Themes are patterned across data sets that are important to the description of phenomena and are associated with a specific research question. The themes then become the categories for analysis.

Thematic analysis was performed, as Saladana (2012) recommends, through the process of coding where common themes of day-to-day life experiences of kaKhoza residents were identified and examined in relation to the context, meanings and circumstances faced by kaKhoza residents with regards to access to food in the context of the drought situation in the study area and country, in general. The researcher

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<sup>14</sup> In this method, data collection and analysis happen simultaneously and in stages. The researcher collects, analyze and constantly compares current and past analysis to check for relationships. More and more data is collected and analyzed until a more clearer picture of existing relation among variables is gathered (Parry, 1998; Lacey & Luff, 2009).

followed six phases: familiarization with data, generating initial codes, searching for themes among codes, reviewing themes, defining and naming themes in order to create established and meaningful patterns from the gathered data. Among the important themes identified for analysis were issues of food transfers, sources of food used by the urban poor, food prices and issues of access to food, as well as coping mechanisms employed by kaKhoza residents in an effort to remain resilient in drought conditions.

The researcher also had to ensure, as far as possible, that the results are valid and reliable. Creswell and Miller (2000) emphasize the importance of ensuring validity in research by noting that it does not just give strength to the qualitative investigation but also ensures that the account or findings are accurate from the perspective of the researcher and end users (participants and readers). It is important to note, as Creswell (2014) has also observed, that validity in qualitative research carries a different connotation from that which it carries in quantitative research. While in quantitative research the term denotes the applicability of results to new settings and samples, to the qualitative inquiry it means that the researcher checks for the accuracy of findings by applying certain 'validity checks' procedures (Gibbs, 2007). The degree to which these procedures are consistent across different researchers and projects alludes to the reliability of the qualitative results (Gibbs, 2007).

Different scholars use different terms to refer to validity in qualitative research: terms such as *authenticity*, *trustworthiness* and *credibility* (See Lincoln & Guba, 1986; McGregor & Murnane, 2010; Creswell & Miller, 2000; Lincoln & Guba, 2000; Morrow, 2005; Lincoln *et al.*, 2011; Neuman, 2014). Credibility is the internal consistency in research which is mainly ensured through rigor and accurate communication of the method used to ensure that rigor (Lincoln & Guba, 2000). Creswell (2014) recommends the use of multiple approaches in ensuring validity or credibility in qualitative research. Credibility in this research, as Lincoln and Guba (1985) recommend, was ensured mainly through the use of persistent observation, triangulation and peer debriefing, among other things.

Two main data collection methods were employed to gather qualitative data which were mainly interviews (in-depth interviews with kaKhoza residents and interviews

with key informants, e.g. retailers) and focus group discussions. These two methods were supplemented with observation. These sources of data were later converged and main themes were then established. Creswell (2014) claims that converging different sources of data (triangulation) adds to the validity of any given research study. This finds support from other scholars such as Blaikie (2000), Yin (2003) as well as Scandura and Williams (2000) who also perceive the use of triangulation as one best way to overcome problems of bias and increase validity of findings. Patton (2002) and Brannen (2005a; 2005b) advance the same argument by maintaining that triangulation enable comparison of data and leaves it to the discretion of the reader to decide if data from one set corroborates those from another, and in the process, the research findings are validated.

For the purpose of peer debriefing, the researcher combined two strategies. One was presenting the research to Masters and PhD students (University of the Western Cape) and the other one was giving a printed document for review to a colleague and PhD student (University of Swaziland). Both groups were given an opportunity to ask questions about the study, particularly the qualitative aspect of the study. From these two strategies, the researcher was able to get good feedback on issues that needed clarification, elaboration and interpretation so that the account would resonate well with other people, not just the researcher alone. This strategy is considered by Creswell (2014) to add validity to the research study since it involves an interpretation of the research outcome beyond that of the researcher.

True to Creswell's observation, the researcher had to make additions and throw more light by clarifying certain issues which he had initially thought were clear but proved to be vague to other researchers (peers). In other cases, the researcher had to go back to the data for further analysis to show certain relationships and uncover patterns that were crucial in clarifying unclear relationships to the achievement of the study objectives. For example, the researcher had to use statistical techniques such as the product moment correlation to show relationship between drought and crop yield, crop yield and food prices and how these can influence access to food.

The researcher also had an honor to have his entire project reviewed by a human geographer and expert in the field who acted as an external auditor. The feedback from the review became very useful in shaping the research study. The reviewer, with her expertise and technical orientation, helped to enhance the overall validity of this study as she looked and raised issues of accuracy of transcription, level of analysis and rigor, relationship between the data and research questions, selection and running of appropriate statistical tests and results interpretation and presentation. As Lincoln and Guba (1985) have rightly noted that the role of external auditor is similar to that of a fiscal auditor, likewise, specific questions were asked to which the researcher had to respond in order to clarify unclear issues pertaining to research design, methodology and results interpretation, resulting, overall, to a better quality research.

The researcher also made use of the member checking criteria, as recommended by Creswell, where follow-up interviews were conducted with some of the respondents at kaKhoza. During these follow-up interviews, participants were also given an opportunity to comment on the research findings. Creswell (2014) allows that a researcher may take back some, but not all, the semi-polished major findings when doing member checking. Lincoln and Guba (1985:314) regards member checking into the research findings “the most critical technique for establishing credibility”. Among the major themes that were selected for follow ups were issues of access to food, especially with regards to food sources and the effects of food prices on access to food.

During the qualitative data collection, it appeared that the steep increase in food prices during the drought period was the major issue of concern for most respondents in kaKhoza, which was also reflected on the increase in the patronization of informal food sources which offered ‘better price’ options. The researcher, therefore, was much interested in finding out how the situation was, after the drought condition had normalized. This is the time when the country saw a decline in food prices across all regions. The researcher also wanted to capture respondents’ experiences in relation to food sources following the bumper harvest in the 2016/17 farming season in the country, which responded to the above-average rainfall received countrywide.

The researcher also spent prolonged time in the field, not only during the follow-up visits, but also during the whole data collection process (both qualitative & quantitative data collection exercises). Since the commencement of data collection in June 2015 which marked the beginning of the data collection process until the finalization of data analysis in August 2017, the researcher has been making frequent visits to the study site. In this way, the researcher was able to get details about the people and the study site which helped in understanding their vulnerabilities to the impacts of drought resulting to a more credible narrative account of their drought experiences.

Researchers such as Creswell (2014) agree that the accuracy or validity of research findings is partly a function of the experience the researcher has with the participants in their natural setting. The insight to the study setting allowed for rich, thick description during the communication of the research findings, ultimately making the results richer and more realistic. Creswell (2014) notes that the use of thick description is quite instrumental in increasing credibility in research since it 'transports' readers to the study setting and consequently gives the discussion an element of shared experiences.

### **5.7.2 Quantitative data analysis**

The process of quantitative data analysis was a very tedious process which involved a couple of stages before the actual analysis began. To aid in the analysis, the Statistical Packages for Social Sciences (SPSS V20) was used in which the data (for the entire 145 questionnaires) was entered for analysis. The data cleaning process started after all questionnaires were entered in the software and responses checked for consistency, gaps and omissions which were then rectified before running queries for analysis.

The computer-aided quantitative analysis generated, among other things, cross tabulations for identification of relationships among variables, frequency tables and facilitated testing of level of significance of gathered findings using statistical tools (e.g. chi-square). Microsoft excel was used to calculate percentages and to generate graphs. Among the variables that needed quantification include food sources used in order to identify the frequency of patronage of each source. This became helpful in identifying the most commonly utilized food sources and how they were impacted by drought. Other variables that were quantified include effects of drought as identified by

respondents in the study area, and coping mechanisms employed by respondents, among other things.

In terms of food security measurement in the study area, the study used three food insecurity indicators which included Household Food Insecurity Access Prevalence indicator (HFIAP), Months of Adequate Household Food Provisioning (MAHFP), and Household Dietary Diversity Score (HDDS). These indicators and food insecurity measures are commonly used in most food security studies nationally and regionally (See: Battersby, 2011; Crush, 2012; Pendleton *et al.*, 2012; Tevera *et al.*, 2012; Mvula & Chiweza, 2013; Acquah *et al.*, 2013; Crush & Caesar, 2014; Alexander *et al.*, 2014; Raimundo *et al.*, 2014; Leduka *et al.*, 2015; Leroy *et al.*, 2015). These food insecurity indicators were designed for measuring household food insecurity by the Food and Nutrition Technical Assistance (FANTA) and are used globally.

### **Household Food Insecurity Access Prevalence Indicator (HFIAP)**

This HFIAP is a useful measure that captures the degree of food insecurity in relation to access to food in the month preceding the survey (Coates *et al.*, 2007). It is founded mainly on the notion that households or rather people's experiences of limited access to food result to certain reactions that may be foreseeable and that such responses can be quantified and encapsulated in a scale. Respondents were subjected to a nine-question brief survey based on their reactions and behavior in times of food shortages where they are mostly vulnerable. The results from these nine questions were then analyzed. This helped to categorize households into four food insecurity levels such that any given household could either be severely food insecure, moderately food insecure, mildly food insecure or food secure.

#### **5.7.2.1 The Household Dietary Diversity Score (HDDS)**

The Household Dietary Diversity Score (HDDS) measures the access component of food at household level, particularly the quantity and quality of the food consumed by households (Swindale & Bilinsky, 2006; Leroy *et al.*, 2015). It is a simple count that uses diverse food groups that households consume over a given reference period to compute a proxy measure for household food insecurity. The logic behind the computation of the dietary diversity in this survey was that this measure could yield insights into

household food insecurity levels, more so because food insecure households, as most scholars have observed, tend to be over-reliant on starchy staples with a complete exclusion of proteins and other nutrients from their diet. Households with low dietary diversity (eating less varied meals) were therefore considered food insecure.

#### **5.7.2.2 The Months of Adequate Household Food Provisioning (MAHFP)**

The Months of Adequate Household Food Provisioning (MAHFP) indicator captures changes in household's ability to ensure that food is available above a minimum level throughout the year (Bilinsky & Swindale, 2007). Specifically, the MAHFP enumerates the months in which households have access to adequate food. It was used in this research to capture household's ability to address vulnerability by ensuring food availability above a minimum level all year round. The higher the number of months that a household did not have adequate food provisioning, the more likely that the household was food insecure and therefore the less resilient it would be to food shocks. This measure was, therefore, handy in indicating how food insecurity (at the household level) fluctuated throughout the year within the researched households.

It was also important to consider issues of validity and reliability during the data collection phase, analysis, and data presentation stages of the research process. For the purpose of quantitative data collection, therefore, as already noted, a standardized instrument (questionnaire) was used. The use of standardized instruments in research is considered by scholars as one criterion to ensure credibility since standardized instruments ensure objectivity and hence increase validity and reliability of research findings. The use of standardized instrument in this research inquiry was accompanied by a clear and detailed procedure outlining the research process followed in this study.

According to Hancock (2002) and Hamilton (2003), this enables that the study can be repeated and replicated under similar conditions, either by the same researcher or another. This also emphasizes the issue of reliability and validity in this study. In addition, data collected using the standardized pre-coded questionnaire was converted into numerical data and subjected to statistical analysis to enable running of tests. This was not done just to increase acceptability of the study findings, but because

quantifying findings is regarded as the main source of objectivity and reliability (Marshall, 1996; Castro *et al.*, 2010).

### **5.7.2.3 Rainfall, yield and food price correlation**

Secondary data was also gathered and analyzed to detect patterns and trends in important variables that were crucial in the understanding of the effects of drought on urban food security in Swaziland. Data on maize yield over a period of 10 years was gathered from the Ministry of Agriculture and was correlated with maize price for the same period to establish if there was a correlation between the two and determine the strength of the relationship. The same was done for maize yield, which was correlated with rainfall amount (weather data was gathered in the Department of Meteorology) to establish the existence of any relationship between the two, and establish the strength and direction of the observed relationship.

Finally, rainfall data was correlated with food prices, where the Consumer Price Index (CPI) (CPI data gathered from Central Statistics Office) for the different food items considered under the HDDS. The Product Moment Correlation was used and the sample product moment coefficient was calculated to determine if there was an existence of any relationship between the cross-tabulated variables, determine its direction and its strength. Since a smaller sample population was used due to data limitations, the results were further tested for significance using chi-square to determine the extent to which they reflected the total population from which the sample was drawn.

The results of these tests were very important for this study. The study is anchored on drought and its effects on food security (urban food security, to be specific) and also investigates food dynamics of food flows between rural and urban areas, to determine if there is any connection with drought. It was important, therefore, to first draw evidence from weather data if, indeed, the country experienced drought conditions and the years drought has occurred to determine if drought affects crop productivity (Maize yield) in Swaziland. The existence of a relationship between rainfall and maize yield meant something to this study (as well as lack of such relationship) and was crucial for every conclusion drawn in this study.



The same was true also with food price and rainfall. When food production declines, food demand is met through food purchase where food price is key. Besides, the urban population relies mostly on purchased food. It was important, therefore, to establish again if rainfall influences food prices. The important question here was: what happens to food price when rainfall declines causing a decline in crop yield? Do food prices respond to changes in rainfall pattern? Again, the existence of a relationship (as well as the lack of such relationship) between rainfall (drought) and food prices was important for this study to draw accurate conclusions.

### **5.8 Limitations and challenges of the research**

The researcher faced numerous challenges throughout the duration of the research, particularly during the data collection stage of the research process. The first problem the researcher had to deal with was that some heads of households could not be found during the household visits, either because they had gone for work (since others work on Saturdays and Sundays), or they had gone to the city in search for jobs. The researcher had to make repeated visits to those households, and this became costly as frequent visits had to be made to the convenience of the respondents. It was also risky since kaKhoza is not a very safe place, particularly in the late hours (and early morning hours) of every given day. But the researcher had to take the risk and do re-visits to these sampled households.

The same problem was encountered with the key informants. Most of them were very busy and could, most of the time, set an appointment only for the researcher (or data collector) to come and find that they have gone to attend to other organizational duties or something else that has transpired or that they had forgotten about when they set that appointment. The frequent visits to these places were not budgeted for since they were not anticipated and thus the researcher found himself working on a very tight budget. With some of the key informants, making five fruitless visits was normal. It was a bitter sweet experience.

The second issue of concern the researcher had to consider relates to the nature of the study. This study had a seasonal aspect in it and its timing was crucial. As such, the data collection process took longer than the researcher had anticipated to the extent that

other sets of data had to be collected even during the project writing stage when the harvesting season had fully come and the impacts of drought clearly manifested in most households, regardless of the ecological zone they are coming from. Determining when the data collection would end was quite difficult as the harvesting time differed considerably by regions. Even during the analysis stage, sometimes there would be a need to go back to the field for one or two interviews to address an emerging issue. This was much cumbersome.

The third challenge was that this research was conducted during the peak of the 2015/16 drought when the whole nation was experiencing acute food scarcity. While this was advantageous in that the effects of drought were captured while they were still severe and fresh for most households to remember, some people, on the other hand, saw a chance of getting food assistance, hence their expectations were heightened. As such, the researcher had to keep on emphasizing that the study was purely academic. Again, those households which were not forming part of the sample did not make things easy for the researcher since they also held the same perception that they might be left out of the perceived food assistance programme being formulated.

The researcher had to explain how they were excluded in the study by explaining the sampling procedure used and that the study was purely academic and had nothing directly to do with food aid distribution and any form of food assistance. This delayed the data collection process, particularly now that the researcher had to deal with households which were not even part of the selected sample. This was, however, helpful observation that gave the researcher a clue of the level of desperation of the residents and hence alluded to their level of vulnerability to food insecurity, particularly during the data collection period (2015/16 drought period).

One of the major limitations of this study pertains to data deficit in the country. Swaziland is one country with challenges of data availability either because the data is not collected or it is lost. For instance, the researcher needed data on the history of the National Disaster Management Agency in terms of its objectives and why it was established, the target group and other related information. When the researcher visited the NDMA offices in Mbabane to get such data, he was told that the data was

there but seemingly was lost and a new administration was instated which was just two years old and had limited data available which could not help much since the idea behind was to get the entire historical view of the NDMA. The researcher had to scavenge for some of this information in the national library (in Manzini) and sometimes he had to contact some of the retired members of the NDMA.

The absence of a proper data base was a major limitation. The researcher wanted to trace the drought pattern over a period of 20 year and correlate it with the CPI only to find that only a 10 year period of the CPI was available, thus could only use a 10 year period although 20 years could have given a much better picture. In the weather data, although the rainfall data was available for the period of 20 years, there were sometimes unexplained gaps in the data which also limited the researcher to stick to a reliable 10 year period data cluster he found accessible from the Meteorological Services Department. Such limitations, as already noted, were overcome by subjecting any emerging relationship to statistical tests to determine the level at which the sample reflects the characteristics of the total population from which it has been drawn. The researcher, however, acknowledges that to run statistical tests for high level of precision, a larger sample size is required.

Lastly, but not least, a comparative approach between two or more urban communities would have been more ideal, however, the selection of one case study area (kaKhoza) was preferred because it allowed for an in-depth exploration of the key issues surrounding the connection between drought and urban food security. Due to the nature of the study and the adopted design, generalizing the results to the entire region may not be appropriate. Although the drawn sample was representative of the population in the selected study area (kaKhoza), it is important to acknowledge that it is not representative of the low income urban households in the country, thus inferences cannot be drawn also for the nation.

## **5.9 Conclusion**

This chapter has discussed the method employed in exploring the connection between drought and urban food insecurity in urban Swaziland. It has shown that the study has utilized the mixed method approach and has highlighted the benefits of combining the

two approaches and, most importantly, how these complement each other, not only for a better understanding of the phenomenon under investigation, but also how combining the two increase results validity. While the qualitative approach (consisting of in-depth interviews, key informants interviews, FGD) contributed by providing an exploratory edge that helped to uncover how the urban poor at kaKhoza are affected by drought and ways in which they cope and hence remain resilient during the drought period, the quantitative methodology (questionnaire survey), on the other hand, played a confirmatory role and further quantified the issues raised by the qualitative process. The mixed method approach provided detailed information and insights that helped to better understand the effects of drought in urban spaces in Swaziland.



## CHAPTER 6: DROUGHT, RURAL-URBAN FOOD DYNAMICS AND FOOD ACCESS

### 6.1 Introduction

This chapter sets out to achieve a two-fold objective. First, is to examine the effects of drought on access to food in low income urban households in Manzini, and secondly, to analyze the dynamics of food transfers between rural and urban households with a view to establish if there is any connection with drought in Swaziland. To achieve this objective, both primary and secondary data were utilized. While primary data served to capture the drought experiences of the low income urban households in the study area, secondary data, on the other hand, was utilized to demonstrate how drought influences crop yield in Swaziland and how it contributes to increasing food prices in the Kingdom. The use of secondary data did not only help to highlight the inextricable link between drought and food security in Swaziland in general, but also helped us understand how drought can extend its influence to the urban environment and how its encroachment influences the livelihoods and food security of the poor urban dwellers and how it can restrict their access to food in the urban setting.

It is through interrogating such relationships that the challenges posed by drought on access to food, and hence food security of the poor households in the urban spaces can be unpacked and well understood. This section opens by presenting results generated from secondary data to highlight the link between drought, maize production and food prices in Swaziland. Food sources used by kaKhoza residents and effects of drought on access to food in urban Manzini are also presented. The chapter concludes by providing a summary of the findings and further draws a conclusion based on the findings.

### 6.2 Drought and food security nexus in Swaziland

A general consensus exists that drought in Swaziland has become a common and most devastating hydrological disaster, which has pushed an unacceptably large proportion of the Swazi population over the cliff of hunger, simultaneously increasing the incidence and intensity of food insecurity of most rural households (Oseni & Masarirambi, 2011; Manyatsi *et al.*, 2012; SVAC, 2016). Literature reveals that drought has displayed an increase in frequency, duration and intensity over the past years with an increase in its overwhelming and almost irreversible negative effects on food availability (due to

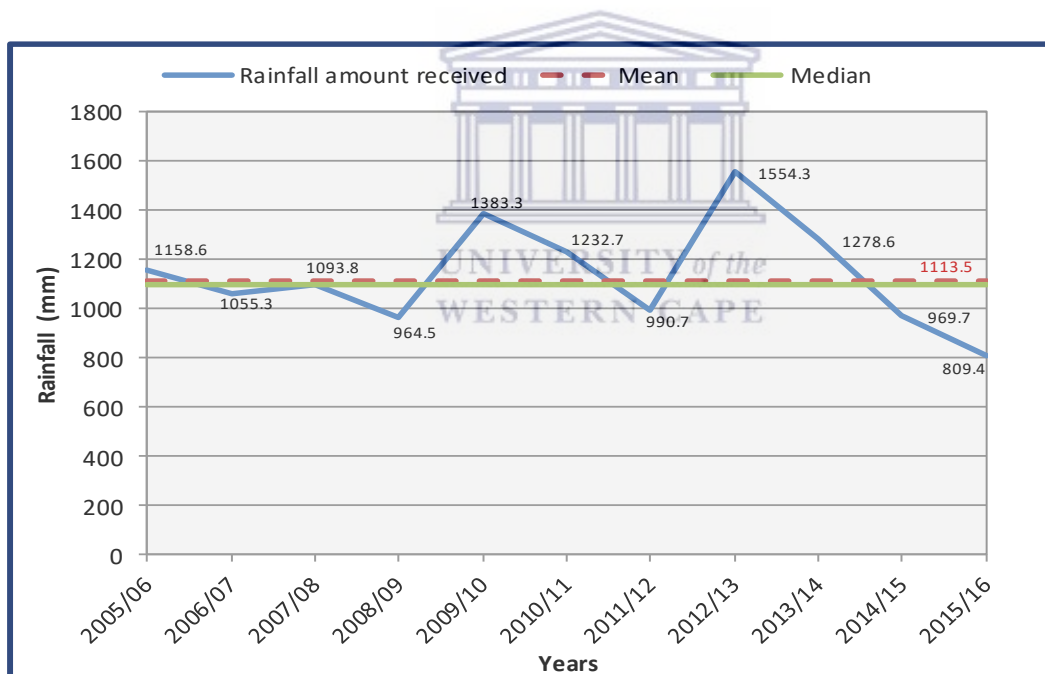
reduced crop production) (Manyatsi *et al.*, 2012; Mamba *et al.*, 2015) and access to food (due to increase in food prices) (FAO/WFP, 2015; SVAC, 2016) which are expected to worsen with the projected and observable impacts of a changing climate. While the country had not yet recovered from the 2011/12 drought which left copious pockets of hunger in the Kingdom, the 2015/16 drought, the worst ever recorded in history, has aggravated the situation, leaving the country helplessly grappling with hunger and acute food insecurity from which it is still struggling to extricate itself. Understanding how drought has affected maize production, maize price and the price of food in general provides a good framework for understanding the drought-food security nexus and how drought contributes to food insecurity of urban dwellers in Swaziland.

### **6.2.1 Impacts of drought on maize production in Swaziland**

Maize is the staple food crop for the Swazis and is often used as an index of food availability in the country (Manyatsi *et al.*, 2012). Almost all households in the country eat maize or maize products. This also finds support from the food security studies conducted in the country which also record the highest utilization of cereal (mainly maize) under the dietary diversity measure in rural areas (see Mamba *et al.*, 2015) and in urban areas alike (See Tevera *et al.*, 2012; Tevera & Simelane, 2014). Since drought has been widely recognized as a major natural disaster affecting food production and food security in Swaziland (Manyatsi & Mhazo, 2014; Manyatsi *et al.*, 2010; Oseni & Masarirambi, 2011), it was important, as evidence, to establish the trend of maize production in Swaziland (over the past 10 years) and how it has responded to observed rainfall patterns and drought in Swaziland. This was crucial for the study, not only to provide empirical evidence of the impacts of drought on food production and food security in Swaziland, but to also help us to recognize the connection between drought and rural household food security which will be instrumental in tracing and establishing how drought links with urban household food security. Rainfall data (from the Department of Meteorology) and maize yield (from the Ministry of Agriculture) were used and cross tabulated to establish existing relationships.

Figure 6.1 illustrates the trends in seasonal rainfall from 2006 to 2016 while Figure 6.2 provides the maize yield for the same period. As it can be observed, the 2006/07;

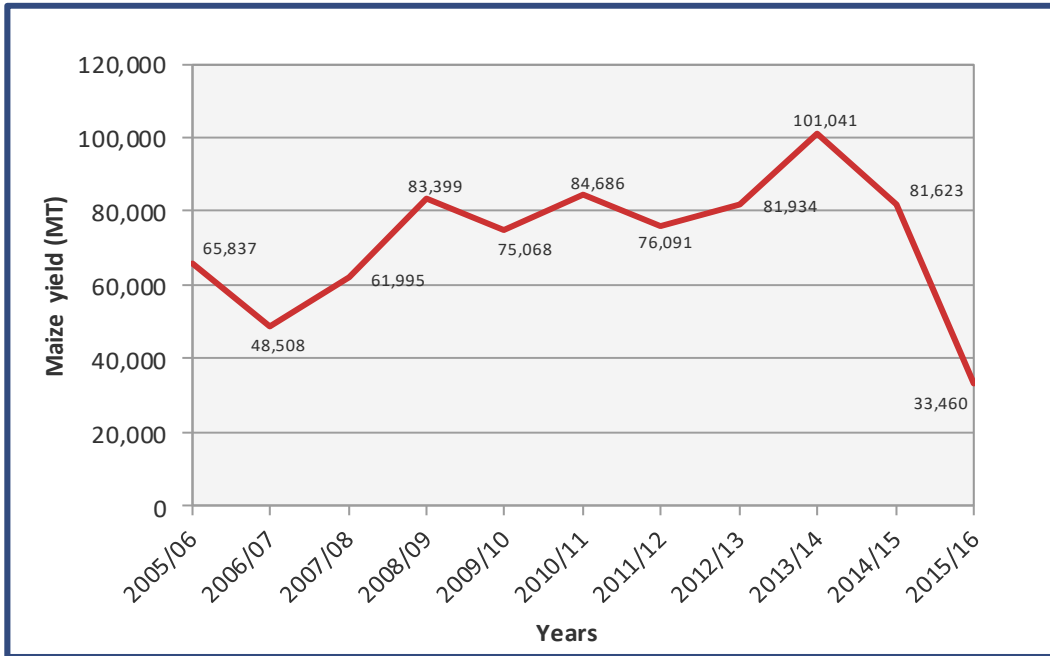
2008/09; 2011/12 and 2015/16 farming seasons<sup>15</sup> recorded below average rainfall (Figure 6.1) with a corresponding shortfall in maize yield in the same seasons (Figure 6.2). In the recent drought season of 2015/16, the country received the lowest amount of rainfall of 809.35 millimetres (304.1mm below the mean) ever recorded in the history of the country (Figure 6.1) with a corresponding lowest maize yield of 33, 460 MT (6.2). The same pattern is observed in the 2006/07 (1055.29mm) and 2011/12 (990.69mm) farming seasons where the country harvested 48, 508 MT and 76, 091MT respectively. However, in 2010, 2013 and 2014, the country recorded the highest maize yield which corresponds also with the highest and above average rainfall received in the same season. The highest yield in the same period (2006 to 2016) was 101,041MT recorded in 2013/2014 (bumper harvest) which corresponds to the above average rainfall of 1, 278.63 millimeters received in the same season. The year 2014 is recorded as a bumper harvest year, not only in Swaziland, but also in southern Africa in general (See: SADC Regional Vulnerability Assessment and Analysis Sythesis Report, 2015).



**Figure 6.1:** Amount of rainfall received (2005/06 - 2015/16 farming seasons)

**Source:** Data obtained from the Department of Meteorology

<sup>15</sup> These are recorded drought seasons in Swaziland (GoS, 2008; Manyatsi *et al.*, 2010; Manyatsi & Mhazo, 2014) with the 2015/16 drought season being the worse ever recorded in the country (SVAC, 2016) after the memorable 2011/12 drought.

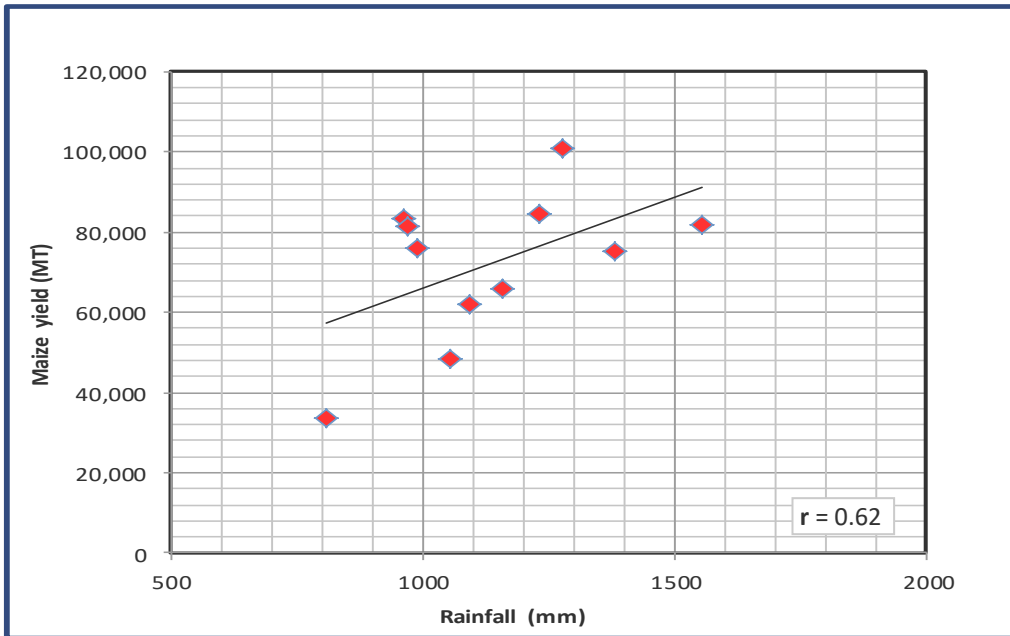


**Figure 6.2:** Trends in maize yield 2006 - 2016 - Swaziland

**Source:** Data obtained from the Ministry of Agriculture.

The plotted graphs (Figure 6.1 & 6.2) suggest that a decrease in amount of rainfall received influence the quantity of maize yield obtained, which suggests a relationship between maize yield and rainfall amount received in Swaziland. Establishing if such a relationship truly exists and establishing its nature was crucial for the study as it provides a link between food availability (a component of food security) and rainfall amount (weather variable). A scatter graph (Figure 6.3) was then plotted to determine if a distribution pattern was observable. The graph (Figure 6.3) shows some pattern which suggests that a decrease in amount of rainfall received corresponds with a decrease in the quantity of maize produced. For example, when the lowest amount of rainfall was received (809 mm) for the 2015/16 farming season, it corresponded with the lowest maize yield of 33,460 MT. When rainfall amount increases, yield also increases (e.g. 1159mm of rainfall corresponds to 65,837MT; 1233mm corresponds to 84, 683MT; 1554mm corresponds with 81,934MT of maize) (Figure 6.3), which suggested a positive correlation between rainfall amount received and maize yield.





**Figure 6.3:** Relationship between rainfall and maize yield

**Source:** Data obtained from the Ministry of Agriculture & Department of Meteorology

The Product-Moment Correlation<sup>16</sup> was then used to verify existence of a relationship and to further determine the nature and strength of the relationship. It was hypothesized that there was no relationship between the amount of rainfall received and maize yield ( $H_0$ ) and the alternative hypothesis ( $H_1$ ) was that there was a relationship between the two variables (rainfall & maize yield). A sample product-moment correlation coefficient ( $r$ ) of 0.62 was obtained which indicated the existence of a strong positive relationship between received rainfall amounts and maize yields in Swaziland (since the calculated correlation coefficient of 0.62 was far above 0 and closer to 1.0). This was further tested for significance (at 0.05 significant levels) for the researcher to know how probable it is that the sample correlation coefficient ( $r$ ) is an accurate estimation of the population correlation coefficient from which the sample was drawn. The test indicated that the correlation was significant and an accurate estimation of the total population, since the sample correlation coefficient of 0.62 was

<sup>16</sup> The product-moment correlation is a parametric technique which provides statistical measure of the strength and direction of a relationship between two variables (correlation coefficient). The correlation coefficient have a value ranging between -1.0 and 1.0 where a value of -1.0 indicates a perfect inverse relationship (negative correlation) between the two variables while a value of 1.0 indicates a perfect direct relationship (positive correlation). A complete absence of relationship (no correlation) is indicated by a coefficient of 0.0 (Ebdon, 1985 : 90).

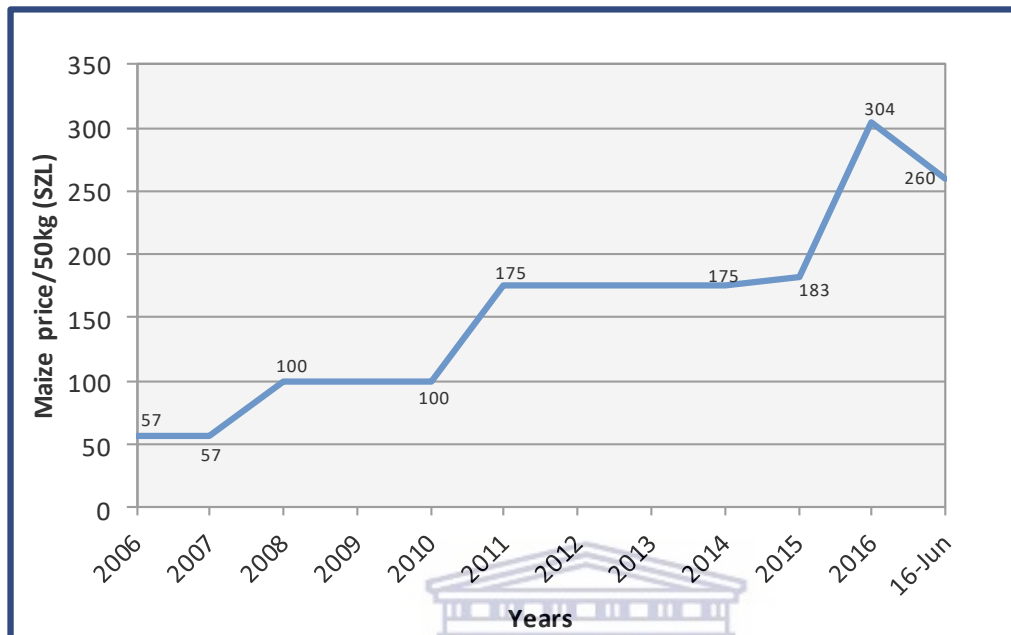
above the critical value of 0.521 at 0.05 significant level and 9.0 degree of freedom which necessitated the rejection of the null hypothesis in favour of the alternative hypothesis thus signaling a strong positive correlation between amount of rainfall received and maize yield in a given year within the period under study.

Cane *et al.* (1994) in their study '*Forecasting Zimbabwean maize yield using eastern equatorial Pacific sea surface temperature* also observed that a strong correlation exists between maize yield and rainfall. At national level, this observation is further supported by a range of studies conducted in Swaziland, ranging from vulnerability assessments (UNDP, 2010; SVAC, 2014, 2015, 2016; FAO/WFP, 2015) to scholarly articles (Manyatsi *et al.*, 2010, 2012; Oseni & Masarirambi, 2011; Manyatsi & Mhazo, 2014; Mamba *et al.*, 2015) where drought has also been cited as a salient risk and problematic hydrological disaster whose occurrence has always corresponded with a decline in food production, seriously compromising the state of food security for most rural households in the Kingdom. These results provide evidence of the impacts of drought on maize yield in rural Swaziland and allow one to conclude that climate-induced drought (manifesting itself through low/below average rainfall) contributes, to a greater extent, to low crop yield in Swaziland. While the connection with urban food security has not been attempted in these studies, the drought-food security nexus in these studies is but too obvious, providing a good baseline for tracking the effect of the disaster on urban food security, to which this study seeks to contribute.

### **6.2.2 Drought and food prices**

It has already been observed that drought in Swaziland contributes to the food deficit that has characterized the country, hence the strong positive correlation between rainfall and crop yield (maize) in Swaziland. Low crop yields in Swaziland induce increases in food prices, making most food unaffordable as noted by some studies conducted in the Kingdom (See FAO/WFP, 2015; SVAC, 2016). It was important, therefore, to determine if drought influences food prices in Swaziland as suggested by studies conducted in the country, to provide evidence of the existence of a relationship between the two. Statistics on maize yield (from the Ministry of Agriculture) and food price (from Central Statistics Office) were cross tabulated to establish relationships. Before food price was cross tabulated with rainfall to see if there was any correlation

between the two, it was important to first show the behavior of food prices (food price trends) over the past years (Figure 6.4). The graph indicates that maize price increased steeply in 2007 – 2008 (SZL57 – 100 per 50kg), 2010 – 2011 (SZL100-175) and even much steeper in 2015 – 2016 (SZL183-304) (Figure 6.4).

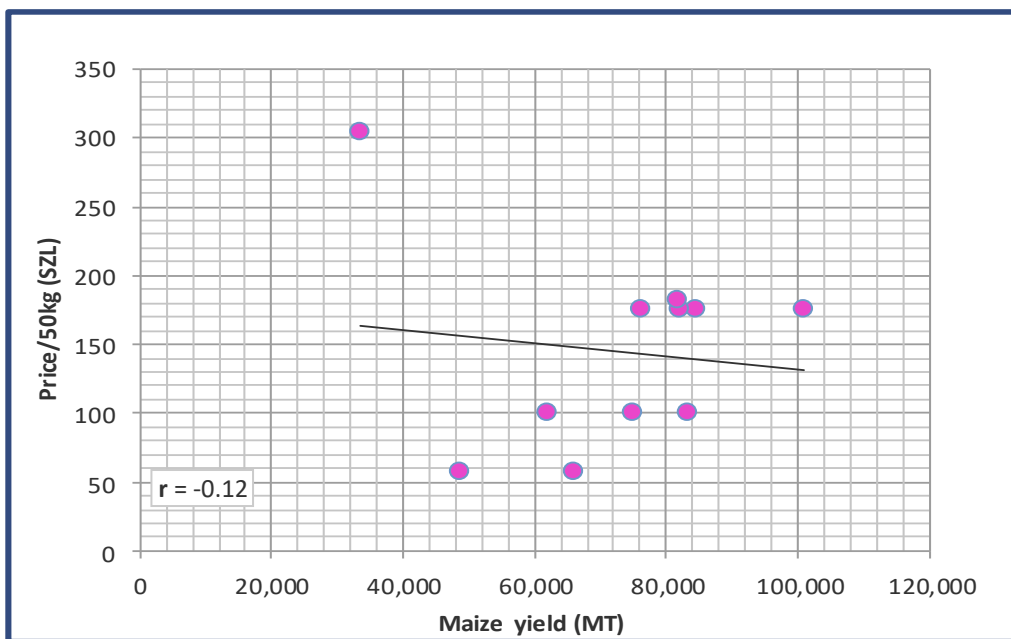


**Figure 6.4:** Changes in maize prices from 2006 – 2016 (June)

**Source:** Data obtained from the Ministry of Agriculture

The increase in maize price coincides with the drought years in Swaziland (2006/07; 2008/09; 2011/12 and 2015/16). While the 2011/12 drought was one of the severe droughts, the 2015/16 was even worse, resulting to soaring maize prices which almost doubled in the 2015/16 farming season. It is important to note that after the 2011/12 drought, maize price stabilized at SZL 175 per 50kg following the 2014 bumper harvest. A scatter graph (Figure 6.5) was then used to determine if indeed there is a relationship between maize yield and maize price. The results suggest the existence of a relationship between maize yield and food price. The Product-Moment Correlation was again used to determine if indeed the relationship exists and to measure its strength. It was hypothesized that there was no relationship between maize yield and maize price ( $H_0$ ) and the alternative hypothesis ( $H_1$ ) was that there was a negative correlation between maize yield and maize price. A sample product-moment correlation coefficient ( $r$ ) of

-0.12 was obtained which indicated the existence of a negative (but weak) correlation between maize yield and maize price in Swaziland.



**Figure 6.5:** Relationship between maize yield and maize price

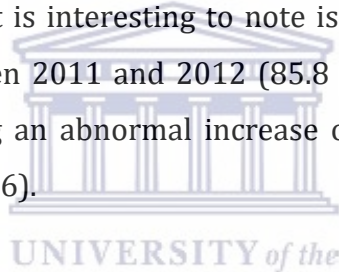
**Source:** Data obtained from the Ministry of Agriculture and CSO - Swaziland

When tested for significance (at 0.05 significant level), the test indicated that the correlation was insignificant since the sample correlation coefficient of -0.12 was smaller than the critical value of 0.521 at 0.05 significant level and 9.0 degree of freedom, which indicated that there was no significant correlation between maize price and yield in Swaziland. One possible reason for the weak correlation between maize yield and price is that maize price in Swaziland is controlled by the Swazi government through policies and subsidies to ensure that maize, as a staple food crop, remains 'accessible' to most Swazis, particularly during drought which makes maize price highly unstable (Figure 6.4). For example, the maize price in the recent drought (2015/16) increased to over SZL 400 per 50kg but was subsidized by government to SZL 304, which was still higher for most Swazis to afford, particularly the poor.

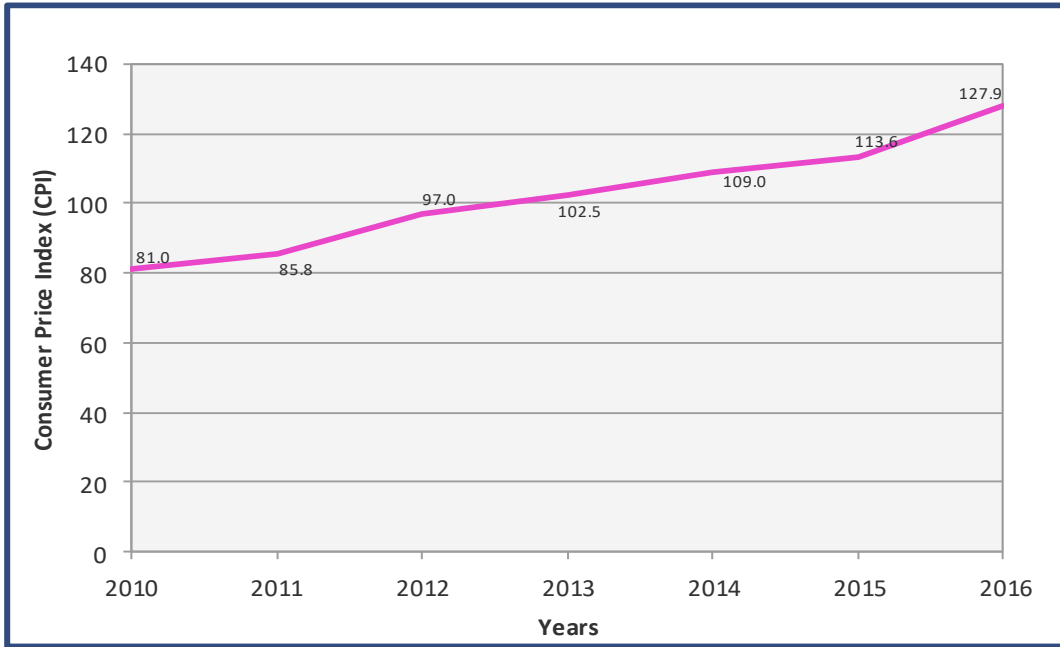
Worth noting is that maize deficit in Swaziland is largely met through imports from South Africa through NMC (the only organization mandated to import Maize to the country), thus a shortfall in maize production due to drought automatically necessitates

the importation of large volumes of tons of maize to Swaziland, which is then sold to Swazis. This does not only expose the country to high maize prices and/or tariffs, but also transportation costs which also filter into the local maize price. For example, in the recent regional drought of 2015/16, South Africa's maize reserved also went low and maize had to be imported as far as Brazil, which resulted to the steep increase in maize prices experienced (for the first time) in Swaziland.

Food security extends beyond food production to include issues of access (where food price is key), stability and utilization (where food variety is key), thus it was necessary to further determine if drought contributes to prices of food items used by households in Swaziland. The Consumer Price Index (CPI) (data excludes inflation) was used to first establish changes in food prices and to further cross tabulate it with rainfall data to determine if any relationship exist between the two variables. The graph (Figure 6.6) shows that food prices have not increased steadily since 2010 to the present (2016) but have shown fluctuations. What is interesting to note is that the CPI indicate a steeper increase in food prices between 2011 and 2012 (85.8 – 97.0) and between 2015 and 2016 (113.6 – 127.9) showing an abnormal increase of 11.2 in 2011/12 and 14.3 in 2015/16 in the index (Figure 6.6).



This coincides with the years of severe drought (2011/12 and 2015/16) in Swaziland. It is worth noting that although the CPI does not indicate a stability in food price between 2012 and 2015, the increase in the CPI from 97.0 to 107 (5 difference) between 2012 and 2013; increase from 102.5 to 109.0 (7 difference) between 2013 and 2014; and the 2014/15 increase from 109.0 to 113.6 (4.6 difference) indicate a normal increase in food prices and these are years when the country received good rains and more yield, particularly in 2014 where the country got good harvest which kept food prices low, hence the low CPI increase of 4 between 2014 and the beginning of the drought year, 2015.



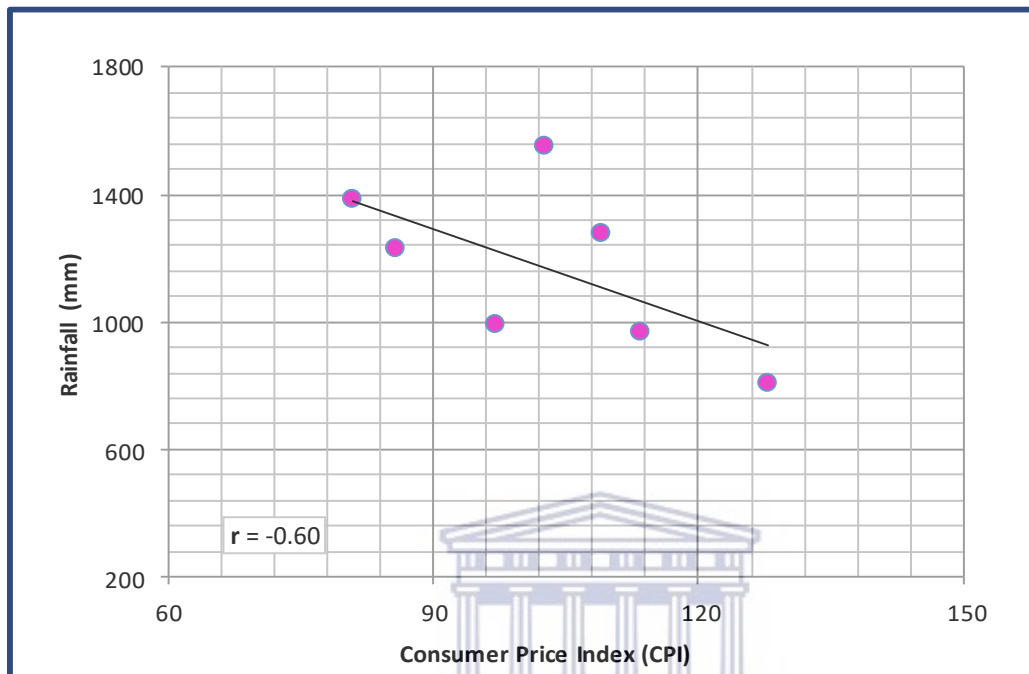
**Figure 6.6:** Consumer Price Index (CPI) for food items consumed by households

**Source:** Data obtained from the Central Statistics Office (CSO) - Swaziland

The Consumer Price Index was further cross tabulated with rainfall to establish if there is any pattern which can be observed that might suggest the existence of a relationship between the two variables. The scatter graph (Figure 6.7) shows the results of this cross tabulation. The Product-Moment Correlation was then used to determine if indeed the relationship exists and to measure its strength and direction. It was hypothesized that there was no relationship between the amount of rainfall received and food prices (CPI) ( $H_0$ ) and the alternative hypothesis ( $H_1$ ) was that a negative relationship exist between food prices (CPI) and rainfall amount. A sample product-moment correlation coefficient ( $r$ ) of -0.60 was obtained which indicated the existence of a strong negative correlation between received rainfall amount and food price in Swaziland.

This was further tested for significance (at 0.05 significant levels). The test indicated that the correlation was not significant since the sample correlation coefficient of -0.60 was smaller than the critical value of 0.669 at 0.05 significant levels and 5 degree of freedom which meant that the correlation that exists between food price and rainfall, although strong, but was not a significant one. This is because not all the food items in the food basket are influenced directly or indirectly by drought and that there are other factors that influence food prices. However, it should be noted that the correlation

coefficient of -0.6 is a large value which indicates a very strong negative relationship between rainfall amount and food price in Swaziland, which indicates that food prices in Swaziland are influenced, to a greater extent, by amount of rainfall received and drought, more especially maize meal prices (due to low supply in maize hence high demand for it).

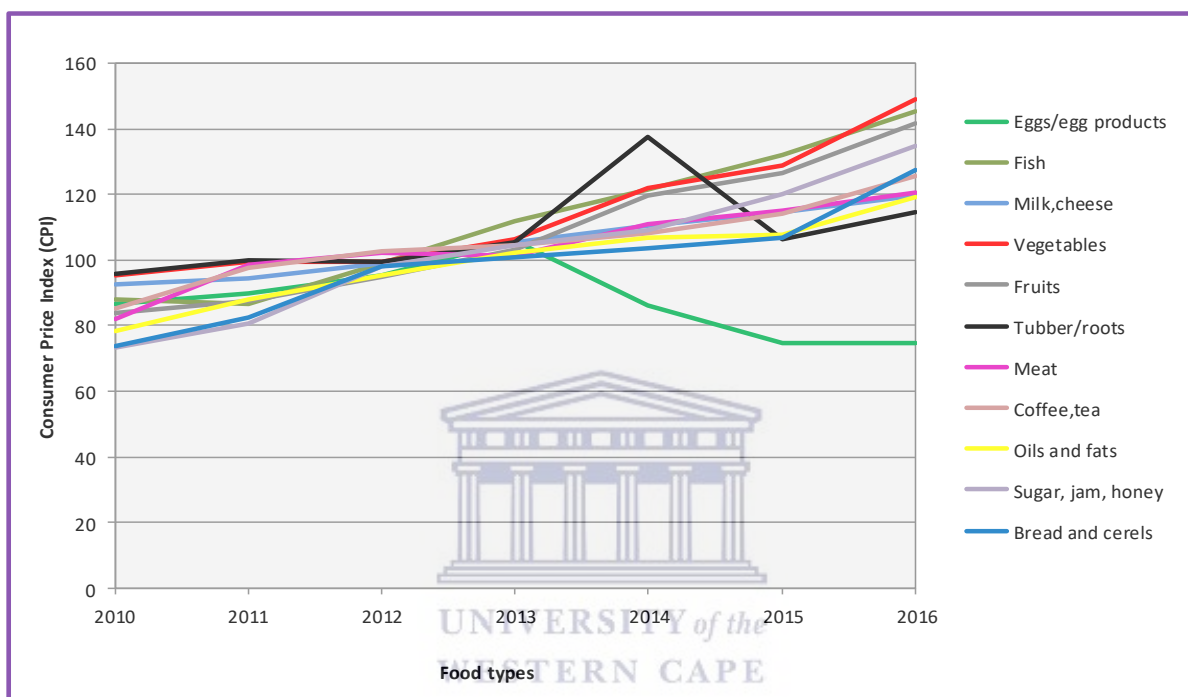


**Figure 6.7:** Relationship between amount of rainfall and Consumer Price Index

**Source:** Data obtained from the Central Statistics Office (CSO) - Swaziland

It is important to also understand that Swaziland is an agrarian economy with both subsistence and commercial farmers. Both subsistence and commercial farmers sell their produce to local retailers and individual households in Swaziland, which helps to minimize the quantity of imported food and help to keep food prices low. As such, the economy of the country is sensitive to variability in rainfall, hence prices of food items, particularly agricultural-based products, are expected to respond to changes in climate variables such as rainfall. For example, vegetable prices, fruits, cereal, milk and milk products prices respond to changes in rainfall amounts received as they show steep increases in prices in 2015/16 after their stable increase in 2014 where sufficient rainfall was received (Figures 6.1 & 6.8).

On the contrary, the prices of food items like eggs went down in the same year. The steep increase in the prices of these food items have an implication on household food security of the poor since all these food stuffs (Figure 6.8) are important in the diet of households, hence are used to calculate the dietary diversity score (DDS) of households to determine whether or not they are food secure (to be discussed in detail under food security). The steep increase in vegetable and fruit prices might account for the less utilization of these food items.



**Figure 6.8:** Changes in food prices (CPI) of selected food items 2010-2016

**Source:** Data obtained from the Central Statistics Office (CSO) - Swaziland

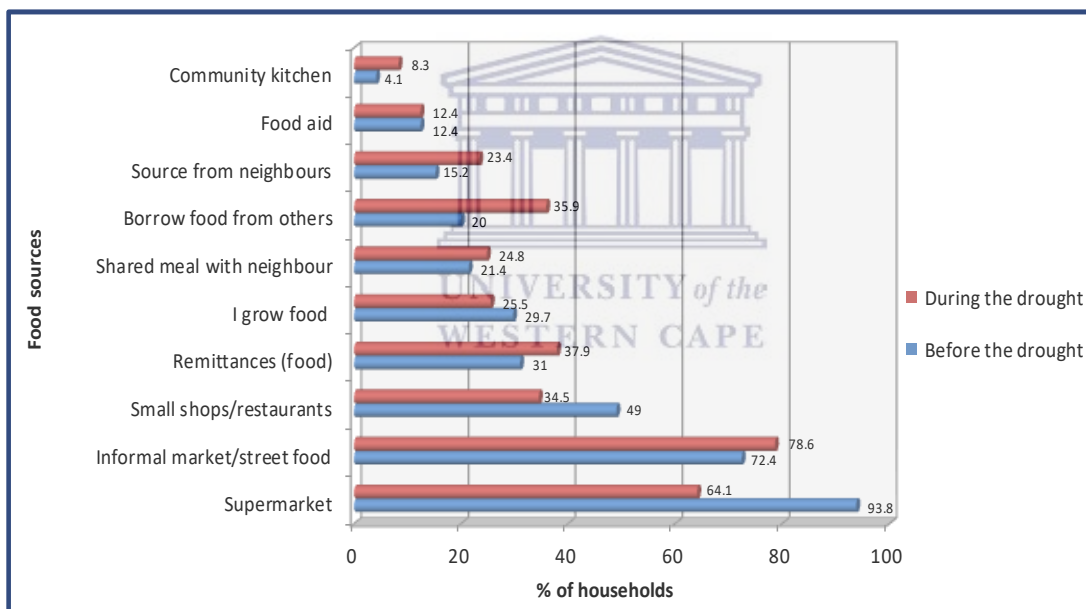
### 6.3 Sources of food in kaKhoza

The effects of drought on access to food among low income urban households in kaKhoza can be traced back to the sources of food consumed by the residents. Hence, the crucial question that needed to be answered first was: where do kaKhoza residents get the food they eat? An analysis of the food sources utilized by kaKhoza residents indicates that poor households in kaKhoza obtain their food from a wide variety of formal and informal sources. While some residents in kaKhoza purchase the food they consume (in supermarkets (64.1%), small shops (34.5%), informal market (78.6%)), others get food through social networks (remittances (37.9%), borrow food (35.9%), share meals (24.8%) or source food from neighbours (23.4%) and grants (food aid)



(12.4%)) while there are those who grow their own food (25.5%) (Figure 6.9). This is consistent with most urban food security studies conducted in Southern Africa as part of the AFSUN survey where it was also found that these food sources were utilized by urban households in all eleven cities surveyed (Frayne *et al.*, 2010).

Worth noting here are the changes in the level of utilization of these food sources from their utilization before the drought and during the drought. Food sources such as borrowed food, sourcing food from neighbours, remittances, shared meals, informal markets and community kitchen were found to have been utilized by more people during the drought period. These indicate an increase in utilization compared to their utilization before the drought, while the utilization of supermarkets and small shops, and growing of own food, on the other hand, indicated a decline during the drought period compared to their utilization before the drought.



**Figure 6.9:** Food sources in kaKhoza, Manzini during and before drought

**Source:** Research survey, 2016

### 6.3.1 Purchase

Food security scholars have rightly observed that majority of urban households purchase most of the food they eat and this study also found that kaKhoza is no exception to this trend. True to this observation, supermarkets, informal markets and shops were found to be major sources of purchased food and 93.8 percent, 72.4 percent

and 49 percent, respectively were purchasing food from these sources before the drought. However, during the drought period, 64.1 percent, 79.6 percent and 34.5 percent purchased food from supermarkets, informal sector and small shops, respectively.

Worth noting is the significant drop (29.7% less) in the utilization of supermarkets, with a corresponding increase in the use of the informal sector as a food source. During the drought period, more than three quarters' (78.6%) of kaKhoza residents were using informal markets (which are mainly women vendors) for food and fewer than expected (64.1%) were sourcing their food from supermarkets during the drought period (Pick n Pay, Shoprite, Spar etc.). Two possible explanations can be given for the decline in the utilization of supermarkets. The first explanation can be linked to the steep increase in food prices which most kaKhoza residents were complaining about during the time of the survey and attributed it to the drought experienced in the country, also confirmed by the data which showed a strong relationship between food prices and drought incidents in Swaziland (see Figure 6.1 & 6.2). The steep increase in food prices might have compelled majority of the residents (given their bad economic conditions) to resort to the use of informal food sources since they are 'cheap', hence the highest degree of utilization and frequency of patronage (44.1% weekly and 22.1% daily) by residents (Table 1) suggesting that they were buying in small quantities.

The second explanation can be traced back to the time of the month when the survey was conducted. The week of the survey did not coincide with month end when most people get paid and buy food in bulk from supermarkets as it can be seen in Table 6.1 that the majority (58.6%) purchase food once a month from supermarkets. The second explanation can be the steep increase in food prices which might have made the majority of kaKhoza residents (given their bad economic conditions) resort to use informal food sources.

**Table 6.1:** Frequency of food purchase by food source

		% of households
Supermarkets	At least five days a week	9
	At least once a week	20.7
	At least once a month	58.6
	At least once in six months	3.4
	Less than once a year	2.1
	Never	6.2
Small food outlets	At least five days a week	15.2
	At least once a week	24.1
	At least once a month	8.3
	At least once in six months	1.4
	Less than once a year	0
	Never	51
Informal food economy	At least five days a week	22.1
	At least once a week	44.1
	At least once a month	8.3
	At least once in six months	3.4
	Less than once a year	0.7
	Never	21.4

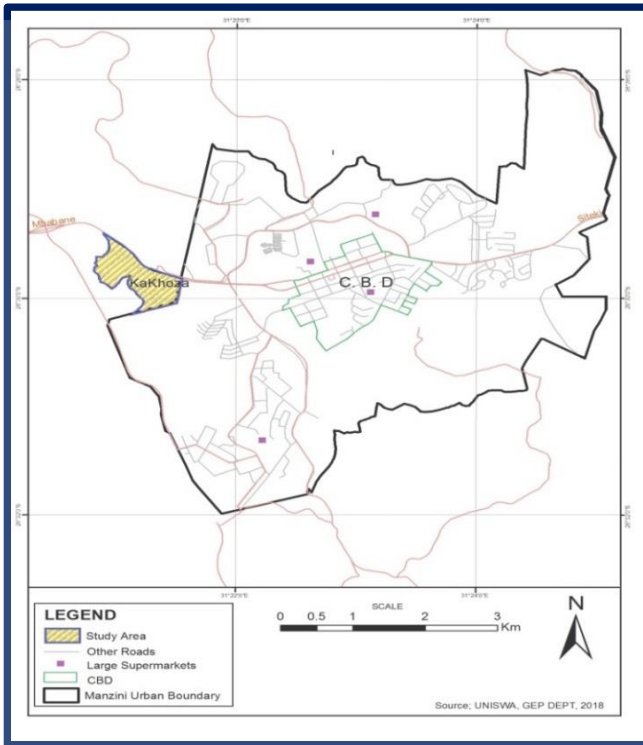
**Source:** Research survey, 2016

Although the decline in the utilization of supermarkets by low income households in southern African cities is not uncommon as the same was captured by the AFSUN survey in the townships and peri-urban areas of cities such as Manzini, Harare and Maputo (See Tevera *et al.*, 2012; Tawodzera *et al.* 2012; Raimundo *et al.*, 2014), the decline in the utilization of supermarkets by low income households in the low income areas of Moneni, Standini and Ticancweni in Manzini did not coincide with an increase in the utilization of the informal sector (See Tevera *et al.*, 2012). The increase (from the normal) and high utilization of the informal sector by kaKhoza residents is more revealing as it tends to reflect the Harare situation (during the economic meltdown) and that of Maputo (where the number of supermarkets were still very few) as captured in the AFSUN survey (See Tawodzera *et al.*, 2012:26; Raimundo *et al.*, 2014:17).

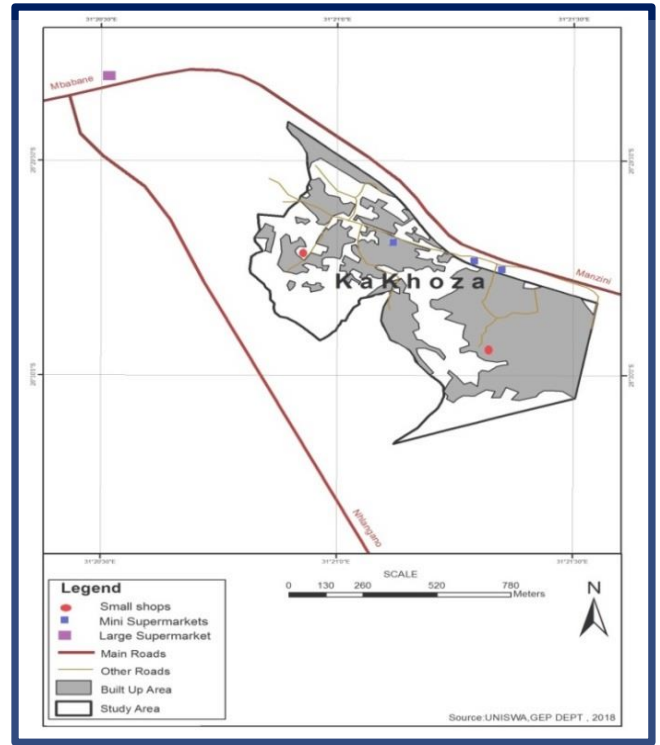
In the informal settlement of Tafara, Mabvuku and Dzivarasekwa in Harare, Zimbabwe for instance, the informal sector was found to be a dominant food source, with less utilization of supermarkets (which was 49% below the regional average) reflecting the precarious social and economic situation that prevailed in the city at that time. Unlike in Zimbabwe situation where most supermarket shelves were empty due to price control,

in kaKhoza (Manzini), although the shelves were beaming with all sorts of food, the food price was very high for most residents to afford to buy food. The food price surge in the country might have contributed to the decline in the utilization of supermarket evidenced by the corresponding rise in the patronization of the informal sector. Street vendors (Plate 3 & 5) had lucrative businesses by selling street food, more especially those who were buying food in bulk from supermarkets and repackaging it in smaller quantities (Plate 5) which were 'cheap' to buy and affordable to most residents who bought just enough for a day's meal.

It is important to also mention that the decline in the utilization of supermarket in the informal settlement of kaKhoza was really startling and unexpected, given that kaKhoza is well serviced with supermarkets, most of which are located within a walking distance (less than 3km) from the area (in Manzini city) (Figure 6.10), while another one is located less than a kilometer away (plat 1) in addition to two mini-supermarkets (See plate 2) located in kaKhoza. Unlike in Battersby's concept of food desert where availability of, and proximity to supermarkets influence their utilization (Battersby & Crush, 2014), in the case of kaKhoza, the issue of proximity seem not to account for the underutilization of supermarkets since the supermarkets are not only available in reasonable quantities in the area but are also fairly accessible, hence ruling out this concept of food desert. Unlike in low income areas of Nhlamanculo, Kampfumo, Kamaxakeni, Kamubukwana and Kamavota in Maputo as well, where supermarkets were very few hence less utilized, in Swaziland there are many supermarkets which are also highly accessible.



(A)



(B)

**Figure 6.10:** Location of Supermarkets in Manzini (A) and kaKhoza (B)



**Plate 1:** one of the mini-supermarkets located in kaKhoza



**Plate 2:** Example of supermarkets accessible to kaKhoza (<3km)



**Plate 3:** Women selling meat and vegetables in informal markets in kaKhoza

### 6.3.2 Grants and social protection

The results also indicate that kaKhoza residents source their food from social protection schemes like national care points such as community kitchen and 8.3 percent were found to do so during the drought period. Others (12.4%) relied on food aid for their food needs. It is important to note that the number of people who rely on community kitchens for food has increased by more than half compared to its utilization before the drought. This indicates the level of vulnerability of the residents.

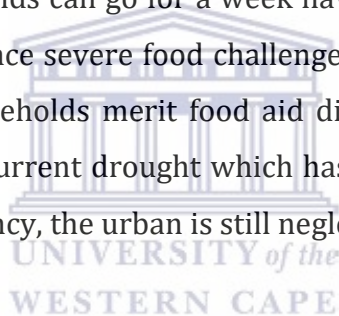
Worth noting also is that while the country is running a drought relief program of distributing food to the affected Swazis across the country, on the contrary, the number of people receiving food aid in urban kaKhoza remained unchanged during the drought period compared to the past (before the drought) (Figure 6.9) as the current food aid program, like in the past, still targets rural people. The same observation was made by Leduka *et al.* (2015:40) in a study conducted in the peri-urban zone in Maseru in Lesotho who rightly observed that food aid programs are selective and tend to target rural populations where it was found that only 3 percent of the surveyed households receive food aid in the low income households of Lithoteng, Qoaling and SSTS in urban Maseru. The 97 percent of the households are never recipients of food aid. In Swaziland, the urban few who receive food aids are those with special food needs such as deserted elderly people and orphaned (and vulnerable) children and this has nothing to do with drought and disaster management.

It was not surprising, however, that even in the 2015/16 drought, the urban poor in kaKhoza were excluded from the food aid program following that in Swaziland, drought is still thought to be a rural problem that affects rural people through reduced crop yield, and so food aid is targeted to same. This is so disturbing given the observed food situation of most households in kaKhoza, which is sometimes worse than that of most rural areas and urgently necessitated food aid distribution, at least in the recent drought year. This was confirmed by one respondent, a community motivator, in an interview who had this to say:

The food situation in most households here is too bad...we urgently need food aid, but no one cares about us. I mean, this year drought has ravaged us, food prices have ripped us off our hard earned cash, but we hoped when government declared this year a state of emergency, we will get food, but still

no one thought of us. Every day we hear on radios that rural people are given food, when there are people here who sleep without having eaten anything. This year is just worse. I tell you, some people here might not see 2017 if the situation continues like this. I can show you households here who have gone for a week now without a decent meal. They don't even know where the next meal will come from<sup>17</sup>.

The case study above raises the concerns of the people in kaKhoza, Manzini and captures their feelings and displays their helplessness even in the current disaster year. Contrary to what most people think, the food situation in some urban households like those in kaKhoza can be worse and sometimes far worse than those in the rural area, as Mohiddin *et al.* (2012) has also observed in Nairobi. It is not common in rural Swaziland for a household to go for a week without food. Unlike in the urban areas where most people live an individualistic lifestyle, and their so called neighbours are not usually related to them, in rural Swaziland most people have neighbours who are normally their blood relatives. In times of food needs, they give them food, thus it is not common to find such cases where households can go for a week having eaten nothing. No one ever thinks urban households can face severe food challenges as captured in the case study, as such, few think urban households merit food aid distribution. Even in an event of natural disasters such as the current drought which has struck all parts of the country and declared a state of emergency, the urban is still neglected.



### 6.3.3 Grow own food

The results (Figure 6.9) indicate that a significant proportion (29.7%) of the residents grow the food they eat, either in rural or urban areas and 25.5 percent of the households had eaten from their grown food during the drought period. It is interesting to note that during the drought period, fewer households (4.2% fewer compared to the past) had eaten from their grown food. This indicates a decrease in the utilization of own grown food. Even more interesting was to find out that most of the 25.5 percent who ate from their own grown food, grow this food from their backyard gardens. It transpired that under normal circumstances, majority of the households who grow their own food do so in their fields in rural areas, however, due to poor harvest (due to drought), the number of those who grow their own food decreased. However, what was

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<sup>17</sup> Case Study No. 1, 30<sup>th</sup> April 2016, kaKhoza, Manzini



much interesting to gather was that some households started to rent fields in nearby rural areas and grew maize. This is best captured in the following response with one farmer in kaKhoza, who also rents a field in Ludzeludze (a nearby rural area). He was responding to a question where he was asked if they practice urban agriculture as residents of kaKhoza.

Yes, I do grow crops like maize and vegetables in my garden as you can see (pointing at his vegetable garden). But the problem here is that there is no space and *sitokele ngaphandle*<sup>18</sup> since it is illegal to practice agriculture here. I normally grow maize at home in Mahhoshe but this year, eyi...rains were very scarce. Some of us decided to rent field around. Mine is in Ludzeludze where I rent half a hectare of land and grow maize. Others rent in Zombodze and other in Malkers and some rent over there (pointing Fairview). It rains here and there is an option for irrigation, although even the rivers might dry out if the drought continues<sup>19</sup>.

The fields rented by the residents in kaKhoza in nearby areas such as Langeni, Fairview, Ludzeludze, Zombodze and Malkerns are located in the Middleveld region of Swaziland and normally receive adequate rainfall and also offer opportunities for irrigation. However, the farmers complained that although their brilliant idea of renting fields in rainy areas was ideal, it never worked much to their advantage (although they got few bags of maize) because the rains were also not as they expected and rivers dried up and irrigation got officially suspended as water rationing sets in. This shows the degree to which some urban residents rely on own grown food for survival in the urban areas. The farmer above (Case study 2) clearly indicates how, as urban residents, they are also affected by drought either through inadequate rainfall or shortage of irrigation water.

#### 6.3.4 Social networks

Just as it was also captured in the AFSUN survey, it was also gathered that various forms of informal social protection are relied on by some households in kaKhoza. The results indicate that some households get food through social networks which include borrowing food from neighbours (35.9%) commonly known in *kunanisa*<sup>20</sup> in Swaziland,

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<sup>18</sup> A SiSwati word which is used when one is intentionally doing an illegal thing and is guilty of being arrested anytime if found.

<sup>19</sup> Case Study No. 2, 09 April 2016, kaKhoza, Manzini

<sup>20</sup> This is a SiSwati word which means 'borrowing'. Borrowing food in Swaziland is a common practice among poor households as a food sourcing strategy. They normally borrow small quantities of uncooked food like rice, beans, salt, sugar and other food stuffs when the household goes through times of food scarcity just to cook in that given day and the next day they proceed to another household. Although they

remittances (food) (37.9%), while others get food through shared meals (24.8%). It is important to note that social networks play a major role as a food sourcing strategy in kaKhoza, and that there is an increase in the utilization of social networks as food source in the study area, particularly borrowing of food. It was found that 35.9 percent had borrowed food at the time of the survey when the drought was in its peak, indicating an increase of nearly 16 percent from the 20 percent who used to borrow food from their neighbours before the drought period. It was also found that fewer residents (4.2% less) compared to the past (29.7% before the drought compare to 25.5% during the drought) survive on grown food/food remittances. There was an increase in the number of respondents who survive on shared meals (from 21.4% before the drought to 24.8% during the drought period) (Figure 6.9). For example, sharing meals with other households is close to the regional average (19% versus 21%).

The findings are not different from the AFSUN findings where it was also discovered that in most low income areas in cities of the South (Manzini, Maseru, Zimbabwe) some households rely on these informal social protection food sourcing strategies. For example, in the peri-urban zones of Maseru, 41 percent of the surveyed households relied on borrowing food, 43 percent in the informal settlements of Harare and very few (11%) in Manzini's low income households sourced food this way. It is important to note that in kaKhoza, an increase in the utilization of these informal social protection was observed, contrary to what Tevera *et al.* (2012) found where a decrease (compared to normal) in the utilization of the same informal social protection was recorded the day of the survey.

The increase in utilization of informal protection reflects findings by Tawodzera *et al.*, (2012) who found that the percentage of households surviving on borrowed food in Zimbabwe was 50 percent more (43% compared to 21%) than the regional average. The major challenge cited by most residents when asked what restricted them from having enough food was drought and increase in food prices. Leduca *et al.* (2015) in his study conducted in the rural-urban fringe of Lesotho concludes that an increase in the utilization of the informal social protection depicts that households are faced with a

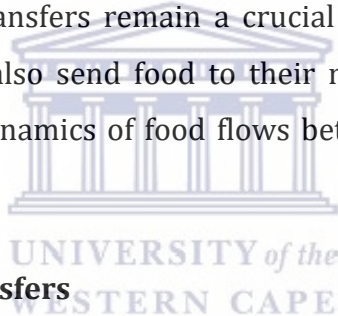
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use the word 'borrow', it is most common for others not to bring back the food when they have it. They then proceed to 'borrow' food from other households nearby in times of food needs.

situation which makes them poor and destitute. It can rightly be concluded that the observed increase in the utilization of informal protection in kaKhoza during the drought period is indicative of the food-access related challenges faced by households in the study area. These food challenges have been further magnified by the 2015/16 drought, which increased households' vulnerability to food insecurity in the study area.

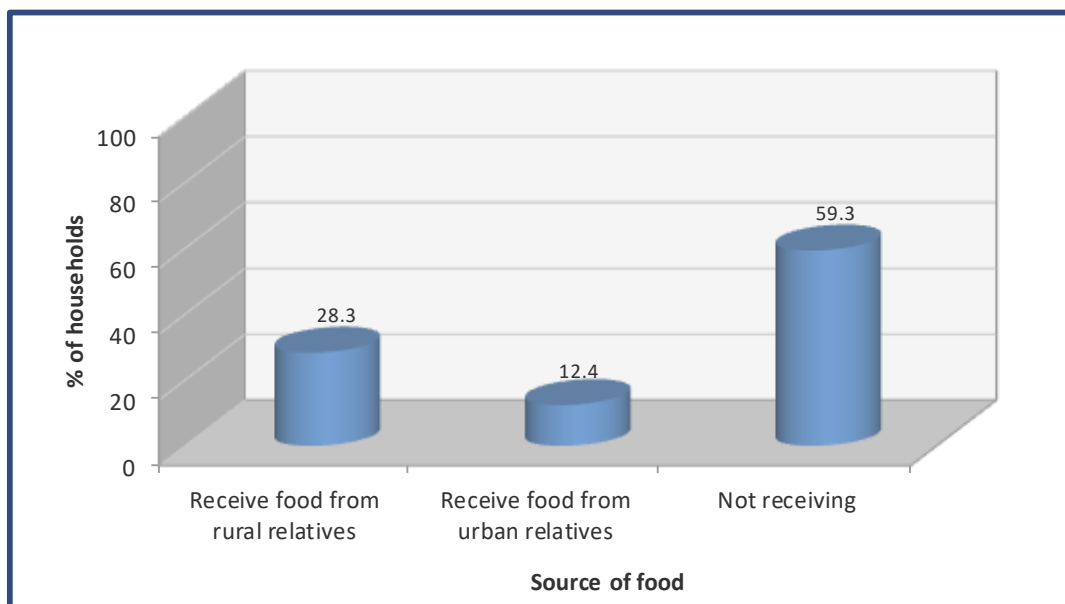
### **6.3.5 Food transfers and food dynamics**

Food transfers, particularly from rural to urban areas is one crucial aspect of social networks found to be important in sourcing food in most urban areas. Urban food security scholars (Legwegoh, 2012; Tawodzera, 2011; Tawodzera *et al.*, 2012; Tevera *et al.*, 2012), for example, have observed that most poor urban households in the global South maintain links with their rural relatives from which they source some of the food they eat in the urban areas, and Swaziland is no exception to this trend (See Tevera *et al.*, 2012; Tevera & Simelane, 2014). While some households source food from urban areas, the rural-urban food transfers remain a crucial source. Literature also reveals that some urban households also send food to their relatives in rural areas. It was important to determine the dynamics of food flows between rural and urban areas in kaKhoza.



### **6.3.6 Rural-urban food transfers**

As already mentioned, rural-urban food transfers have been recognized as an important source of food in most households of poor urbanites in the global South and in Swaziland, in particular. It was important to determine if households in the informal settlements of kaKhoza source food from their rural and/or urban relatives and the proportion of households that had done so during the drought period. The results indicate that rural food sources are important in Swaziland, and even more important in kaKhoza than urban food source. As it can be observed from Figure 6.11, a reasonable proportion (28.3%) of households were found to source or to have sourced food from rural areas during the drought period, with few households (12.4%) who got food from their urban relatives.



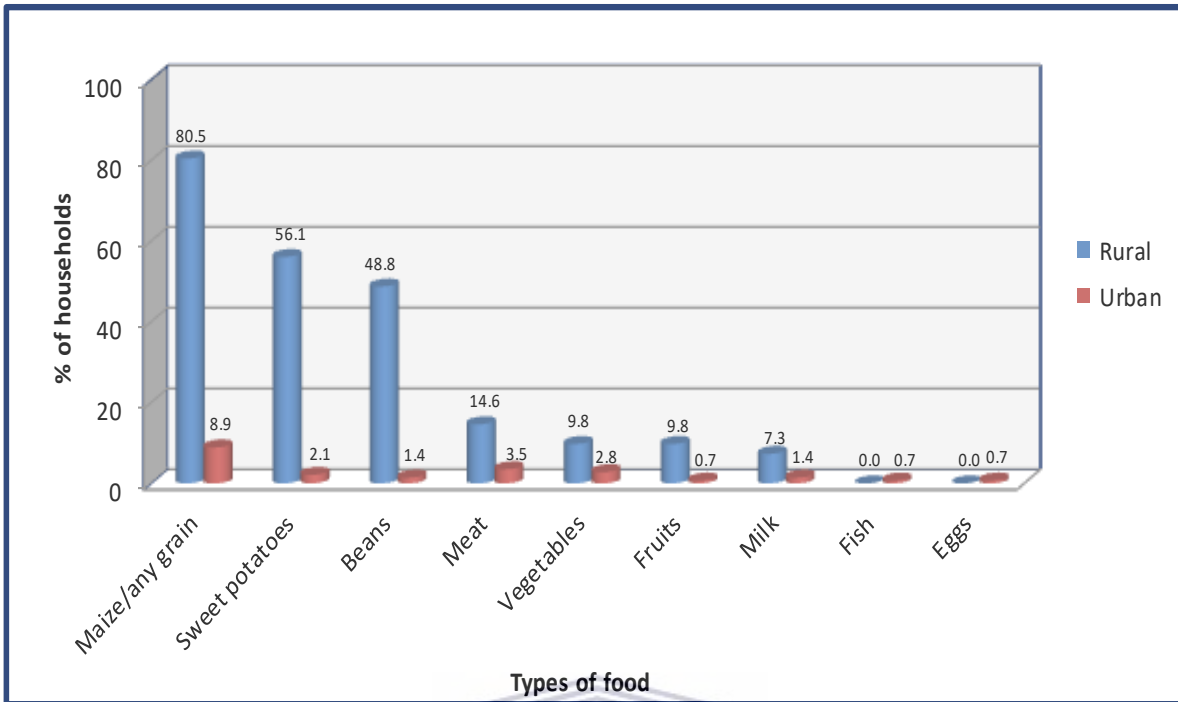
**Figure 6.11:** Food transfers to urban households

**Source:** Research survey, 2016

It was important to determine the types of food households transfer from both rural and urban areas and the proportion of households transferring each food type in order to determine the most transferred food type. The results captured in Figure 6.12 indicate that a majority (80.5%) of households who source food from rural areas receive maize. These findings mirror those by Leduka *et al.* (2015) in a study conducted as part of the AFSUN in the informal settlement of Lithoteng, SSTS and Qoaling in Maseru who also found that nearly two-thirds (63%) of the rural-urban transfers were cereals (maize and sorghum).

It is not surprising, therefore that maize is used as an index of food availability in Swaziland and that a shortfall in maize production, due to drought, will inevitable impact negatively on the food security of the urban dwellers. The other most transferred food types from rural areas are sweet potatoes, which is transferred by more than half of the households (56.1%), beans (48.8%) and meat (14.6%). Other food types households receive from rural areas are milk (7.3%) and fruits (9.8%) which are transferred by fewer households. Worth noting is that the rural food source, compared to the urban source, remains crucial in kaKhoza as it is the leading source in

the number of households utilizing them in almost all types of food except for fish and eggs which are only sourced from urban relatives (Figure 6.12).

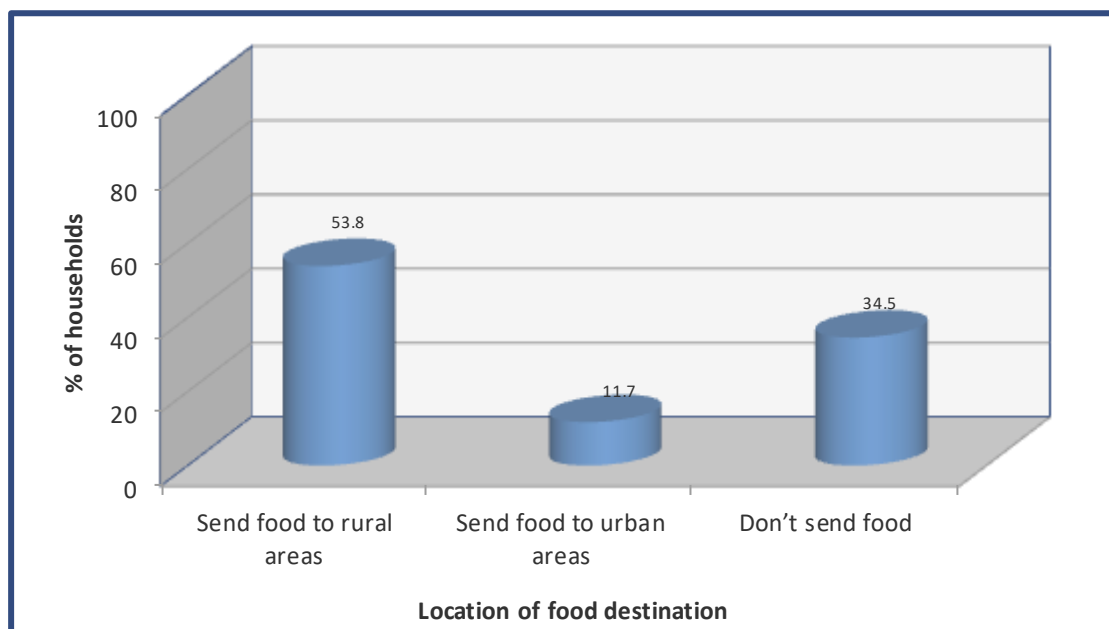


**Figure 6.12:** Types of food transferred from rural to urban areas

**Source:** Research survey, 2016

### 6.3.7 Urban-rural food transfers

It was also discovered that some households send food to their relatives in the rural areas. More than half of the households (53.8%) were found to have sent food to their rural relatives at the time of the survey. Very few households (11.7%) were found to have sent food to their urban relatives (Figure 6.13). What was interesting to note was that while most of kaKhoza residents themselves were struggling to put food on the table in their households, they had to also put something together to make sure that they sent some food to their rural relatives. The impact of drought that had hit hard the rural population is clearly reflected by the large proposition of urban households sending food to rural households as opposed to urban households. Sending food to rural relatives, particularly this year where large quantities of food had to be sent to rural areas due to drought induced crop failure, impacts negatively on the food security status of these sending households since it increases their vulnerability and incidence of food insecurity.



**Figure 6.13:** Food transfers to rural households

**Source:** Research survey, 2016

#### 6.4 Effects of drought on access to food in the urban environment

As already observed, drought has become a major development challenge in the Kingdom of Swaziland and its effects on rural livelihoods and food security can neither be underestimated nor ignored. What remains unknown is whether drought affects the food security of the households in the urban environment by influencing their access to food, which this work seeks to establish. Since access to food is directly linked to the sources of food used, likewise, the effects of drought on access to food would inevitable be captured through examination of the food sources used at kaKhoza and how these sources of food were directly or indirectly impacted by drought.

To fulfil this assignment, secondary data has already been presented above to illustrate how drought influence crop yield (maize, which is the most transferred food also used as an index of food security) in the Kingdom of Swaziland and how it eventually contributes to the increase in food prices in the country. While primary data helps to capture the drought experiences of low income households of kaKhoza, secondary data, on the other hand, plays both a confirmatory and complementary role to demonstrate how drought influenced these food sources. It is through interrogating the relationships

between drought and the urban food sources that will help us understand and unpack the effects and challenges posed by drought on access to food in the urban context.

As already alluded to, drought in Swaziland has been widely accepted as a major natural disaster that has compromised the food security of most households, particularly the rural households. In many ways than one, drought has resulted to a decline in food production resulting to food scarcity, directly and indirectly contributing to the steep food price increase experienced in the country. It has already been observed (from the results presented above) that the effects of drought on food availability and its contribution to escalating food prices cannot be underestimated. While drought has been confirmed to be more intense and more recurrent with its devastating effects on rural food production being widely recognized in Swaziland (Oseni & Masarirambi, 2011; Manyatsi *et al.*, 2012; Manyatsi & Mhazo, 2014), the effects of drought on access to food among poor urban households has been largely neglected. It is this information gap that has motivated this study to establish how drought contributes to the food insecurity of poor urban dwellers in Swaziland by limiting their access to food in the urban environment.

Burton *et al.* (2013) have argued that food security of the urban poor is compromised when food grown outside the city (rural food production) is compromised due to climatic variability and extreme weather events such as drought. True to Burton's observation, the majority (95%) of sampled kaKhoza residents stated that they are affected by drought, with very few (5%) who mentioned that they have not been affected. Respondents were responding to a question where they were asked if they were affected by the 2015/16 drought conditions as urban dwellers. The respondents who noted that drought affected them revealed that the 2015/16 drought significantly impact on their livelihoods. While some respondents were able to link so perfectly well how, as urban dwellers, they were impacted by drought, others could not link drought and urban livelihoods. This is well captured in Litchfield's and Adams'<sup>21</sup> case studies below. This is what Joe Litchfield had to say:

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<sup>21</sup> A pseudonyms for protecting household head's identity in kaKhoza during in-depth case study interviews, Case Study No. 3 & 4, 15<sup>th</sup> March 2016, kaKhoza, Manzini.

We are seriously affected by drought as urban dwellers. We cannot afford food now since this year food prices have gone abnormally high. We know food prices always increase, but not like this. The price of a 50kg bag of maize, for the first time increased by over 50 percent and maize meal is just too expensive. No vegetables in the supermarkets because of drought and cabbages rose from 7.50SZL to 18.00SZL. Even in the rural areas, no food this year, they are looking up to us to buy them food when in the past we knew when we go home, we will come with sweet potatoes, bean, groundnuts and maize meal and reduce food bills. This year, never...we receive calls now and again from home that there is no food and must buy. It's just a problem...we are swim in debt and shylocks are after us<sup>22</sup>.

Others could not see how, as urban dwellers, they can be impacted by drought. This is what Jane Adams had to say:

I don't think we can be affected by drought here (meaning urban areas) because we are not growing crops, but the rural people are the ones affected since they practice agriculture. So, this year majority did not grow crops because there were no rains, even those who grew did not get anything. Those are affected. With us here, we buy food and those who get some when they visit home, this year they buy it, so drought does not affect us<sup>23</sup>.

It was quite interesting to note that some urban dwellers also believe that drought affects rural areas and could not see how they could be impacted by drought as urban dwellers. This seems to be a general view in Swaziland and it provides part of the explanation why food emergency campaigns responding to drought impacts in Swaziland target rural areas and why most food security studies are rural based (e.g. Oseni & Masarirambi, 2011; Manyatsi *et al.*, 2012; Manyatsi & Mhazo, 2014) hence food insecurity is largely viewed as a rural problem in Swaziland, in particular and in southern Africa in general as Crush and Frayne (2010) have rightly observed.

Even more revealing are the results (Figure 6.14) from a household survey where the respondents who indicated that they were affected by drought were further asked to specify how exactly they have been affected by drought as urban dwellers. The majority of respondents stated that drought has induced food price hikes (62.1%) while others stated that drought resulted to crop failure (45.5%) and food scarcity (33.1%). It was interesting to note that a reasonable number of respondents noted that drought has

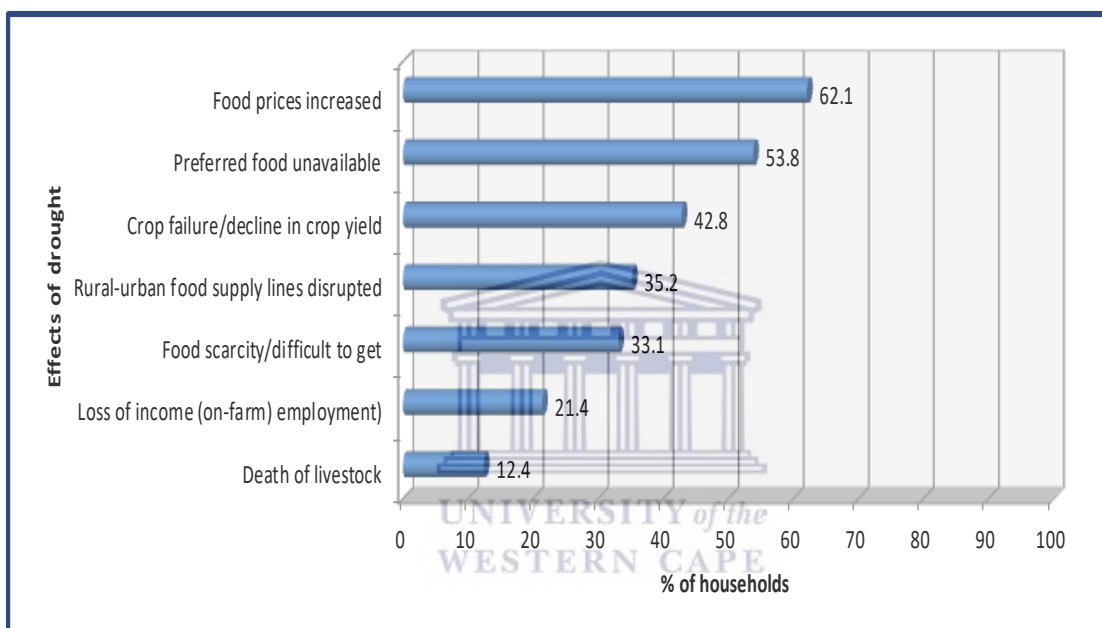
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<sup>22</sup> Case Study No. 3, 15 March 2016, kaKhoza, Manzini

<sup>23</sup> Case Study No. 4, 15 March 2016, kaKhoza, Manzini



disrupted supply lines (rural-urban food flow) (35.2%), with others noting that most preferred food is no longer available (53.8%) while others pointed out that it resulted to loss of on-farm employment and related income (21.4%). Other respondents raised concerns about the loss of their livestock (12.4%) which is a national outcry from most pastoral farmers in Swaziland, following the 2015/16 devastating drought (See SVAC, 2016). It is important to note that livestock in Swaziland are important assets which are sold in times of need such as during times of food scarcity (such as in drought years) so that households can get income to purchase food. So, death of livestock cripples the purchasing power of most rural households in Swaziland.



**Figure 6.14:** Food-related effects of drought on households in kaKhoza

**Source:** Research survey, 2016

It is also important to mention that food scarcity, high food prices and lack of preferred food can force some poor household member to go for days without food, which can compromise their food security status. Worth noting also is that a decline in crop yields in rural areas will not only restrict the quantity of food that can be transferred from rural areas, but also suggest that urban dwellers with rural relatives will have to spend more money to buy food for their rural relatives which can also compromise their food security status.

It was important for the researcher, therefore to examine how drought has influenced food transfers between rural and urban areas in Swaziland and how drought has influenced food prices as some scholars have observed that due to food deficit in rural areas as a result of production decline, food prices can increase due to food scarcity (Beddington *et al.*, 2012; Burton *et al.*, 2013).

#### **6.4.1 Grow own food and drought**

As it has already been illustrated above (Figure 6.9), a significant proportion (29.7%) of the residents grows the food they eat in kaKhoza and 25.5 percent of the households had eaten from their grown food during the time of the survey. It transpired that under normal circumstances (before the drought), the majority of the households who grow their own food do so in their fields in rural areas. It is more revealing, therefore, that during the time of this survey (drought period), fewer than normal (4.2% less) had eaten food they had harvested in rural areas.

This coincides sharply with the drought experience where the majority of rural farmers harvested very little or nothing at all due to shortage of rainfall experienced across the country. This was supported by Nomalungelo Dlamini (not her real name) who owned a backyard garden in kaKhoza and two hectares of land in the rural areas. She had this to say:

I have two hectares of land at home (rural areas) where I grow food. This year I planted one hectare because I had no money. There is absolutely nothing I harvested because rains disappeared just when my maize was tasseling, which is the time it needed rains. It was a total loss. I wasted the only coins I had which I could have used to buy at least a 50kg of maize meal. I also started my own garden (pointing at her small backyard garden) like others; at least I am able to get something to cook for my family<sup>24</sup>.

Three conclusions can be drawn from Nomalungelo's story. Firstly, it can be observed that some urban households own field in rural areas where they grow food they eat in the urban areas, however, in the recent farming season (2015/16), they harvested little or nothing due to drought induced crop failure. The second thing that can be deduced from the interview is that due to crop failure in rural areas, some of the urban residents

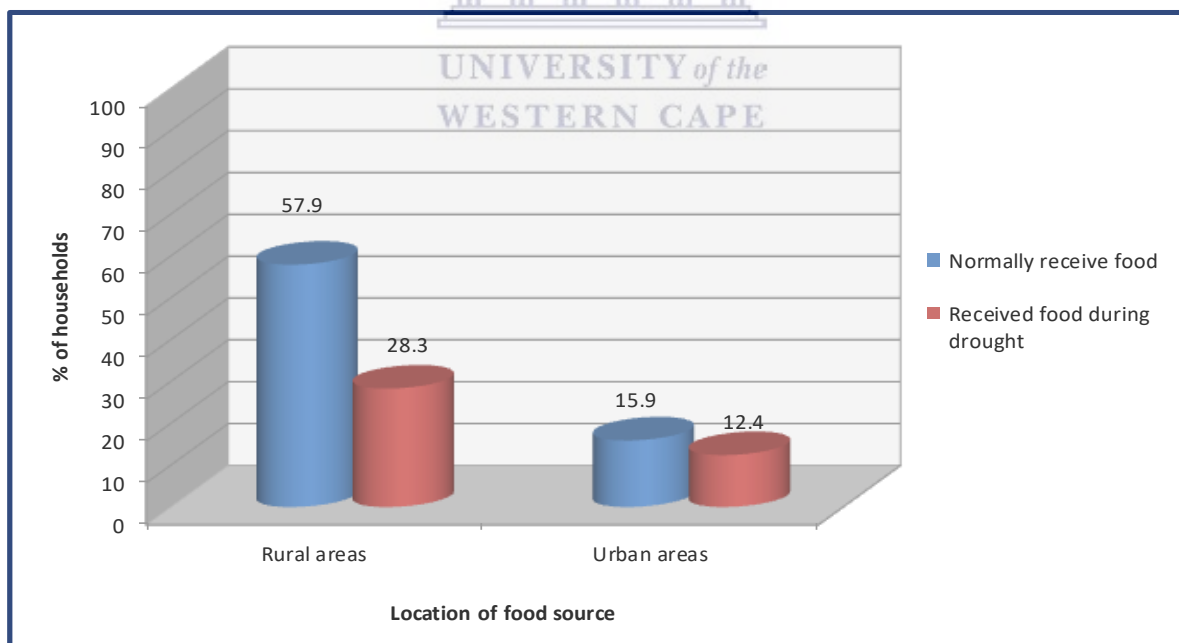
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<sup>24</sup> Case Study No. 5, 30<sup>th</sup> April 2016, kaKhoza, Manzini

who own land in rural areas and grow crops had to resort to alternative sources of food since their main source (crop cultivation) failed them, at least in the 2015/16 farming season, which also happened to be a drought year. Lastly, some urban residents started to grow their own food in urban areas, which shows that the 2015/16 drought seems to have induced urban agriculture to some residents in kaKhoza.

#### 6.4.2 Food transfers and drought

As it has already been observed in the results presented above (Figure 6.14) rural food sources are important in Swaziland, even more important at kaKhoza than urban food source. The results indicated that more than half (57.9%) receive food from rural areas under normal circumstances, however, the number of those who were found to have received food from rural areas during the drought period had declined significantly from 57.9 percent to 28.3 percent, reflecting a substantial decline of 29.6 percent of households who reported to have not received any food from rural areas (Figure 6.15). This decline in the utilization of rural food sources (attributed to the 2015/16 drought) has an implication on the food security of the urban households who have been relying on these rural food sources.

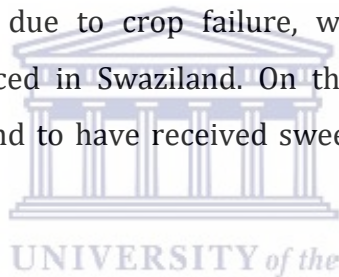


**Figure 6.15:** Food transfers to urban households

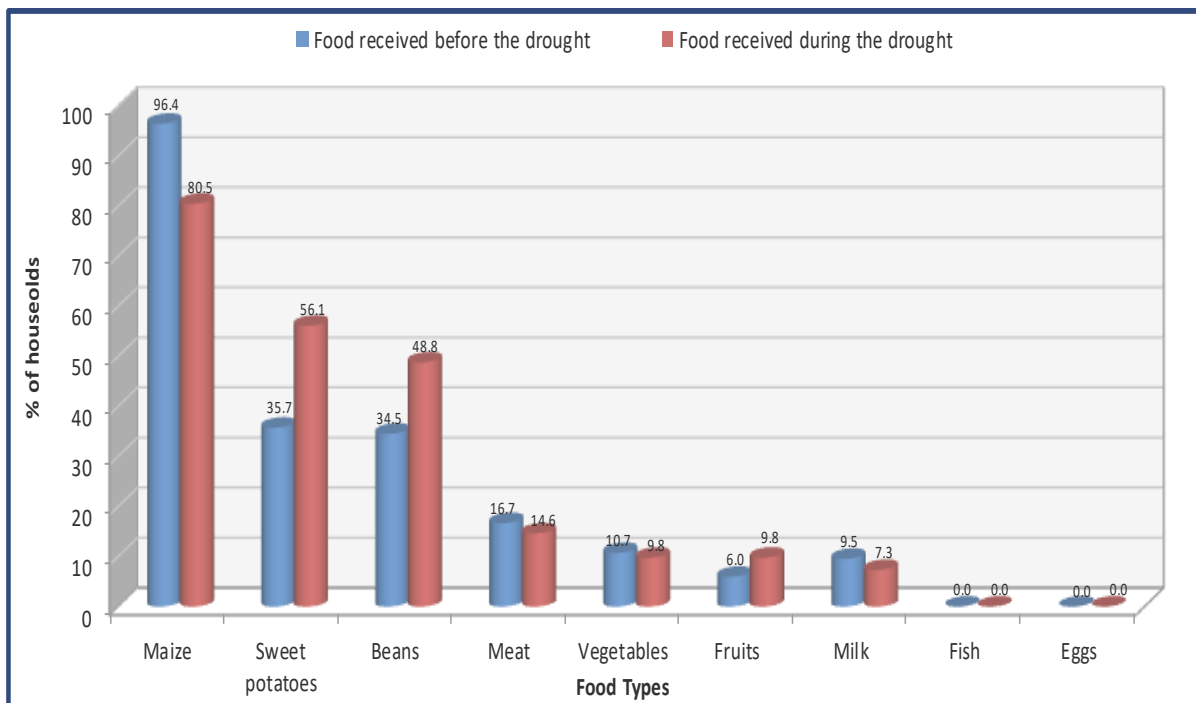
**Source:** Research survey, 2016

The types of food transferred between rural and urban areas were also captured, not only to determine which food types were the most transferred from rural based households, but to also determine if there is any change (decline or increase) in the number of people who are engaged in the transfer of these food stuffs. The results indicate that there is no change in the type of food received from the rural areas. However, the results show that almost all interviewed households who engage in rural-urban food transfers receive maize from their rural relatives (96.4%) and 80.5 percent were found to have done so during the survey.

A reasonable proportion receives sweet potatoes (35.7%) and beans (34.5%) from the rural areas and 56.1 percent and 48.8 percent had received sweet potatoes and beans, respectively, from their rural relatives during the time of the survey (Figure 6.16). It is important to note that there is a decline in the proportion of households receiving maize from the rural areas currently (during the drought period) compared to the past (before the drought). This is largely due to crop failure, which is largely caused by the widespread drought experienced in Swaziland. On the contrary, more respondents, compared to before, were found to have received sweet potatoes and beans from the rural areas.



A possible explanation accounting for the rise in utilization of sweet potatoes and beans in the current drought year is that these are drought resistant crops and these crops normally perform better compared to maize even in times of rainfall shortage. As such, the Ministry of Agriculture had been encouraging farmers to grow sweet potatoes and beans in the times of drought in Swaziland. However, a majority of farming households persistently grow their staple food (maize) even in times of rainfall scarcity, resulting to persistent crop failure which has turned the country to a net importer of food and has also made the country to survive mostly and frequently on food aid.



**Figure 6.16:** Food received from rural areas currently and the past two years

**Source:** Research survey, 2016

It is also important to note that a decline in the transfer of vegetables (from 10.7% to 9.8%) and meat (from 16.7% to 14.6%) to urban households were also observed (Figure 6.16). This observed decline is likely to impact negatively on the food security of the urban households who survive of these transferred foods.

The respondents were further asked whether or not, as urban dwellers, were affected by the 2015/16 drought. It worked to the advantage of the researcher that the current drought year 2015/16 (in which the study was conducted) was preceded by the bumper harvest year 2013/14 and respondents contrasted so perfectly well these two years as they shared their food transfer experiences, persistently citing 2013/14 plentiful year as a normal year to illustrate how drought affected them. This is best captured in the case study below where Jeffrey (not his real name) was responding to the question on which he was asked if they (as urban dwellers) were affected by drought. This is what he had to say:

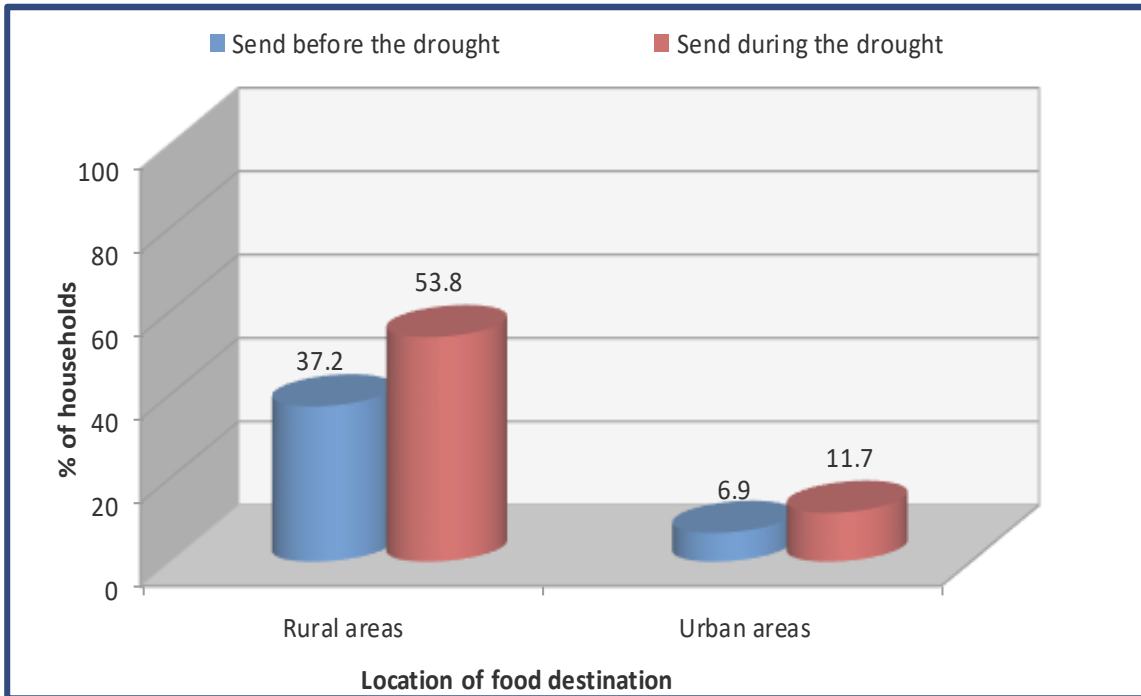
*Mnaketfu*,<sup>25</sup> don't even ask. We are dead from this drought...I never had a problem with food, especially with maize meal because every month I knew I would go home and come with a 25 litre of maize meal for my family and sometimes bring some for my friends, especially in 2014 because we got a lot of maize at home. Last month (referring to February) I went home hoping to get something but only to come back with a bucket of stress from what I found at home...I came back empty handed. There is practically nothing left even for them to eat. It stresses me that I don't have food and don't know where to get it, but even more stressful is to learn that my parents sometimes go to bed without eating anything. I wake up every day to look for piece jobs just to buy them a 10kg of maize meal. Otherwise, I might die of stress, you know, just because you live in town, people don't understand when you tell them you have no money. I can't even sleep. The situation is too bad *mnaketfu*...we are really affected by this drought and the situation is not getting better but much worse...<sup>26</sup>

As the respondent above has mentioned, the drought induced crop failure in rural areas have seen a large number of households without food to feed themselves, hence the drought was declared a national disaster. Results show that instead of getting food from their rural areas, some respondents who have relative in rural areas and/or urban areas had to send them food and (53.8%) were found to have sent food to their rural relatives and (11.7%) to their urban relatives a week prior to the survey. It is important to note that while sending food to relatives (both rural and urban) has been a normal practice for some households, there has been a remarkable increase in the number of people who were found to send food to their relatives during the drought period (53.8%) than in the past (37.2%). Likewise, even with those respondents with urban relatives, more people (11.7%) than in the past (6.0%) were found to send food (Figure 6.18).

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<sup>25</sup> This is a Siswati word translated to mean 'brother' and normally used by close relatives and by others to show respect towards the person addressed.

<sup>26</sup> Case Study No. 6, 15 March 2016, kaKhoza, Manzini



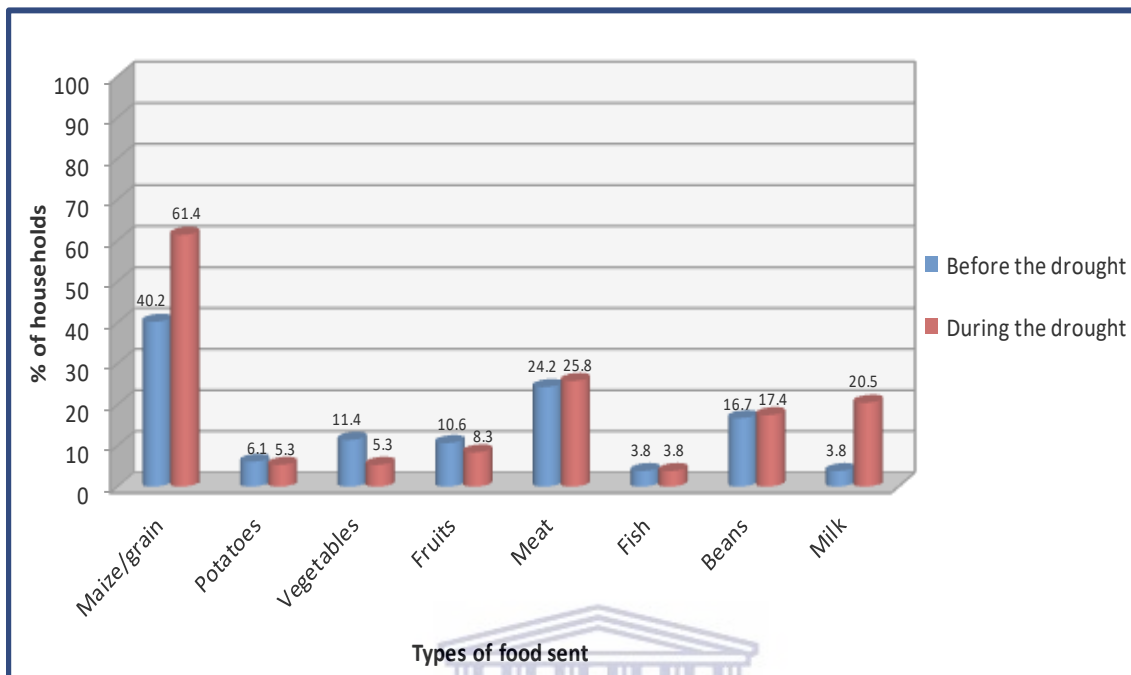
**Figure 6.17:** Households sending food to rural and urban relatives

**Source:** Research survey, 2016

As the case study reveals, some households with rural relatives are in a state of predicament. It is absurd that the same poor households which actually needed food aid had to send food to relatives. This sounds ironical, yet it is a reality that most households in the study area had to face. It is important to understand that sending food to relatives (in rural or urban settings) has the potential to compromise the food security situation of the sending family, particularly when the demand for more food to send increases. As it can be observed in Figure 6.18, the increase in the demand for food in the rural areas (due to drought-induced crop failure and food shortage) has increased the demand for more food sent to the rural areas.

When comparing the types of food sent before and the types sent during the drought period (Figure 6.18) to rural areas, the results indicate that in the drought year (2016) more people (61.4%) than before (40.2%) sent maize or grain to their rural relatives. It was also interesting to note that the number of households sending milk to their relatives shows a significant increase from 3.8 percent in the past to 20.5 percent in the year of the survey (2016), which also happened to be a drought year. A slight increase in the number of households which sent meat was also observed. It is important to also

note that a remarkable decline in the number of households sending vegetables (from 11.4% to 5.3%) and fruits (from 10.6% to 8.5%) is noticeable in the year 2016 compared to the past (Figure 6.18).



**Figure 6.18:** Types of foods sent to rural relatives during and before the drought

**Source:** Research survey, 2016

The drought induced food shortage in rural Swaziland has really had significant effects on the lives of most urban dwellers in kaKhoza considering the decline in the number of people sourcing food from rural areas due to the 2015/16 drought which had seen most Swazis surviving on food aid. Even more revealing is the above case study which makes us not only to understand how drought has restricted food flows (rural to urban) but also reveals the magnitude of the effects of drought on the urban people who have rural relatives in such times of food shortage. Urban dwellers with rural relatives are sometimes expected to provide for their relatives when they, themselves, are not working and have nothing to eat. There is a general unfounded belief by most rural people that if you live in urban areas, you have money and are better off. They never think that even urban dwellers may lack basic needs such as food. Anytime they have problems, such as lack of food, electricity and water, they tend to contact their urban relatives who are always thought to have a solution since they live in urban areas, even if they are not working and have no money.



It was also interesting to note that rural food sources are not only used by those with relatives in rural areas (which made 72 percent of the sampled population) but were even utilized by those without relatives. These people (those without relatives) purchase food from rural areas for household consumption due to the favorable prices offered by rural farmers. There are also those (street vendors) who purchase food from rural areas to repackage and sell in urban areas. This shows the level of reliance on rural food, suggesting that if this food source is compromised by drought, the food security of the people relying on this food source directly or indirectly will, inevitably, be affected. This is what one hawker who source food from rural areas had to say:

Most of us buy most of this food (pointing at different food crops and vegetables) we sell here from rural areas like Nkwene, Mhlabubovu and Mankayane and any rural area around where we can get food cheaper. This year is a very difficult year since most of the farmers do not have food at all because of drought and those who have it charge too much, telling us that we cannot get it anywhere. Sometimes we have to travel as far as Siphofaneni and Vuvulane (where agriculture is done under irrigation) to buy food and the food there is also not cheap...it's just a problem...<sup>27</sup>.

A similar concern with regards to rural food sources was also expressed by the Marketing Manager of the National Agriculture Marketing Board (NAMBOARD) in an interview which also highlights the effects of drought. This is how the Manager put it:

A bulk of our produce come from the Highveld<sup>28</sup> and, for the first time, drought has hit the Highveld which has seriously affected us as NAMBOARD since our mandate is to market local farmers' produce, particularly small scale farmers. For the first time this year, we struggle to get produce from the farmers we contracted and find ourselves having to scavenge for food all over the country, and especially in the Lowveld where they practice irrigation agriculture, but still we cannot get enough food in terms of quantity and variety since the rivers are also drying up due to drought. Most farmers in Swaziland have practically nothing this year, which puts too much pressure on us since we have pending orders from our customers which are mainly retailers. We now waste too many resources to move around the country in search for food and occasionally get something to take with us. However, the prices are abnormally high due to supply and demand, and it's the first of its kind. Since we have no option, we buy and absorb the prices since we cannot pass the price to our customers. In addition, we are now

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<sup>27</sup> Case Study No. 7, 15 March 2016, kaKhoza, Manzini

<sup>28</sup> Highveld is one of six ecological zones of Swaziland which receives the highest amount of rainfall & most favourable for vegetable production due to its moderate to low temperatures due to high altitude.

forced to act against our mandate and import food from South Africa, which becomes too expensive also for us as NAMBOARD<sup>29</sup>.

The case studies above indicate how drought has impacted on rural food sources and how these impacts have filtered into the urban environment. NAMBOARD sources food from the rural areas to supply retailers in urban areas, as does the vendor in the above case study. Food shortages in the rural areas have a direct effect on food supply in the city, making certain food unavailable. Food scarcity (due to the law of supply and demand) contributes to increase in food prices. All retail owners interviewed (Spar, Pick n Pay and Shoprite) also confirmed that they are really affected by drought. They unanimously noted that the quantity of their stock has been significantly reduced and food variety greatly affected. The Manager and Stock controller of the Shoprite groups had this to say when responding to a question where she was asked about the sources of food they use and whether they still use these sources:

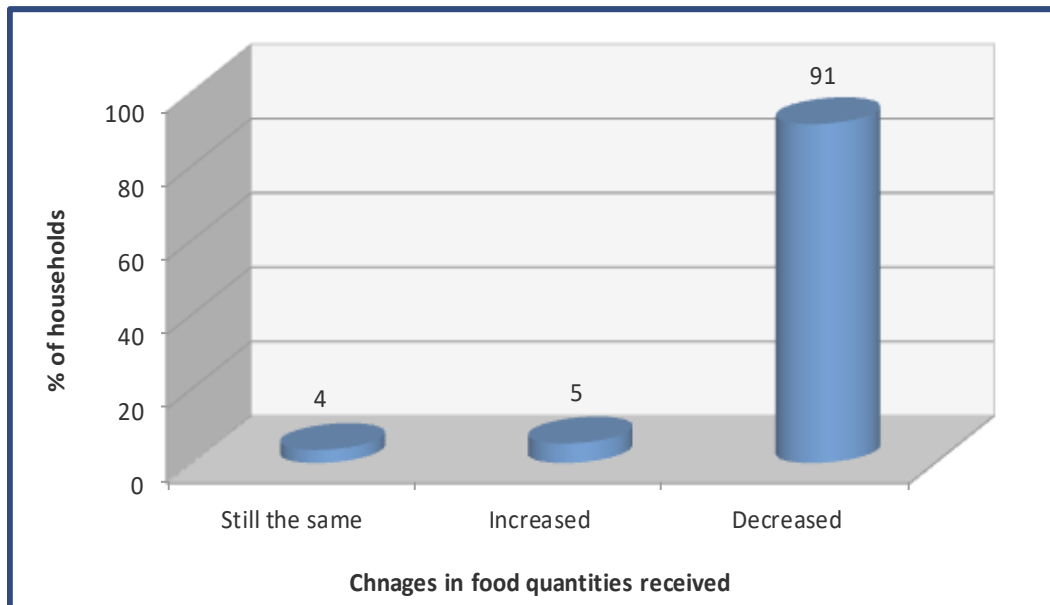
I can say we have not changed the sources of food much because we have contracts with suppliers but this year we have a lot of problems with supply. One major problem with local supply, for example, is that for the past two weeks, we did not get cabbages, lettuce and spinach, and farmers complain of drought citing water shortage, water rationing and high temperatures that burn crops. We can also see from the quality of the vegetables, it is not good at all as you can see. We have no beans and the quantity of milk that we get is far less than the order we placed. This is the first of its kind. Customers buy and finish all stock and they complain of not getting most foods they want. Even if you can go to the other supermarkets, you will find the same problem. There is food shortage in the shops. It is better here, if you can go to our branch in Mbabane, it's a sorry sight...there is practically nothing – no vegetables even the poor quality one...nothing<sup>30</sup>.

Respondents kept on referring to reduction in quantity of food received. This was also confirmed by the household survey in a question directed to those respondents who indicated that they still source food from rural areas. They were further asked (as a follow up question) if there is any change in the quantity of food they receive from the rural areas. The results (Figure 6.19) indicate that a majority (91%) indicated that the quantities of food received from rural areas have decreased significantly due to drought. Very few (5%) indicated that the food they receive from rural areas has increased or is still the same (4%).

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<sup>29</sup>Case Study No. 8, 29 April 2016, Matsapha, Manzini

<sup>30</sup>Case Study No. 9, 7 April 2016, Matsapha, Manzini



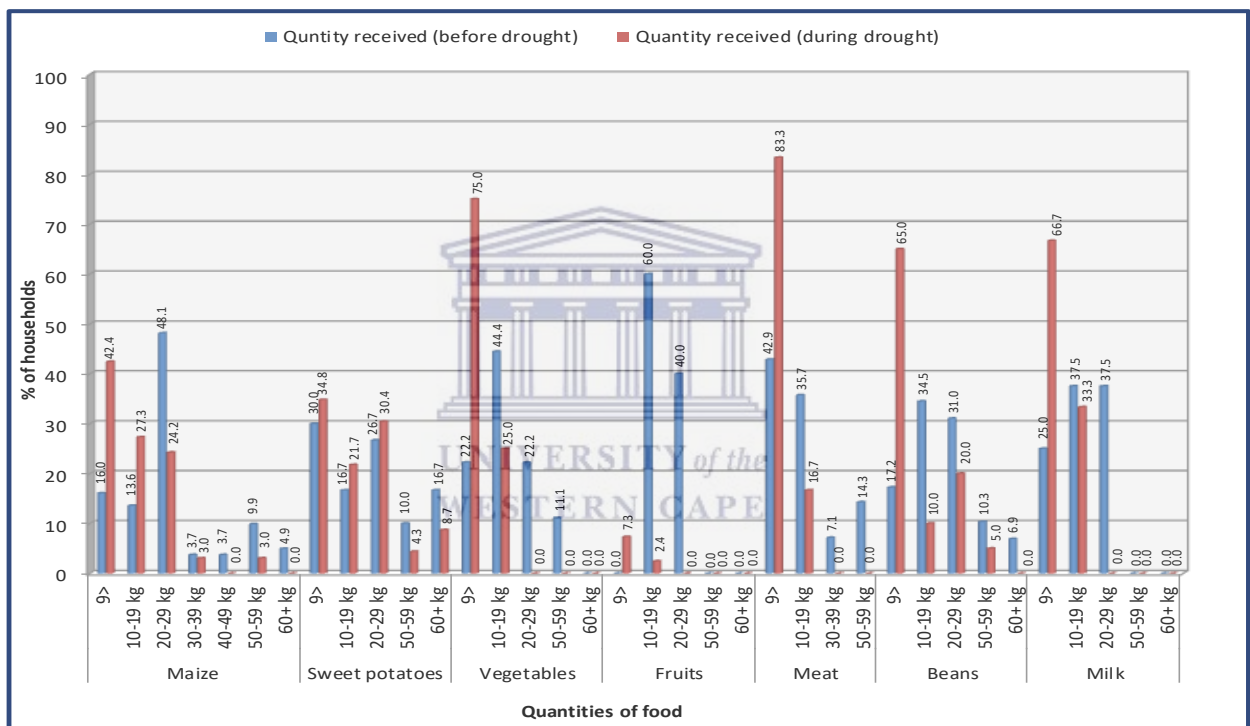
**Figure 6.19:** Changes in quantities of food received from rural areas

**Source:** Research survey, 2016

The households which source food from rural areas (as already shown in one case study above) transfer enough food to feed their families and sometimes carry some for their urban friends and relatives (See Case study No. 6). Any reduction in the amount of food received from rural areas will not only affect the households that transfer this food but will also affect the urban relatives who also benefit from the transferred food. If the quantity of food received from the rural areas has been significantly reduced as a result of drought-induced crop failure, the food security of the receiving households will also be compromised, especially those households with larger household sizes. The affected households will have to spend more money (which they did not spend before) to purchase food in order to supplement their rural stock. This will lead to high expenditure on food at the expense of other household activities.

The researcher further wanted to capture the changes in the quantity of food received from the rural areas currently (during the drought period) compared to the past (before the drought). The respondents were asked to recall the quantity of food they received in the past two years and the quantity they received now. The results show a significant change in the quantities of almost all food types received from the rural areas. For example, the results indicate a significant increase in the proportion of respondents

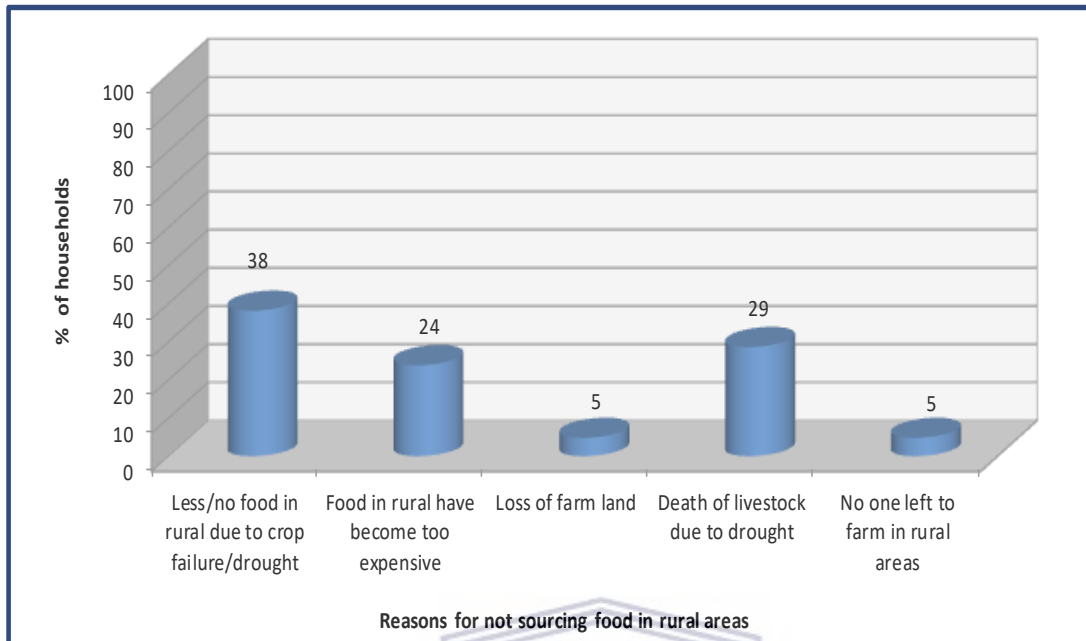
who received less than 9 kg of almost all food stuffs received from the rural areas, which include maize (16% to 42.4%), vegetables (22.2% to 75%), meat (42.9% to 83.3%), beans (17.2% to 65%) and milk (25% to 66.7%). Very few receive larger quantities of food from the rural areas currently compared to the past. For example, the proportion of respondents receiving 50 – 59 kg of maize has dropped from 9.9 percent in the past to 3 percent in the drought period and none was found to receive above 60 kg of maize or maize products in 2016. The same was observed with the other food types such as meat, milk and vegetables. None was found to receive 50 – 59 kg of meat, milk and vegetables in the current drought year (Figure 6.20). This will negatively impact on the food security of the households making rural-urban transfers.



**Figure 6.20:** Quantities of food received from rural areas before & during drought  
**Source:** Research survey, 2016

The reasons for the decline in the quantities of food received from the rural areas were also captured, as well as the reasons why other households have since stopped receiving food from their rural relatives. A reasonable proportion of respondents who used to receive food from rural areas and had since stopped doing so cited drought which has either caused crop failure (38%), death of livestock (29%) or induced food price increase in rural area (24%) which is consistent with what the respondent noted

that the rural areas, which have been their hope for cheaper and affordable food, have become expensive due to drought-induced food scarcity in the rural Swaziland (Figure 6.21).



**Figure 6.21:** Reasons for less utilization of rural areas as food source

**Source:** Research survey, 2016

It is important to note that food sharing in Swaziland is a cultural concept and most households do not necessary share from the surplus. It also remains a prerogative of the concerned household to decide on the food to share and the quantity to be shared. The 2015/16 drought, therefore, revealed the strength of this cultural tradition in that those rural households who managed to harvest something, regardless of the quantity, shared it with their urban relatives. In the same manner, those urban households who could afford to buy something in town shared it with their rural relatives, regardless of the high costs of food. Through this food sharing initiative, the impact of drought on urban food security could be traced, that is, we noted how rural-urban transfers helped to minimize the vulnerability of households to food insecurity in the same way the reverse flows of food (urban-rural transfers) increased the exposure of households to food insecurity. Sending food to rural areas in the 2015/16 drought period, as it could be noted in one case study above, was more out of necessity than it was out of upholding of cultural norms and the type and quantity of food to be sent was detected by the

situation more than it was the sender's prerogative as the case should be. This, therefore, reflects how cultural concepts, in addition to drought, can shape the food security landscape in urban Swaziland as noted by the framework adopted by this study (Figure 3.1).

## 6.5 Food price and drought

As Burton rightly observed, shortfalls in food production in rural areas, due to extreme weather events (drought) compromise the food security of urban populations, not only by restricting food flows between rural and urban areas, but also by inducing food price hike (Beddington *et al.*; 2012; Burton *et al.*, 2013). Prices respond to the law of supply and demand, thus when certain foods are in short supply and its demand remains high, the price of that commodity with increase. This finds support from most of the food security studies conducted in Swaziland which also show that drought in the country has not only resulted in food deficit resulting from declining food production, but has also induced increases in food prices, making most food unaffordable (FAO/WFP, 2015; SVAC, 2016). It was not surprising, therefore, that a strong negative correlation between rainfall and food prices was found in Swaziland (See Figure 6.7). As already observed, the majority (62.1%) of the sampled households noted that drought has induced increases in food prices. This also found support from a number of in-depth case studies conducted in kaKhoza. This is how Wise Motsa - a head of household put it:

Drought has made prices of food to go up. You see, food cost is high...it has never been so expensive before...the increase in prices this year is not normal. The drought is the worst; we have never experienced it in Swaziland, maybe that is what is causing the high prices. When everyone is running around looking for what to eat, those who have it get a chance to make more profit and increase prices. If you can recall, the same happened in the 2011/12 drought where food prices also went abnormally high, even though not like this. Eight hundred Emalangeneni (equivalent to eight hundred Rand) has been enough to buy food for my family, but now it is no longer enough. Now I spend one thousand three hundred on food alone. I now buy the basic food stuffs such as maize meal, rice, potatoes, fish, and maybe meat and that is all. I no longer afford vegetables any more. A cabbage, for the first time is 20SZL. I don't think there is anyone who still eats vegetables here at kaKhoza. I never thought vegetable prices can be so high<sup>31</sup>

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<sup>31</sup>Case Study No. 10, 7 April 2016, Matsapha, Manzini

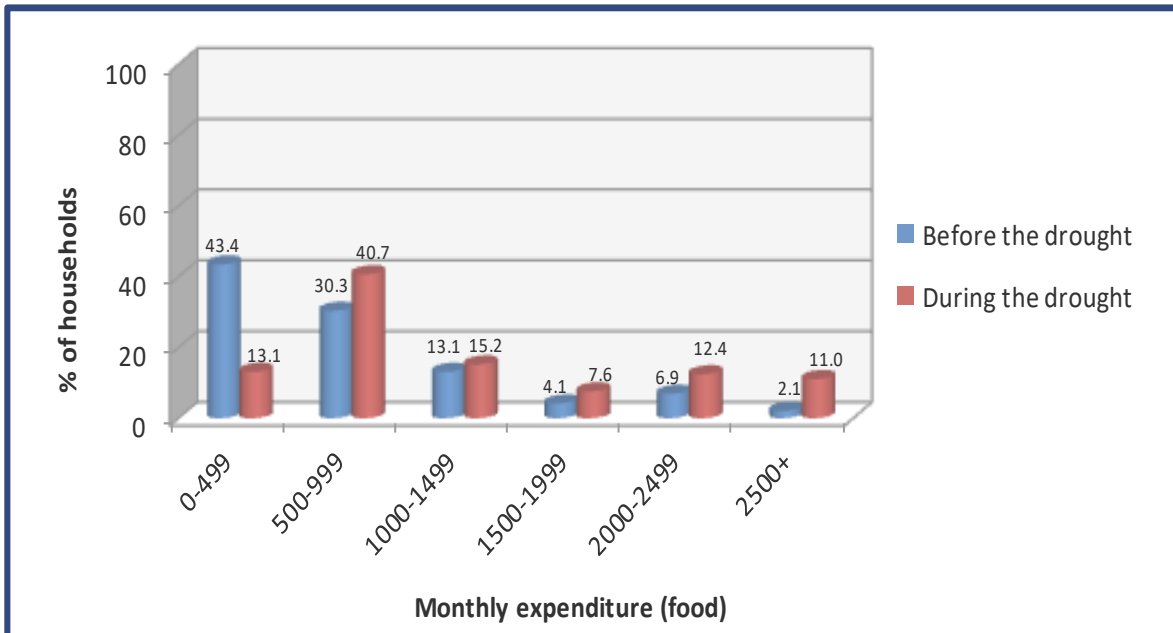
The same concern was raised by the retail owners and this is what the Spar Assistant Manager and Stock controller had to say in an interview:

Drought has seriously affected us and caused food prices to go higher than we also expected. You know, we also buy food to sell to our customers after a markup and we could not believe when we got the delivery note...the increase in food prices this year! No, it's not normal. For the most recent delivery, we could not manage to get all the food we wanted due of the high prices because the money for stocking is set or fixed, so, we could only purchase what we could manage...the basic food stuffs.<sup>32</sup>

The increase in food prices really had an effect on most residents in the study area and forced the majority to spend more of their income on food than they used to do in normal years. When respondents were asked to state the amount of money they spend on food currently compared to the past (before the price surge), it transpired that a majority spends more money on food now than they did in the past (Figure 6.22). For example, households which spend above SZL 1500 on food increased from 13.1 percent in the past to 31.0 percent after the price hike. Even more glaring is the percentage increase (increased from 2.1% in the past to 11.0% presently) in the number of households which were now found to spend above 2500 or more on food. While a larger proportion of households (43.4%) were able to purchase their groceries just by less than SZL 500 (SZL 0-499) in the past, prior to the food price hike, only a few (13.1%) were found to have been able to do so during the time of the survey following the increase in food price in the country.

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<sup>32</sup> Case Study No. 11, 08 April 2016, Matsapha, Manzini



**Figure 6.22:** Expenditure on food – before and after the drought

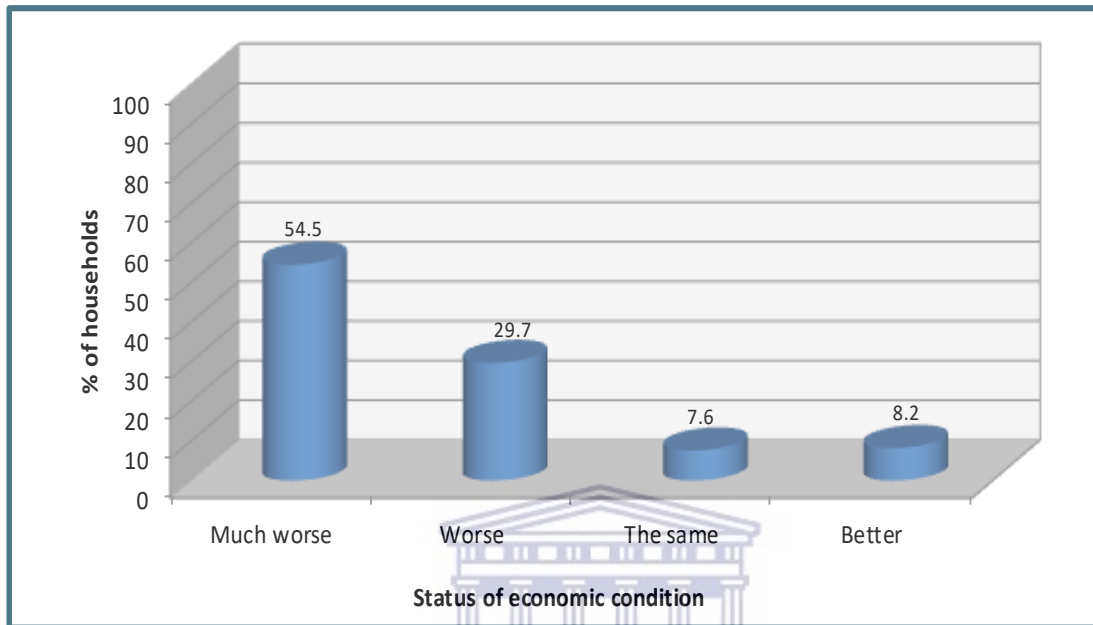
**Source:** Field work, 2016

A reasonable number of the poor urban households (40.7% presently compared to 30.3% before the drought) were forced to spend between SZL 500 and SZL 999 on food (Figure 6.22). When respondents were asked to indicate the reasons for the increase in expenditure for food in their households, majority (70.3%) cited increase in food prices with a few who indicated other reasons such as increase in number of dependents (20%), increase in family size (7.6%) with others who said they spend more money on food to improve their nutrition (2.1%). Most of these dependents (the 20%) are the rural relatives who occasionally need to be sent food by their urban relatives.

Given the economic condition of most households in the study area (most are poor with unemployed members), the increase in expenditure for food has the potential to erode the economic base of these households hence expose them to more food insecurity. Redirecting most resources to food (due to increased food prices) competes with other important household activities such as education, medical care and savings or investments and these are likely to be affected causing more challenges for these households.



When households were asked about their economic conditions at the time when the survey took place (2016) compared to the past two years, over 80 percent of the respondents noted a deteriorating economic condition in their households, which had either become worse (29.7%) or much worse (54.5%) as captured in (Figure 6.23) below. Very few (8.2%) noted that theirs has improved or at least remained the same.

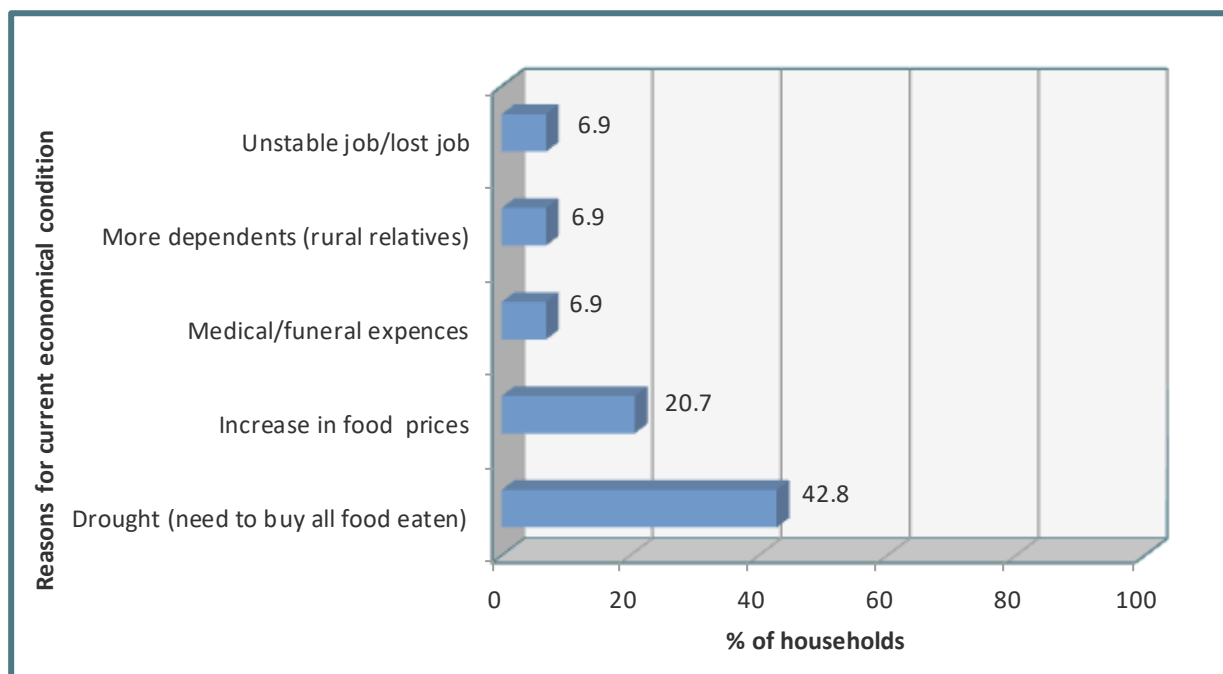


**Figure 6.23:** Household economic status during drought compared to 2 year ago

**Source:** Field work, 2016



Households were again asked to provide reasons for the deteriorating economic condition in their households. A larger proportion (42.8%) indicated that they now need to buy all the food they eat due to drought. This suggests that before the drought, they grew some of the food they ate, which made it unnecessary to purchase most of the food items they consume in their households. In that way, they were able to save money to do other household duties other than spending much money on food. Again, this points to the importance of agriculture (to both rural and urban) in households of poor urban dwellers. The issue of food prices was also cited by a reasonable number of respondents (20.7%), with few households which indicated other reasons such as funeral expenses (6.9%), more dependents (6.9%) and job loss (6.9%) (Figure 6.24).



**Figure 6.24:** Reasons for worsening household economic conditions

**Source:** Field work, 2016

It is important to note that the rise in food prices was a course for concern, not only for residents in kaKhoza, but was really a concern for most people in Manzini. Even the vendors in Manzini market (Plate 4) also expressed their concern about the effects of drought on food prices. In an interview with some of the vendors in Manzini Market, it transpired that the food price hikes of 2015/16 had many effects on the vendors themselves and their customers alike. Vendors mentioned that while local farmers offer better prices to them, a bulk of their stock came from South Africa as most local farmers were hit hard by drought and did not have most of the food items the vendors needed. They also complained that the food prices in South Africa had gone too high for them to afford, thus they no longer stock the quantity of food they used to stock before due to high prices, but rather, they only purchase basic food stuffs their available cash could afford them and these food items were also very expensive for most customers to afford. As a result, some of their hard-sourced food items rot as it took a longer time on shelves as most people didn't afford because of high prices. This is what one respondent had to say in an interview:

Drought has affected us badly. Now we can't get most of the food we sell in Swaziland but have to buy it from South Africa. Even in South Africa, this year the food prices are abnormally high. We now buy half of the stock we used to

buy with the same amount for full stock. Food is just too costly this year. The distance also makes it worse since we also have to pay for transport. We now get too little profit because we have to absorb some of the costs, otherwise, customers will not buy. They are already complaining that we charge too much, when in actual fact it is the food prices that have increased. For example, a 25kg packet of potatoes has increased from SZL 45:00 to SZL 80:00 (wholesale price). From this price, you still have to make a markup, and the consumer price will go up to SZL 100:00 per packet. This year is a very difficult year for us and we wish it could pass soon. Some of our colleagues are being pushed out of business as a sudden change in customers' purchasing pattern is observed. Customers now buy basic food stuffs such as potatoes, beans and maize meal. There is a serious decline in the purchasing of vegetables, not to mention fruits. Fruits and vegetables stay for a very long time, wither and eventually rot because it is not bought and the sun is too hot. We make too much loss. Now we try to change. As you can see, very few people now sell the highly perishable food stuffs like tomatoes, spinach, lettuce we have resorted to selling crop like potatoes, beans etc.<sup>33</sup>

What was interesting also to discover was the extent to which this food price-drought cocktail has extended its influence beyond the buyer-seller boundary to those who help to transport the purchased goods to the bus terminal. Those who help transport goods for customers from the market to the bus rank voiced their concern about how they have also been affected by the recent drop in customers who purchase food items from Manzini market. This decline, as already alluded to, is attributed to the increase in food prices which was triggered by drought, among other things. In an interview, the respondent pointed out that the sudden decline in the number of people who buy food from Manzini market has pushed them out of business since they have little or nothing to transport (Plate 4) since people come in the market and go back empty handed. According to the respondent, this has crippled them financially and increased their exposure to hunger since they have no money to buy food. This has also exposed them to other risks as they are sometimes forced to walk long distances to and from 'work'. What was also interesting to find out from the interview was that the markets are used as alternative food sources to escape from the high food prices in the supermarkets. This is what one respondent said:

We survive by transporting goods for people to the bus terminus. The drought has really affected us too. A week is about to elapse now, I have not got any customer. People come and go back empty handed, complaining that the food has become too expensive also in the market just like in the

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<sup>33</sup> Case Study No. 12, 15 April 2016, Matsapha, Manzini

supermarkets they are running away from. Normally, I get customers daily and usually cash at least SZL 100 and able to buy food for my family. As I speak, there is nothing to eat at home...completely nothing. This year, oh... it's really bad. Very few people buy now in this market; it's now a struggle even to get money for transport. You stay here (in Manzini Market) the whole day only to find that you have only managed to get SZL 20, you can't even buy the smallest pack of rice. Even transport, you can only pay for a single trip and the following day, you have to walk to 'work'. Sometimes I borrow money for transport hoping to get back home with something, only to find that there is nothing again and have to walk back home...of course empty handed – no food! People who buy now are those with cars, and we don't get much help from those<sup>34</sup>.



(A)



(B)

Plate 4: Vendors sell food (A), purchased food transported to bus terminus (B)

**Source:** Fieldwork, 2016

The increase in food price, which was cited by majority of respondents in the study site, has played a major role in restricting their access to food. This was also evident in the increase in the utilization of the informal markets as a food source which is more revealing. In response to food price increase, it was gathered that some vendors buy and

<sup>34</sup>Case Study No. 13, 09 April 2016, kaKhoza, Manzini

repackage some of the basic food items such as rice and beans in small packets just enough to cook for a day (Plate 5).



**Plate 5:** Vendor selling re-packaged food in kaKhoza.

**Source:** Fieldwork, 2016

During the fieldwork, it was gathered that majority of residents at kaKhoza opt to buy these small packets since they are within their income bracket. However, the unit cost of these food items is higher compared to the supermarket price. For instance, these small packets which are 300g (0.3kg) each cost SZL 6.00. Among the repackaged food items are rice, beans and maize meal, among important food items (Plate 5). These repackaged 300g 'cheap' food which sold for SZL6.00 each translates to SZL 19.98 per 1kg in the informal markets. In the supermarkets, 1kg of maize meal cost SZL13.36 in the same time period leaving a price difference of SZL6.62. It means when one bought 1kg of maize meal from the informal sector, it would be SZL 6.62 more expensive than it was in supermarkets.

Even more disturbing was what the researcher found in a most recent visit to the study area. Even though the price of maize and maize meals in the shops has gone down as the situation gets back to normal, the price in the informal markets stayed the same and the

residents still purchase the 300g at SZL6.00. From these findings, it is clear that buying food from the informal market can sometimes be very costly and hence rip the resources of the poor and expose them to more food insecurity. It was sad, however to find out that most households in the study area know that food from the informal markets are expensive than in supermarkets, but due to the way the informal markets package their food, which favours most poor households, they still use these informal markets for food.

It was also gathered that the food price-drought cocktail has induced informal businesses such as commercial sex and sex for food. This is best captured in *Tandzile's* story, a single parent and mother of three who had this to say:

Things are too tough her *bhuti* (SiSwati word meaning brother). No matter how well cultured you are as a woman, the food prices force even the most sane and morally upright woman to lose morals. My husband left me with three kids, they need food. I am not working...what can I do? The children need food when I can't even afford to buy myself just a SZL 5:00 roll-on...sometimes I am forced to spend the whole night with a man just for a loaf of brown bread for my kids to eat something than going to school on empty stomachs, maybe one day they will help me out of this mess...<sup>35</sup>

*Tandzile's* story is very sad and depicts the harsh life some unemployed women in kaKhoza sometimes have to face in the current drought situation. The steep increase in food price experienced in the country could drive even an employed woman insane, not to mention those vulnerable women like *Tandizile* who, on top of being unemployed, have a huge responsibility of taking care of their orphaned or vulnerable children. Men have found the cheapest source of entertainment at kaKhoza and take advantage of the vulnerable women and young girls who are helplessly in need for food. In their quest for food, these women are exposed to HIV infection due to this risky survival strategy. This study confirms findings by Mamba and Peter (2016) in a study conducted in drought-prone rural Lavumisa in Swaziland who also noted that poverty and food insecurity push poor women to engage in risky survival behaviours such as commercial sex as a food sourcing strategy and stand high risk of being infected by the HIV and AIDS virus. This might contribute to the high incidence of HIV and AIDS infection in the country, which makes it the leading country with HIV and AIDS infection rates.

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<sup>35</sup> Case Study No. 14, April, 2016

*Tandzile's* situation was not unique to her household, but it was gathered in a focus group discussion (with women) in the study area that it is common for women in the area to engage in this risky food sourcing strategy (Box 1). Respondent 1, who also happened to be a community motivator passed her concern about the deteriorating moral decay in the study area, particularly with regards to role modeling to children. She also noted, with great concern, the increase in the number of HIV patients who take ARVs and blame all these to drought-induced food price increases which expose women to risky survival strategies.

#### BOX 1

##### ***Respondent 1.***

This area has become worse than Gomora and Sodom (referring to the bible story)...people sell sexual favours for cash and food. As a result, most people are sick here and are taking ARVs (HIV tablets). This year is worse; girls and married women spend the whole night with men they have never met just for a loaf of bread. You can't believe it. If you can come here around 8:00 in the evening, you will swear you are in Gomora itself. This place has become hell. But you can't blame them; the food situation is just too bad because of this drought...its really bad. Food is too expensive and unaffordable. There is no money, but we have to eat and the children need food. This is so painful and we ask ourselves 'what kind of children are we raising in this place', but what can we do?

##### ***Respondent 2:***

Son, I am old and have been here for over 40 years now, I have never seen this. Things are really tough in this area and seriously getting out of hand. Decent homes have turned into sheebens and we have already lost our children into this unhealthy and risky lifestyle because of money. It is clear that even our grandchildren are not safe.

##### ***Respondent 3:***

As women, we are highly vulnerable...the men are also to blame. They don't even care and never bother themselves concerning what will be eaten. They just wake up early in the morning only to return late evening and ask for food. If you tell them, there is no food, oh, war begins...where should we get the food? Obvious, when another man comes and offer you food, you will be willing to buy that food using any form of payment as long as your children will have something to eat and to avoid 'war'...

During the visit to *Tandzile's* place, which happened to be a Friday around 2:00 in the afternoon, the researcher found her sleeping on a mat under a tree in readiness for 'work' in the same evening as she pointed out that weekends are usually busy and she needs to rest. She looked skinny, sickly and very unhealthy and was suspected to be living with the HIV virus. This was not surprising since the same observation was made by Mamba and Peter (2016) who also discovered that women who survive by this strategy usually spend most of the time sleeping during the day and that many often die of HIV and AIDS related sicknesses.

It is clear from the result presented above that drought has had a significant impact on food prices in Swaziland and most respondents attributed the steep increase in food prices to drought, especially the devastating drought of 2015/16. Clearly, the high food prices that characterized the entire Kingdom compromised access to food, particularly for the disadvantaged low income households in urban areas. It is, however, important to acknowledge other factors that can influence access to food in Swaziland's urban areas which may include the country's pricing policy and other government related issues. For instance, the government of the Kingdom of Swaziland has a policy that prohibits the importation of maize meal to protect the local market. In the 2015/16 drought period, the maize meal price was almost double of that of South Africa and people were illegally buying maize meal in South Africa, and smuggling just enough for a month's meal not to be noticed.

## **6.6 Conclusion**

Drought restricts access to food in the urban environment, and more so in kaKhoza in Manzini. It contributes to the reduction in crop yield and increases in food prices, among other things, hence a strong positive correlation between rainfall and maize yield was found in Swaziland. The effects of drought on access to food in Swaziland and in kaKhoza, in particular, is best captured by considering its influence on the food sources utilized by the poor urban households in kaKhoza which include: informal markets, supermarkets, remittances (food), borrowing of food from others, growing own food, food transfers, and relying on neighbours for the next meal.

Contrary to the findings of the AFSUN survey where supermarkets were found to be dominant food sources in most cities of the South, the informal sector was found to be a leading food source in kaKhoza, owing to the drought-induced food price hike experienced in the country. The high food prices restricted most poor households from patronizing supermarkets (given their bad economic conditions) in favour of the 'cheaper' food offered by the informal sector. Buying re-packaged food from the informal sector, although it looked cheap, was actually costly compared to buying food in bulk from a supermarket outlet. However, the re-packed food suited the financial situation of most residents in kaKhoza, hence the high patronization of this food source.



It has also been discovered that drought had a profound influence on food transfers (mainly rural-urban transfers) and had been instrumental in the decline in the number of households sourcing food from rural areas. The contribution of drought to the decline in the quantity of food sourced from the rural areas has limited access to food for some urban households who relied mainly on these rural supplies for food. The same is true with those households who grow their own food, where fewer than normal were found to have eaten food from their fields a week prior to the survey, indicating a steep decline in the utilization of this food source. In addition, more households (compared to the past) were found to send food to their rural relatives, following the widespread drought-induced crop failure experienced by most rural households in Swaziland. This compulsory reciprocal food sharing strategy, which drought has induced for some households and magnified for others, erodes the already empty food reserves of most poor urban households in kaKhoza and is most likely to compromise their food security situation, particularly given the steep increases in food prices since most of these food parcels had to be purchased.

The drought-food price cocktail have also threatened businesses and job security of people in Manzini. The steep increase in food prices as a result of food scarcity (due to shortfall in food production) led to some informal business people falling out of business, particularly in Manzini market. This did not only affect the market owners but also the people who survive by transporting the purchased food to the bus terminus. While the market owners were complaining of fewer customers and shorter shelf life of their perishable food items, those who transport goods for those who buy them were complaining about fewer customers. The impact of drought and food price hikes was also felt by retail owners who had to scavenge around for certain types of food, mainly vegetables as most farmers could not harvest anything leading to some food items either missing in the shelves or too expensive to afford for the poor households.

Although the drought-food price cocktail has been at the forefront in shaping the food insecurity situation in the study area, the study acknowledges that there are other economic, socio-cultural as well as political factors which have influenced urban food security in Swaziland as reflected in the conceptual framework (Figure 3.1). Such factors may include food pricing policies, governance, and unequal access to productive

resources between men and women, due to land tenure issues in the country. The latter, for instance, can negatively influence rural food production (and food security), given the role of women in food production in the country. The impact of the country's commercialization programme (growing of sugarcane on subsistence farms) cannot also be overlooked.



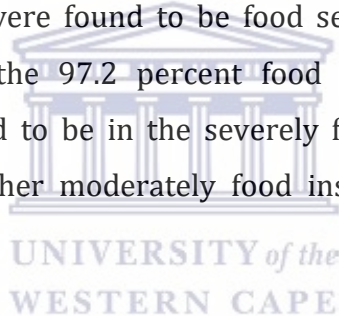
## CHAPTER 7: DROUGHT, URBAN RESILIENCE AND URBAN FOOD SECURITY

### 7.1 Introduction

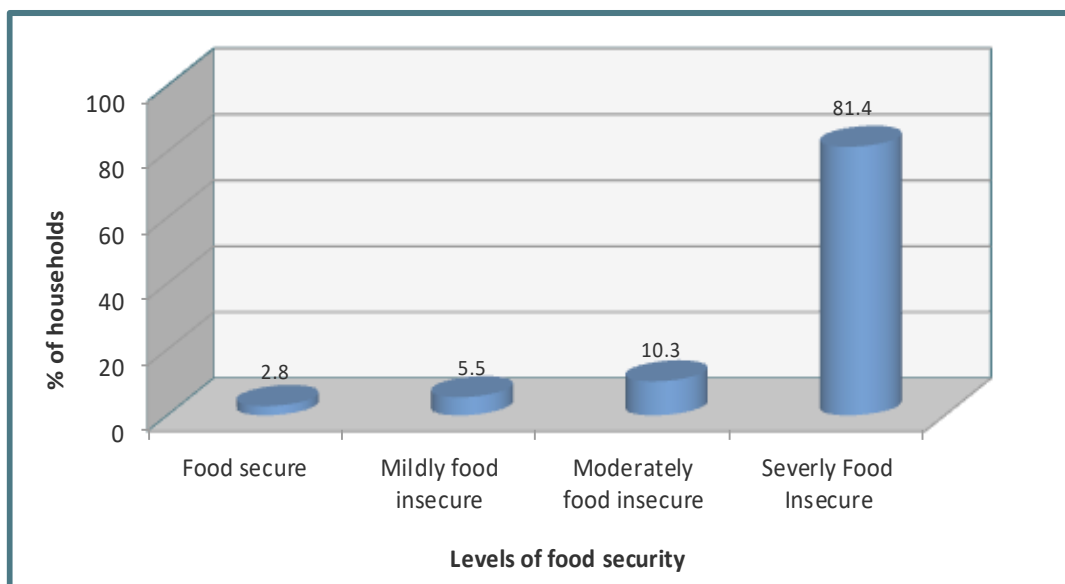
This chapter presents findings on the status of food security in kaKhoza. It assesses the extent to which drought contributes to the food insecurity of poor urban households in kaKhoza in Manzini. It further demonstrates how these vulnerable urban households construct their livelihoods through the trying times of drought-induced food price hikes as a means to remain resilient in the context of the persistent drought in the Kingdom of Swaziland.

### 7.2 Food security status

The food security status of the households in kaKhoza was determined in order to examine how the households in the selected study area were fairing during the 2015/16 drought situation. The results indicate that a majority of households (97.2%) were food insecure. Only a few (2.8%) were found to be food secure. A further analysis of the results showed that among the 97.2 percent food insecure households, a larger proportion (81.4%) was found to be in the severely food insecure category and the remaining proportion was either moderately food insecure (10.3%) or mildly food insecure (5.5) (Figure 7.1).



These findings are consistent with Tevera *et al.*'s (2012) findings who also found that more than three quarters of the surveyed poor households (79%) in Manzini were severely food insecure. Only a few (6%) were found to be food secure. These findings confirmed the observation made by Crush and Frayne (2010) who observed that food insecurity finds expression in most cities of the global South, however, it is largely invisible to most governments and policy makers. The high levels of food insecurity in Manzini seem to confirm the argument by food security scholars that poor urban dwellers tend to face severe food insecurity than their rural counterparts (See Mohiddin *et al.* 2012).



**Figure 7.1:** Household Food Insecurity Prevalence Scale

**Source:** Research survey, 2016

### 7.3 Food security and food transfers

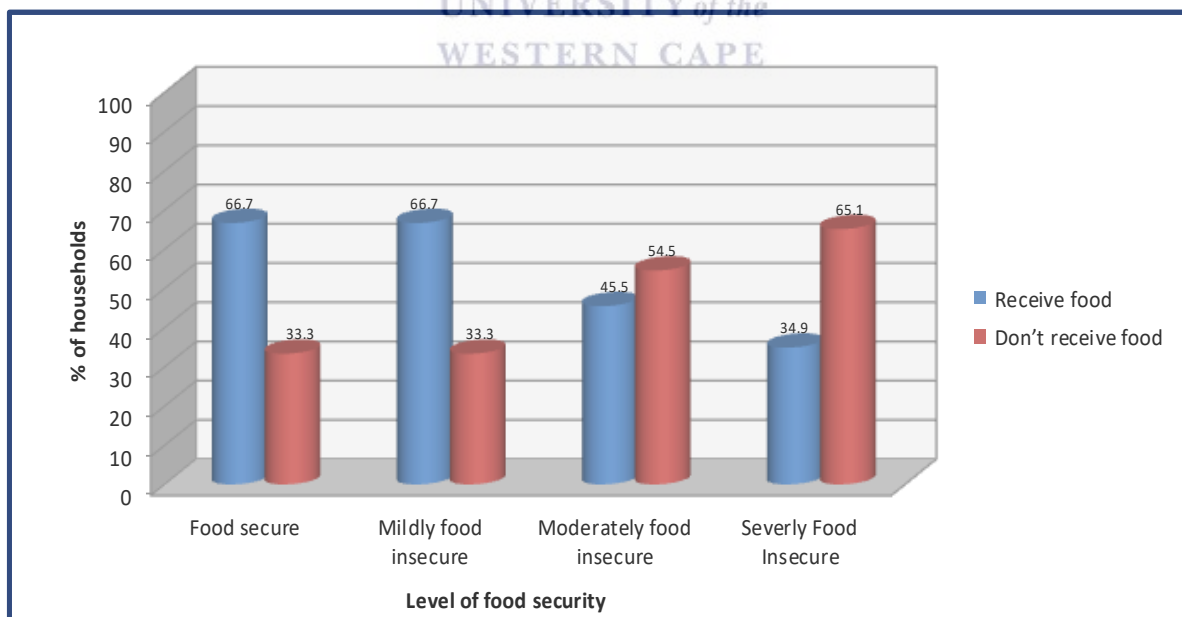
#### 7.3.1 Urban food security and rural-urban food transfers

Since food transfers (between rural and urban households) had been confirmed by scholars to play a major role in the food security of most poor urban households, it was important to find out if this was also true in the study area. The proportion of households who received food from rural relatives during the 2015/16 drought period and those who did not receive any food was determine and further cross tabulated with their food security status to see if the transfers made any contribution to their food (in)security situation.

The results (Figure 7.2) indicate that majority (66.7%) of households who received food from their rural relatives were either food secure or mildly food insecure compared to those who did not receive any food from rural areas (3.3%). On the contrary, majority of the households who did not receive food from rural areas were either moderately food insecure (54.5%) or severely food insecure. These findings show that food transfers (from rural–urban) contributes, to no lesser extent, to the food security situation of urban residents. This is consistent with the findings of the AFSUN survey which also found that urban households who maintain links with their rural relatives and transfer food tend to display a better food security situation than those without

such links as captured by Frayne *et al.* (2010) and was also true with Swaziland (See Tevera *et al.*, 2012).

It is interesting to note that even in the time of food crisis and widespread food shortage in the country, rural-urban food transfers remain important and improve the food security situation of those households who managed to obtain food from their rural relatives. This attests to the significance of this food source to the food security of the poor urban dwellers. It can be correctly argued that the 29.6 percent decline (See Figure 6.9) in the utilization of the rural source for food which was observed during the drought period (compared to its utilization before the drought) had profound negative impacts on the food security of the poor urban dwellers who relied on this source for food. As already captured above, the 2015/16 drought condition is held responsible for the reduction in the number of households who source food from rural areas. This evidence compels one to identify with Burton *et al.*'s (2013) observation and also argue in support to it that if rural food sources are compromised by extreme weather events such as drought, the food security of the urban poor will inevitably be compromised. This was the case in kaKhoza where the households who could not get any food from rural areas experienced the worst food insecurity situation than their counterparts.



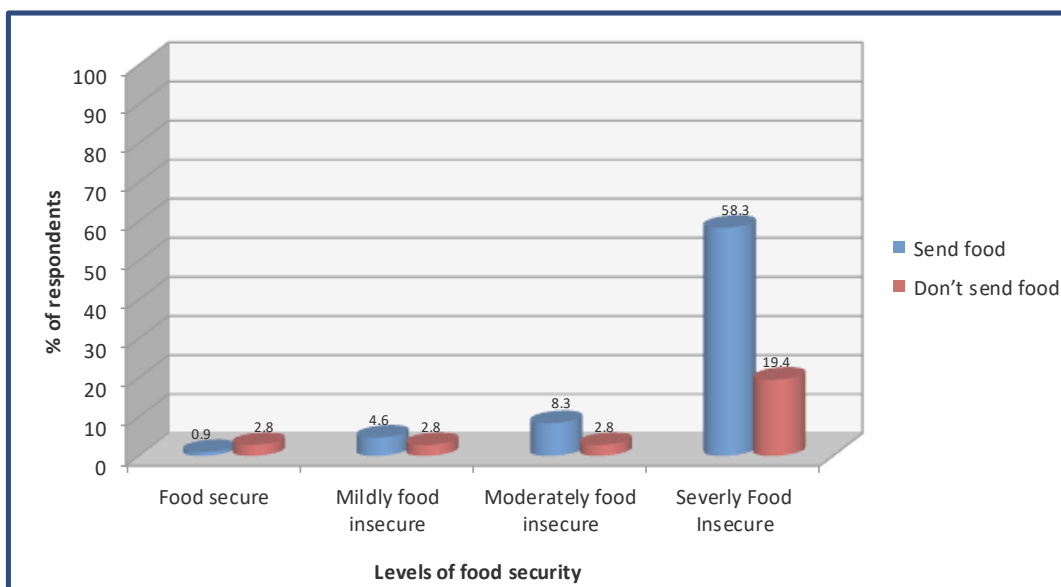
**Figure 7.2:** Food security status of households receiving/not receiving rural food

**Source:** Research survey, 2016

### 7.3.2 Urban food security and urban-rural food transfers

It was also gathered that some households with rural relatives sometimes sent food to their rural relatives. This was also captured to determine the number of urban households who send food to their rural relatives and to further examine if this had any influence on their own food security situation. The results indicate that sending food to rural areas had a negative impact on the food security status of the urban households who send food to their rural relatives. For example, majority of households who were found to be severely food insecure (58.3%) or at least moderately food insecure (8.3%) were those households who were found to support their rural households by sending them food during the drought period.

Those who did not send anything back home, at least during the 2015/16 drought, seemed to experience a better food insecurity situation compared to their counterparts (19.4% and 2.8% respectively). Very few households (0.9%) who sent food to rural areas were found to be food secure compared to those who did not send any food during the 2015/16 drought period (2.8%) (Figure 7.3). Although it is a common practice in Swaziland for urban households to send food parcels to their rural relatives, the 16.6 percent increase (See Figure 6.16) in the number of households who were found to send food to rural areas during the drought period also increased the incidence of food insecurity in kaKhoza.



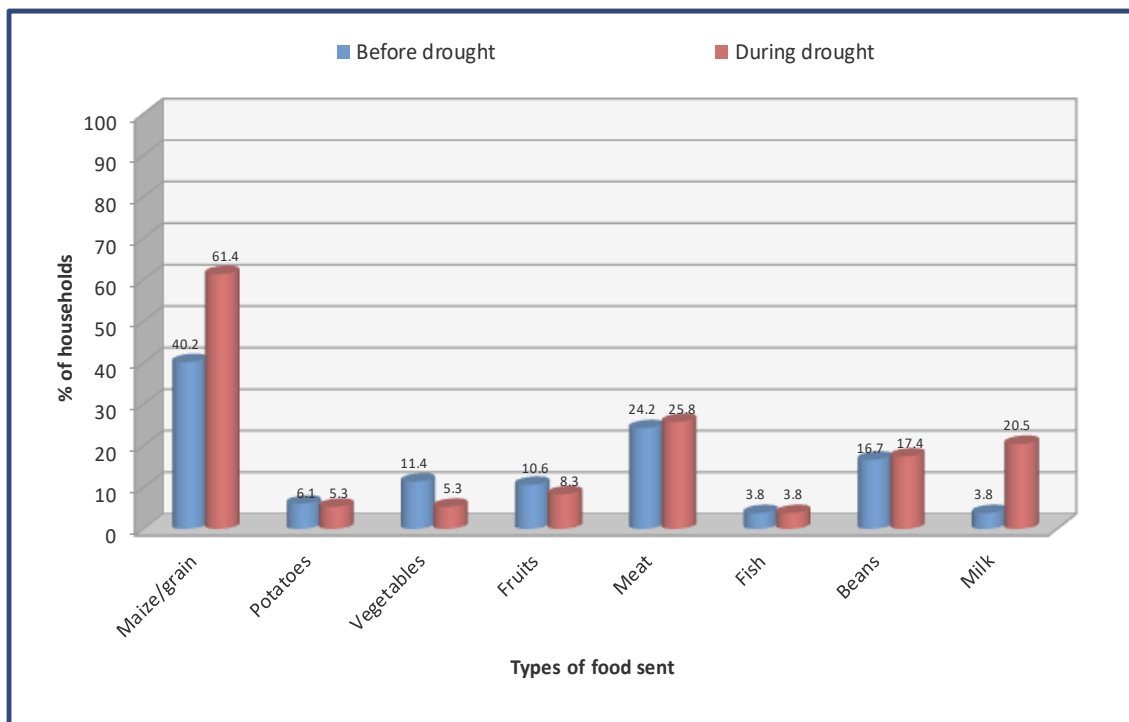
**Figure 7.3:** Food security status of households sending/not sending food to rural

**Source:** Research survey, 2016

### 7.3.3 Types of food transferred to rural areas

The researcher found it necessary to capture the types of food transferred to the rural areas and the proportion of households transferring each food type. This was done to determine if there was any change in the types of food (and proportion of each food type) urban household sent to rural areas during the drought year. Maize/grain was found to be the most transferred food type and 61.4 percent (of the households who send food to rural areas) were found to have sent maize/grain to rural relatives the year of the survey compared to 40.2 percent who used to send food to their rural relatives before the drought.

This indicated an increase of 21.2 percent (compared to the past – before the drought) in the number of households who were found to have sent maize or grain to their rural relatives as a result of the widespread drought-induced rural food shortages in rural Swaziland. It was not surprising that more households (than before) were found to send maize/grain to the rural areas because maize is the staple food eaten by almost all rural households and was the hardest hit by the 2015/16 drought in Swaziland. A majority of rural households had to survive on purchased food (rather than food they had grown themselves) or had to rely on food donation (food aid) from the NDMA because of the drought conditions (Figure 7.4). It is important to also mention that the food distributed by the NDMA is usually not enough to satisfy the food needs for almost all rural households in Swaziland. Even most important to note is that some rural households do not even get food aid, particularly those with working household member irrespective of the income they earn and the number of dependents. Buying and sending food to rural households, particularly during food shortages, remains a responsibility of working relative.



**Figure 7.4:** Types of foods sent to rural areas currently and before

**Source:** Research survey, 2016

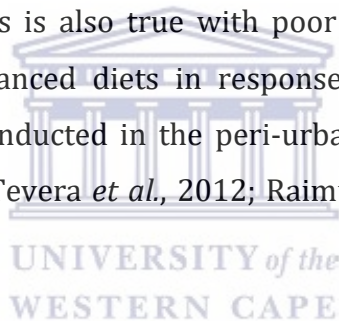
It is important to note that the increase in the number of households who were found to send maize or any grain to rural areas had a negative impact on the financial status of the sending households, considering the high maize prices (which almost doubled) experienced during the 2015/16 drought period. The high maize prices and the urgent need for food in rural areas compelled some urban households to spend a lot of money to purchase maize and other food items in the peak of the food price surge, thus increasing their already high food expenditure. This is likely to cripple their financial status and eventually contribute to their household food insecurity since they would not be having sufficient resources to purchase their own food, given their economic condition since most of these households were poor and were actually low income earners.

It was interesting to also note the increase (3.8% to 20.5%) in the number of urban households who send milk to rural areas. This was not surprising following the widespread death of a number of livestock (over 100, 000) from which rural households obtained milk. The death of livestock or their deteriorated condition meant that even those households who owned cows had to purchase milk which they did not need to



purchase before. As it can be observed, this put strain to the already stretched budget of the poor urban households who had the responsibility to send food to the rural areas. It is also important to note the decline in the number of households sending vegetables to rural areas. Two possible explanations can be given to this decline. Firstly, it can be due to the fact that the vegetables normally sent to rural areas, such as spinach, were scarce and in short supply in the supermarkets in the urban areas due to drought. From this explanation, it is clear that drought restricted urban households' access to certain food stuffs, such as vegetables, which was highly likely to compromise their dietary intake. The second explanation can be that, the urban households were only buying basic food stuffs such as maize/grain just to keep their relatives alive and were less concerned about dietary issues.

As the FAO (2009) report explicitly states, it is common for most poor households in the global South to change their diet and consume less nutritious food, particularly in times of food supply challenges. This is also true with poor households in southern Africa which also resort to less balanced diets in response to food shortage in cities as captured in several studies conducted in the peri-urban zones of south African cities (See: Tawodzera *et al.*, 2012; Tevera *et al.*, 2012; Raimundo *et al.*, 2014; Leduka *et al.*, 2015).

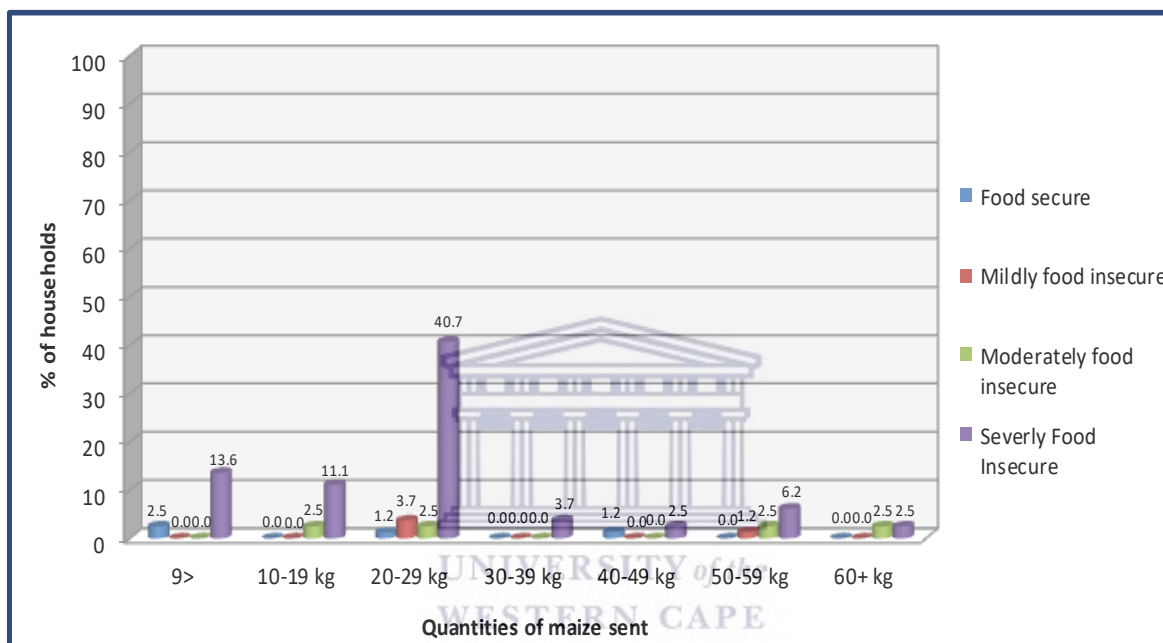


#### **7.3.4 Food security and quantities of food transferred**

Since maize was the most transferred food type, it was important then to cross tabulate the quantities of maize sent to rural areas and the levels of food insecurity to determine if the quantity of food transferred has any contribution to make to the food security situation of households who send food to their rural relatives. The results indicate that 2.5% percent of those who send less than 9kg of maize to their rural relatives are food secure. A reasonable number of the food insecure respondents (40.7%) send 20-29kg of maize to their relatives.

It was interesting to note that none of food secure households were found to send more than 50kg of maize. Households who were found to send at least 60kg of maize were either moderately food insecure (2.5%) or severely food insecure (2.5%) (Figure 7.5). This seems to suggest that sending more food to rural areas has a negative impact on

the food security situation of the households sending food. In other words, this increases the number of dependents hence more food will be needed to support these dependents. This finding is consistent with those of Tevera *et al.* (2012) and Tawodzera *et al.* (2012; 2016) in their studies conducted in low income households of Swaziland and Zimbabwe, respectively, who also found that household size and type influence the status of food insecurity for poor urban households in southern Africa where households with extended families were found to be more prone to food insecurity than nuclear families.



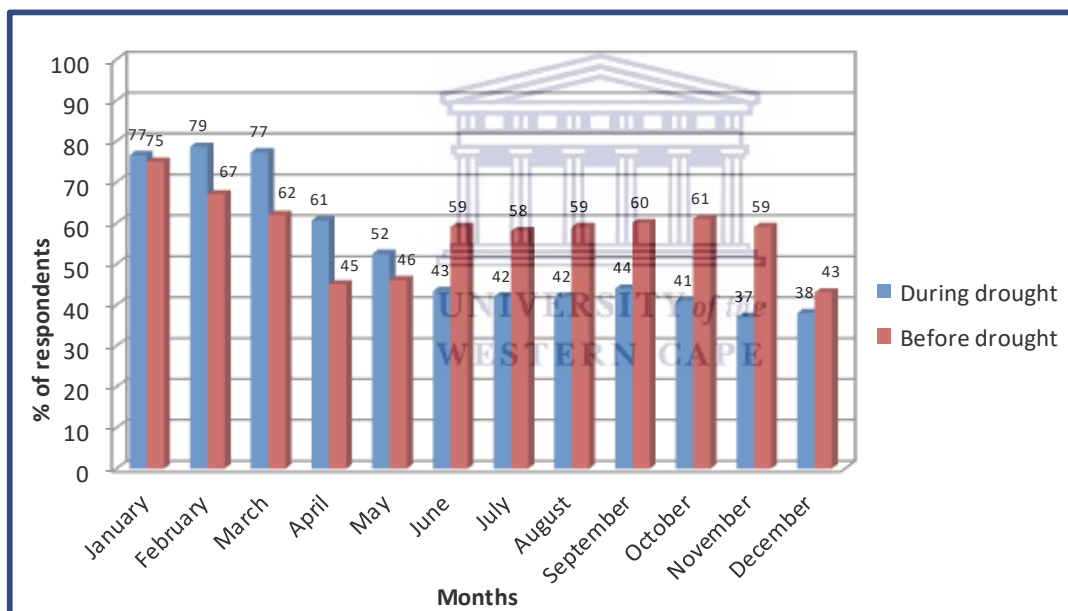
**Figure 7.5:** Levels of food insecurity and quantity of maize sent to rural relative  
**Source:** Research survey, 2016

From the results above, it is clear that sending larger quantities of maize to rural areas have a negative effect on the food security of the sending households. Instead of buying their own food, these households had to spend more money to purchase maize (whose price had also increased significantly) for their rural relatives. Normally, urban households send 5kg, 10kg or 25kg to their rural relatives thus a large proportion was found to have sent between 9 -29kg of maize. The larger quantities of maize found to have been sent by urban households in the time of the survey (during the 2015/16 drought period), particularly the 50-60kg and 60kg and above reflect the rural food shortage as a result of drought and also reflect the large households sizes that

characterize some rural households. Whatever the case is, sending larger quantities of food contributes to the food insecurity situation of the sending urban households.

#### 7.4 Drought and months of inadequate food provision

Respondents were asked to indicate months of inadequate food supply in their households. The results indicate that the terrible months where majority of households experience insufficient food supply during the drought period are February (79%), March (77%) and January (77%) (Figure 7.6). It is important to note that more than half of the households cited April (61%) and May (52%) as months when they struggled to access sufficient food for their families. A reasonable number of households (43%) also mentioned that in June, food had become scarce. July to December, fewer households (compared to the other months) faced food supply challenges; however, these numbers are still significantly large.



**Figure 7.6:** Months of inadequate food provision before & after drought

**Source:** Research survey, 2016

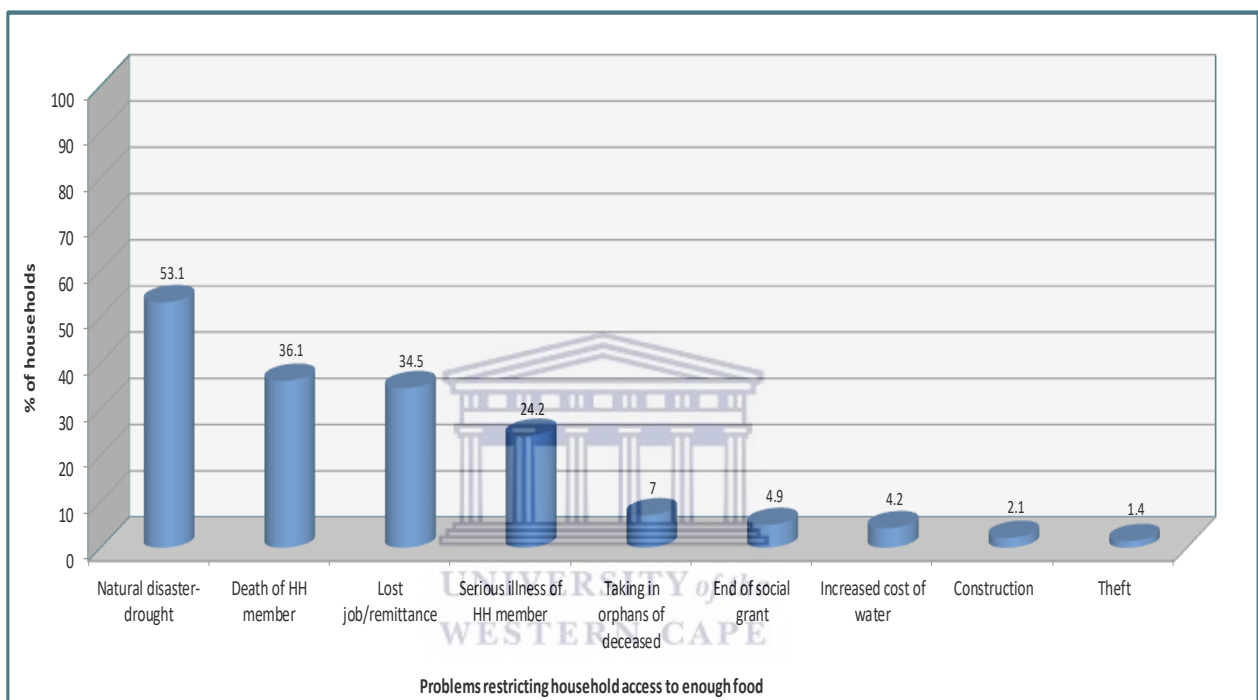
The marked seasonal pattern in the HFIAP does not only suggest that urban households are dependent to some degree on the rural agricultural cycle, but also reflects the difficulties of accessing food faced by majority of households in kaKhoza. What is more revealing is the larger proportion of households experiencing inadequate food provisioning in April (61%) and May (52%) which coincide with the annual

harvesting period while before the drought, these months April (45%) and May (48%) were marked with fewer households without access to food compared to during the drought period. While these months coincide with the harvesting season and, as expected, during this shredding season most households should be having something to eat. The data collection was conducted during the 2015/16 drought period (and after the drought in some cases for follow up) and most rural households which had engaged in crop cultivation did not harvest anything or harvested too little due to widespread crop failure resulting to the 2015/16 drought, hence the inconsistency of the results with other food security studies.

Under normal circumstances, as already noted, these months have to experience fewer households without access to food, however, the drought-induced food shortages in the country seem to have influenced the pattern and introduced some deviations. As a result, these results are inconsistent with Tevera *et al.*'s (2012) findings where in the harvesting seasons: April and May, fewer households 45 percent and 46 percent, respectively, experienced inadequate food provisions. The number of households who were found to experience food shortage in the harvesting season (March) had increased by 17 percent during the drought period. These large proportion of kaKhoza residents without proper access to food in the harvesting months of April and May reflect the drought induced crop failure in the rural areas and reflect the significance of rural-urban food transfers to kaKhoza residents.

While January, February and March prove to be months of inadequate food provisioning in most cities of the South (See Tevera *et al.*, 2012; Acquah *et al.*, 2013; Caesar *et al.*, 2013), this was found to be worse in kaKhoza where over 75 percent (compared to less than 65% in most cities) of the surveyed households were found to lack access to adequate food in all the three months, which reflects the impacts of drought to the country's agricultural sector which, as already noted, filter into the food security of the urban households who find it increasingly difficult to source food from their rural relatives during drought periods. Instead, they had to send food to their rural relatives which increase the incidence of food insecurity in their urban households due to the increase in the number of dependents.

Respondents were further asked to indicate problems that prevented their households from having enough food. The results (Figure 7.7) indicate that more than half of the surveyed households (53.1%) cited natural disaster – drought as a major problem. A reasonable number (34.5%) cited loss of employment (job) or remittance. Other major problems that were cited include death (36.1%) and illness (24.2%) of household members (24.2%) (Figure 7.7). The larger number of households who cited natural disasters as a major hindrance to access to sufficient food, reveals how drought has influenced the food security of urban households in the study area.



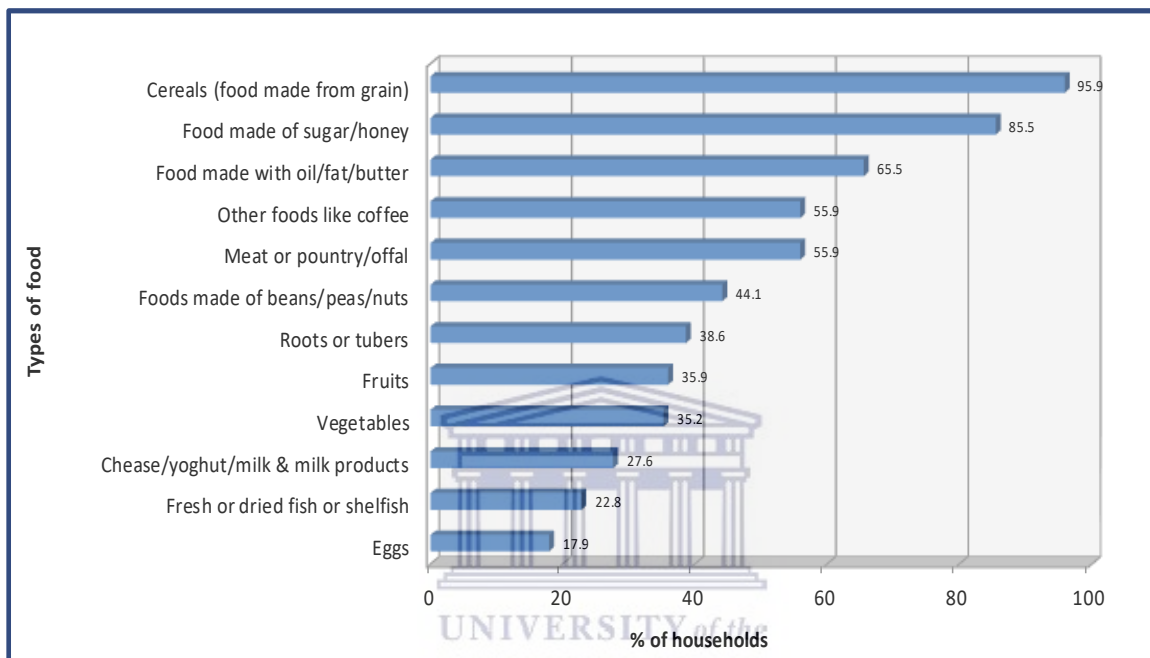
**Figure 7.7:** Problems that prevented households from having enough food

**Source:** Research survey, 2016

### 7.5 Types of food eaten in the past 24 hours (Dietary diversity)

Respondents at kaKhoza were asked to state the food types they had consumed in the past 24 hours before the survey. The results (Figure 7.8) indicate that most households had eaten cereals (95.9%), food made of sugar (85.5%) and food made of oil (65.5%). Nearly half had eaten meat or poultry and coffee. The high utilization of sugar products and products made of oil can partly be attributed to the low costs of these products as reflected by the consumer prices index where oil products seem to be among the last affected by the food prices surge experience in the country. On the other hand, the high utilization of cereals (by almost all households) in the study area is due to the fact that

cereals constitute the staple food of the Swazi people and is consumed in spite of the high cereal prices. The high cereal prices (and the high utilization of cereals) are likely to have contributed to the low utilization of the other important food items as household members try to cope with the high food prices in the supermarkets, hence the limited dietary diversity of most households. As already alluded to, this is a common coping mechanism of most poor households in cities of the global South as captured in several studies (Caesar *et al.*, 2013; Nickanor, 2013; Raimundo *et al.*, 2014).



**Figure 7.8:** Types of food eaten in previous 24 hours (Dietary diversity)

**Source:** Research survey, 2016

The results mirror those by Tevera *et al.* (2012) and Acquah *et al.*, (2013) in their studies conducted as part of the AFSUN survey in Manzini and Gaborone, respectively where they also found that cereals were consumed by over 90 percent of the surveyed households. It is important to note that fewer than expected (35.2%) were found to have eaten vegetables in kaKhoza the day before the survey, which is in contrast with Tevera's findings where more than half (60%) households were found to have eaten vegetables in Manzini a day before their survey during the AFSUN study. This inconsistency was not a surprise given the short fall in supply of vegetables most retailers complained about during interviews, which they attributed to the drought

experienced in the country (see Case studies: 3 & 4 above). It can be concluded that the 2015/16 drought has compromised the diet of poor urban households in kaKhoza.

The steep increase in food prices, particularly vegetable, might have contributed to the low rate of utilization of vegetables in the study area. For the first time in the history of the country, vegetable prices doubled during the drought period (2015/2016). The high vegetable prices are also reflected in the consumer price index (where vegetables were the most expensive food items compared to the other food items considered in the HDD measure). This was also confirmed in the in-depth interviews with retailers and key informants in kaKhoza where it was also gathered that due to vegetables scarcity, the prices of vegetables such as cabbages were abnormally high reflecting an over 100 percent price increase (See Case studies: 1, 8 & 9 above).

## **7.6 Urban resilience**

### **7.6.1 Strategies employed in response to lack of access to food**

Tevera *et al.* (2012:20) observe that “when households cannot access enough food, they resort to a variety of coping strategies”. It was therefore necessary to explore the coping strategies employed by kaKhoza residents in response to the drought-induced food shortage and limited access to available food. The strategies that help kaKhoza residents to remain resilient in the face of drought induced food shortage were therefore captured. The results indicate that, true to Tevera *et al.*'s (2012) observation, kaKhoza residents were also found to employ different strategies to ensure access to food in the drought context. These strategies are: diet change and adjustment, skipping of meals, eating food they do not like, but which may be more affordable. A month prior to the survey, 95.9 percent had eaten smaller meals than they felt they need, 45.5 percent of which had done so more often, 33.8 percent do so sometimes with only a few (16.6%) who rarely reduce their meals (Table 7.1).

Some food insecure households responded to food scarcity or lack of access to available food by skipping meals (eat fewer meals) (46.9%) while others ate any food available to them even if they did not like it and 63.4 percent of the surveyed households did so more often. Another response strategy to food shortage was eating limited food varieties (67.6%) while other households were forced to go for the whole day and night without food and 15.2 percent did so more often, with 18.6 percent who sometimes do

so. Only 37.2 percent of the surveyed households had never had the experience of going the whole day and night without food. These findings mirror those by Tevera *et al.* (2012) who also observed that poor urban households in Manzini sometimes eat fewer meals when there is insufficient food while others reduce the portions they eat (eat smaller meals) and others were forced to go without a cooked meal for a day. This, however, is not a unique feature for Swaziland but is commonly used in other cities of the global South such as Maputo and Windhoek (Nickanor, 2013; Raimundo *et al.*, 2014). See also Caesar *et al.* (2013) and Poppy *et al.* (2015).

**Table 7.1:** Poor households' coping strategies with food shortage

Strategies employed in response to lack of access to food		Percentage (%)
Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	No	6.2
	Rarely	11
	Sometimes	19.3
	Often	63.4
	Total	100
Did you or any household member have to eat a limited variety of food due to lack of resources to obtain other types of food?	No	2.1
	Rarely	7.5
	Sometimes	22.8
	Often	67.6
	Total	100
Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	No	4.1
	Rarely	16.6
	Sometimes	33.8
	Often	45.5
	Total	100
Did you or any household member have to eat a fewer meals in a day because there was not enough food?	No	10.3
	Rarely	15.2
	Sometimes	27.6
	Often	46.9
	Total	100
Did you or any household member have to go a whole day and night without eating anything because there was not enough food?	No	37.2
	Rarely	29
	Sometimes	18.6
	Often	15.2
	Total	100

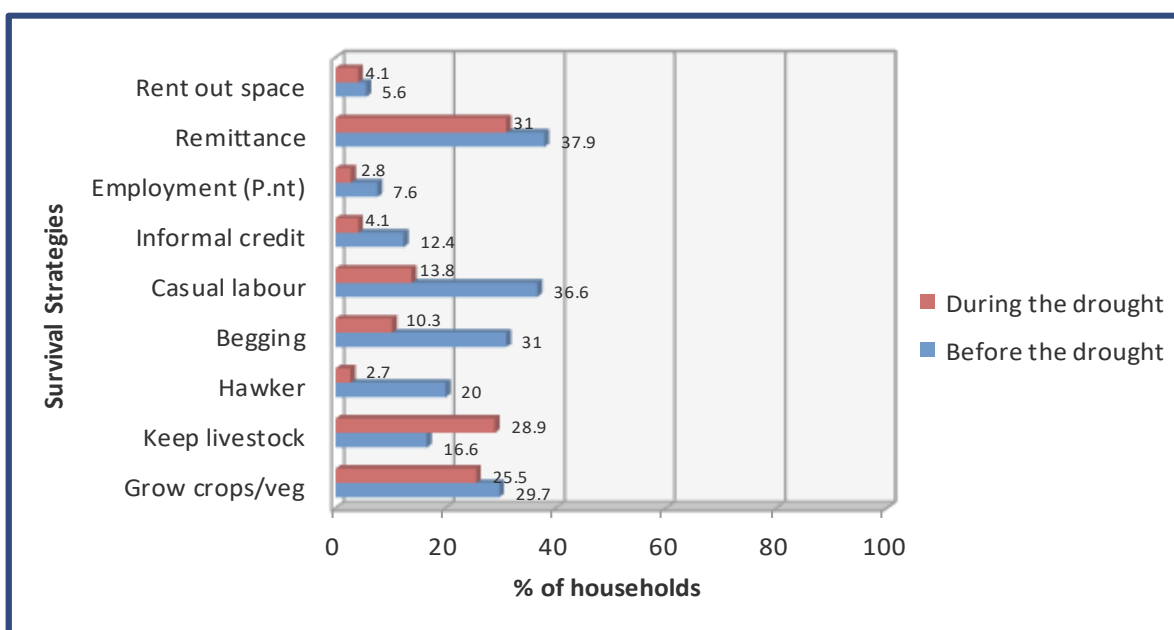
**Source:** Field work, 2016



It is important to note that very few households in kaKhoza have never employed the survival strategies, more particularly eating limited variety (2.1%), eating smaller meals (4.1%), eating food you don't like (6.2%) and eating fewer meals (10.3%) compared to a similar study conducted in Manzini by Tevera *et al.* (2012) where the proportion of households who never engaged in these strategies is bigger. This reflects a precarious situation in relation to food access in kaKhoza which is likely to have been magnified by the drought situation experienced in the country. The steep increase in food prices as well as the drought induced crop failure in rural areas, which have restricted rural-urban food transfers, is likely to have contributed to the lack of food variety in most poor households in kaKhoza, and might have also compromised access to sufficient food in the area.

### 7.6.2 Changing of income and food sources as a strategy to access food

The income and food sourcing strategies employed currently (during the drought period) and in the past (before the drought) were determined. These strategies were further compared to determine if there were any changes in the strategies themselves and their level of utilization. It was much interesting to note a remarkable change in the level of utilization of these strategies presently compared to the past. For example, it was discovered that majority of the poor kaKhoza residents engaged more in casual labour (36.6%) during the drought period than they did before the drought (13.8%) (Figure 7.9).



**Figure 7.9:** Survival strategies employed by kakhoza residents – past and present

**Source:** Field work, 2016

The percentage of households surviving by begging also indicates a significant increase from 10.3 percent in the past to 31 percent presently and those who rely on remittances for food (31% before drought to 37.9% during drought). Much interesting also was the decline in the number of households who relied on agriculturally based livelihoods such as livestock rearing (28.9% before the drought to 16.6% during the drought) and the changes in those engaged in crop cultivation (25.5% in the past to 29.7% during the drought period). It is also important to note the smaller percentage of the people who are currently employed on permanent based in the study area (7.6%) and those who are landlords (rent out spaces) (5.6%). The increase in the number of hawkers (2.7% to 20%) and reliance in informal credit (4.1% to 12.4%) is also more revealing and should not be ignored.

The smaller percentage of households whose source of income and/or food comes from permanent employment and renting out of space is of great concern, and so is the large proportion of households who survive on casual labour. This smaller proportion of households with permanent sources of income and larger numbers of those households relying on temporal jobs do not only reflect the economic hardship faced by the people of kaKhoza but also speaks of their level of vulnerability to shocks such as food prices hike and natural disasters like drought. Casual jobs remain the major source of income for majority of households in kaKhoza. A majority of these people are employed as casual labourers by Kukhanya, a construction company which was engaged and has just concluded the upgrading of the Manzini-Mbabane Highway, hence the increase in the number of households relying on casual jobs for income and food. It is reasonable to think that the temporal jobs offered to kaKhoza residents by Kukhanya road Construction Company have contributed to the food security of most households in kaKhoza which could have been worse had it not been for the casual jobs offered by the company.

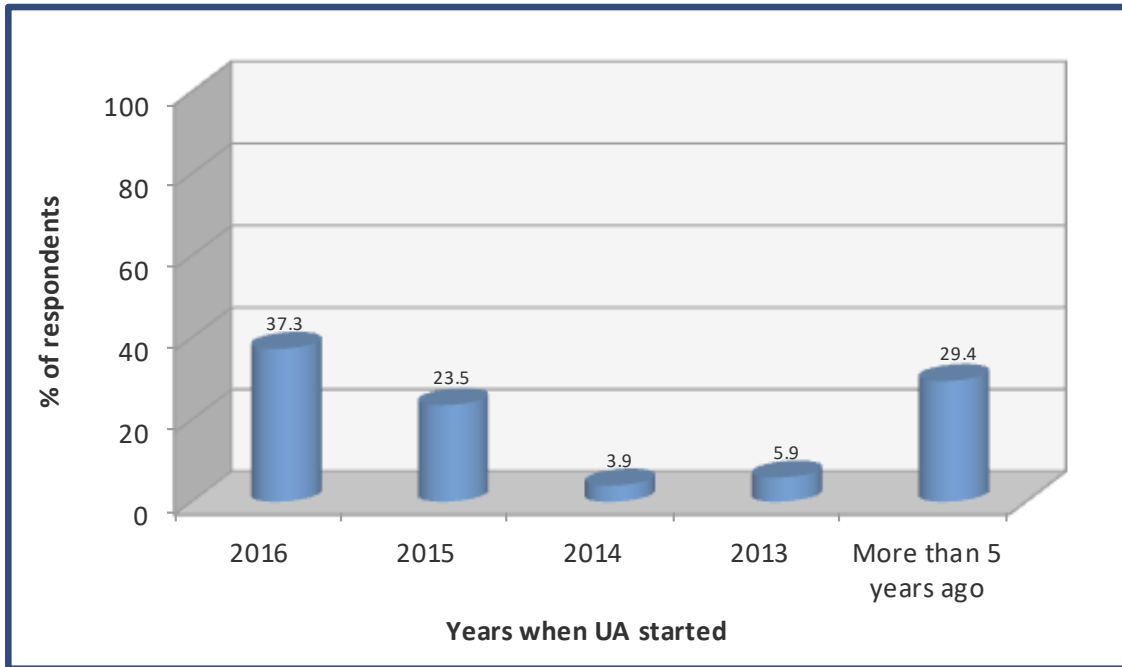
It is also important to note the leading survival activities employed by kaKhoza residents to source food and income which include begging, crop cultivation, hawker, remittances and use of informal credit. An analysis of these strategies, particularly with

regards to the changes observed, reflect the harsh conditions faced by the residents in the study areas most of which are a result of the drought experienced in the country. For instance, the reduction (28.9% to 16.6%) in the number of households keeping livestock as a form of livelihood and the changes in those who survived on crop cultivation (25.5% to 29.7%) reflects the drought situation in the country which resulted in widespread crop failure and death of livestock. These people own or rent fields in the rural areas where they grow several crops and keep livestock, mainly cattle (See Case study 2 above).

It is clear that the death of livestock and crop failure, inevitable impact negatively on the food security of the affected households, particularly those relying on these forms of livelihoods. The increase (31% to 37.9%) in the number of households who relied on remittances and those who survived on credits (4.1 to 12.4%) also indicate the hardship faced by kaKhoza residents. Reliance on informal credit have a potential to worsen the food security status of the affected households since credits, particularly the informal ones are not regulated and can erode the financial base of households.

### **7.6.3 Urban agriculture as a strategy to access food**

Urban agriculture (UA) has been identified by food security scholars to be an important feature of cities of the global South and Swaziland not being an exception. True to this observation, 35.2 percent among the interviewed households engage in urban agriculture with 64.8 percent who were found not to participate in this form of livelihood. The households who were found to engage in urban agriculture were further asked to state the year when they started engaging in this practice. What was interesting to note was the increase in the number of households who were found to have just started engaging in urban agriculture in the time of the survey. A reasonable number of the households were found to have just started engaging in urban agriculture, 37.3 percent in 2016 and 23.5 percent in 2017. Fewer (5.9 in 2013 and 3.9 in 2014) were found to have started practicing urban agriculture in 2013 and 2014, respectively. The rest (29.4%) started practicing urban agriculture more than five years ago (Figure 7.10). It is important to note that over 60 percent of the households who engage in urban agriculture have just started recently (2015/16).



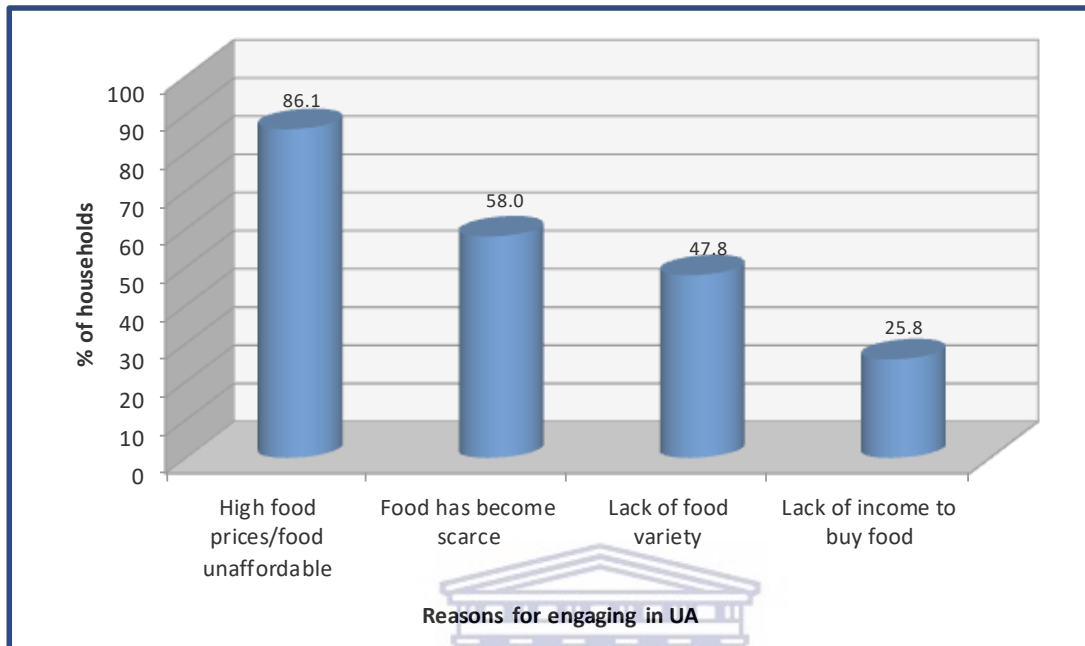
**Figure 7.10:** Households practising urban agriculture and years they started

**Source:** Field work, 2016

A few conclusions can be drawn from these results. One interesting thing to note is that it seems drought has induced the practice of urban agriculture in kaKhoza. In general, urban agriculture has not been an important form of livelihood in the study area looking at the percentage of households who have been practicing urban agriculture before 2015 and this is also confirmed by Tevera *et al.* (2012) who also noted that urban agriculture was not a popular survival strategy in urban Manzini as it was practiced by an urban few. More than five years ago (from 2012 backwards), fewer households had been growing crops in kaKhoza. Likewise, fewer had started doing so in 2013 and 2014, which happen to be the plentiful year when the country got good rains and a bumper harvest in maize (see Figure 6.2). More household were found to have started engaging in urban agriculture in 2015/16 which coincides with the catastrophic drought that left a trail of crop destruction in the country and induced increase in food prices, particularly maize (See Figure on maize yield and drought and Figure on .maize yield and maize price).

It was of interest to the researcher to find out the various reasons why households engage in urban agriculture, particularly those who had just begun practicing urban agriculture in 2015/16. Three quarters of the households (86.1%) started growing

their own food in their backyard gardens due to food unaffordability due to high prices (Figure 7.11). Others did so due to food scarcity (58.0%) while there are those who engaged in urban agriculture due to lack of food variety. There are those who decided to engage in urban agriculture as a result of lack of income to buy food (25.8%).



**Figure 7.11:** Reasons for engaging in urban agriculture

Source: Field work, 2016

Analysis of the reasons why most people started to practice urban agriculture in kaKhoza reflect the drought induced challenges the people face in the study area. As it could be observed, the issue of high food prices that drought seemed to have magnified was cited by majority of households as a major influence that lead them to this decision and this was also captured during interviews where some respondents did not hesitate to state that they were now growing vegetables in backyard garden due to high vegetable prices in supermarkets (See Case study 2 above). The same is also true with regards to food scarcity and lack of variety of food (which was mainly due to drought) which also compelled some of the residents in the study area to resort to urban agriculture to counter this problem.

## 7.7 Conclusion

Food security in kaKhoza in Manzini is an acute problem facing majority of households and has been worsened by the drought-food price constellation. Like Tevera *et al.*

(2012) has rightly observed, the food security problem in kaKhoza and in Manzini in general “will increase because of high and volatile food prices fueled by....the increased frequency of weather shocks, especially drought” (Tevera *et al.*, 2012:27). Three quarters of the surveyed households were found to be food insecure, 81.4 percent of which are in the severe food insecure category and urgently need food aid. This situation was compounded by drought as the effects of the recent drought in the food security status of most households in urban kaKhoza are not hard to find. Drought in kaKhoza has resulted to a number of households failing to get food from their rural based fields due to crop failure and further restricted those urban households who survive by rural-urban food transfers from accessing adequate food for their households, exposing a number of households to food insecurity. Households who managed to transfer food from rural areas were found to have a better food security status than their counterparts, in spite of the drought induced crop failure that characterize most rural areas in Swaziland. This shows that rural-urban food transfers are important to the poor urban dwellers.

Just as transferring food from rural areas enhances the food security status of the transferring households, likewise, sending food to rural relatives compromise the food security status of the sending households. Due to the drought-induced crop failure in rural Swaziland, some urban households had to purchase and send food to their rural relatives and this practice was found to compromise their food security situation, particularly those who had to send large quantities of food, given the steep food prices in the country. Due to the death of numerous herds of cattle, some households found themselves sending milk to their rural households, which, under normal circumstances, they get from their livestock. The impacts of the high food prices could not be overemphasized since it meant that some crucial food items such as vegetables and fruits would not be utilized by most urban households, in favour of food items made of sugar and oil hence compromising the diet of these households.

The abnormal maize price hike have also played a major role in deteriorating the economic conditions of most households since maize, as a staple food, is utilized by almost all households. Due to the high demand for maize, it is the most transferred food type from the rural just as it is the most transferred to the rural as well. The drought-

food price cocktail has eroded the economic base of most of the already poor households in kaKhoza. As such, three quarters of the surveyed households reported deterioration in their economic condition during the drought period compared to the past (before the drought), most of which noted that the situation is actually much worse now than in the past, perfectly reflecting the drought-food price constellation that has severely compromised most households' access to food in the study area.

Access to food was found to be really a challenging thing in kaKhoza as larger proportion of households were found to experience inadequate food provisioning even in months which are normally marked with food sufficiency: April and May which coincide with the annual harvesting period which, under normal circumstances, have to increase food availability. This suggests that urban households are dependent to some degree on the rural agricultural cycle, as Burton *et al.* (2013) noted that when food produced outside the city (rural areas) is compromised by extreme weather events such as drought, it will inevitably compromise urban households' access to food.

Due to lack of access to adequate food, households were found to resort to a variety of coping strategies in order to remain resilient in the challenging drought condition. Among these strategies are: diet change and adjustment, skipping of meals, eating smaller meals (portion) (the most utilized by 95.9%) and eating food they do not like, as long as it is more affordable. Other households started engaging in urban agriculture while others changed their food and income sources in response to food shortage. The utilization of degrading livelihood strategies such as begging, informal credit, casual labour and hawker became the most popular or common livelihood strategies. The major cited reason for the changes in livelihood strategies was increase in food prices (cited by 86.1%) and food scarcity (cited by 56%) which, again, allude to the drought condition of 2015/16. The results provide enough evidence of the drought effects on access to food and ultimately on the food security status of the urban poor in kaKhoza.

## CHAPTER 8: SUMMARY AND CONCLUSIONS

### 8.1 Introduction

In sub-Saharan Africa, the discourse on food security is not generally new. Ample literature exists detailing the food insecurity experiences of rural people in the country and how they grapple with food insecurity in the face of compounding factors such as poverty, high incidence of HIV and AIDS, increase in global food price and climate change induced extreme weather events such as drought. While the locus of food insecurity is shifting to the urban areas, making the food insecurity challenges too obvious, the food security literature, however, demonstrates a strong rural bias with a strong focus on the plight of the rural households. Much less is known about urban food security in Swaziland, even much less about the connection between food security and drought in the urban environment and how the urban poor construct their livelihoods to main resistant in the context of recurrent drought in Swaziland. The thesis, therefore, contributes to the emerging field of urban food security by advancing the drought-food security debate in Swaziland.

The closing chapter, therefore, reflects on the nature of this contribution by providing an illumination on the effects of drought on the food insecurity of the poor urban dwellers and how these vulnerable poor households deal with food insecurity in urban Manzini, particularly in the current drought situation that has since characterized the country. Using a case study approach, this thesis has examined food sources and the food sourcing strategies of the poor urban households in low income households in Manzini, and consequently the effects of drought on access to food in the urban environment. It has also examined the dynamics of food transfers between rural and urban households with a view to establish if there is a connection with drought. The thesis also managed to determine the food insecurity of low income households in Manzini, and further explored the strategies employed by these households to enhance their resilience in the challenging drought situation.

Among the key findings of this study is that drought compromises access to food for most poor urban households who rely on a wide variety of formal and informal food sources, and these sources are directly or indirectly impacted by climate change



induced drought. Drought induces food price increases and makes most food items unaffordable and inaccessible for most poor households. In response, poor households invariably resort to informal markets for 'cheap' food. As such, informal markets were the highest patronized source of purchased food in kaKhoza with a corresponding decline in the utilization of formal supermarkets which are largely regarded as major sources of purchased food in most cities of the global South and in Manzini, in particular as captured by the AFSUN survey.

Drought was found to have also affected food flow from rural to urban households and had initiated inverse food flow (from urban to rural) for most households. A significant decline in the percentage of households who transfer food from rural areas was noticed and fewer than normal were found to have transferred food from their rural relatives during the time of the survey, owing to the drought induced crop failure in rural Swaziland. Households who were found to receive food from rural areas during the drought season reported a decline in the quantity of the food they received from their rural relatives during the drought period compared to the past (before the drought). In the contrast, an increase in the number of urban households who send food to their rural relative was noticed in kaKhoza and this had a negative impact on the food security status of the sending households.

Although it was common for some households to grow the food they ate in their households, the percentage of these households also declined significantly resulting in fewer households who reported to have eaten home-grown produce from their urban food gardens the week of the survey. Reliance on borrowed food, remittance food, casual labour, begging and informal credit was a common strategy to access food in the study area. Food shortage, particularly in the months of inadequate food provisioning (January, February, March and April), saw some households either eating smaller meals, eating food they did not like, skipping meals and other going the whole day without food, which were the most common adaptation strategies used. This seasonal variation in food supply, which was experienced even in the months of April and May (the annual harvesting period), was more disturbing as more than half of the surveyed households struggled to access food. This finding did not only reflect the drought conditions in the rural areas but also revealed that the urban population relies, to a certain extent, on

rural supplies for food and hence stand to be affected by rural food production shortfalls which magnifies their food insecurity, directly or indirectly. The following sections provide a detailed summary of the highlighted findings.

## **8.2 Drought and urban access to food**

Drought has become a common and most devastating hydrological disaster in Swaziland and has pushed an intolerable proportion of the Swazi population over the cliff of hunger. Drought has demonstrated an increase in frequency, duration and intensity over the past decade and has become more destructive with the observed changes in climate. It has fueled the levels of poverty and contributed, to a larger extent, to the rising levels of food insecurity in the country. The recent drought has left a trail of crop destruction, particularly maize, which is the staple crop and often used as an index of food availability. Over 300,000 people (out of the approximately 1million population) have been left without food and in dire need of assistance.

The drought-food security discourse is not new in Swaziland and the impacts of drought (inadequate rainfall) on maize yield (and access to food) are not hard to find. Statistical tests such as the product moment correlation indicate a strong positive correlation between rainfall and maize yield in Swaziland, yielding a correlation coefficient of 0.62. This (high coefficient value) suggests that a severe decline in the amount of rainfall received in any farming season will, more often than not, correspond with a decline in crop yield (maize). Recurrent drought, which has since characterized the country, has turned it to a net importer of maize. Hence, high maize prices (and food prices in general) as a result of drought-induced food scarcity and reliance on import, compromise the ability of most households to access food, particularly the urban poor where food purchase is key to access food.

Drought restricts access to food in the urban environment, and more so in kaKhoza in Manzini. It contributes to the reduction in crop yield and increase in food prices, among other things. The effects of drought on access to food in Swaziland, and in kaKhoza in particular, is best captured by considering its influence on the food sources utilized by the poor urban households in the study area. The effects of drought on sources of purchased food such as supermarkets, the informal markets and small shops were

clearly depicted through the replacement of supermarkets as a major source of purchased food by informal markets due to the steep increase in food prices. Over three quarters of the poor urban households in kaKhoza rely on the informal sector for food and take advantage of the 'cheap' food sold by street vendors in these sectors.

These repackaged food items are within the income brackets of most kaKhoza residents since majority are either not employed or employed in casual jobs and have no stable source of income. These small packets of 'cheap' repackaged food (which is normally one or two cups of rice, mealie meal, beans, sugar, etc.), is enough just to cook for a day or two and households are forced to purchase them frequently. These informal markets erode the resource base of the poor households who find themselves (overtime) having purchased the same quantity of food at a higher price in the informal markets which is generally cheaper in supermarkets who sell the similar food items at larger quantities. However, since the informality has permeated the means of livelihoods of the urban poor in kaKhoza, majority of the households continue to derive their food from the informal sector.

The decline in the number of households who survive on food they grow for themselves and were found to have eaten from this food source the day of the survey also reflect the impacts of drought on access to food. Due to the drought-induced crop failure, some households who grew food could not harvest enough food and others did not harvest anything at all and this had a negative impact on urban food security. With the increasing devastating effects of climate change and accompanying extreme weather events experienced globally, the reinforcement of the implementation of climate smart agriculture (e.g. minimum tillage) in Swaziland and other cities in Southern Africa would help to minimize the impacts of climate change on cities, in addition to reducing the emission of carbon dioxide (major GHG), and hence comply with the provisions of the Paris Agreement on low emission by 2020.

Although a drought relief program was in place to assist affected households with food (food aid) during the drought period, urban households were neglected and had to fend for themselves by turning to degrading food sourcing strategies such as begging, borrowing food and sometimes sharing meals with others. Other households were

forced to indulge in informal credit to purchase food and this, again, eroded their resource base and exposed them more and more to poverty and food insecurity. The steep increase in food price was the major challenge and most cited problem (by the surveyed households) to have restricted most kaKhoza residents from accessing adequate food.

Due to the law of supply and demand, the price of food items that were in short supply in the country (such as vegetables and maize, for example) almost doubled and became highly inaccessible to most poor urban households. Consumers in the country responded to food prices by purchasing essential food items. Few customers purchased vegetables and fruits and this did not only affect the vendors selling these food items but also threatened the job security of other residents. For example, those who survived by transporting food for others from Manzini market to the terminal bus rank went out of business as fewer and fewer people purchased vegetables and fruits which are the most sold in Manzini Market. Some residents in the study area were also found to engage in risky survival activities such as selling sexual favours for food (as the story of *Tandzile* reveals) which exposed them to infection by HIV and AIDS.

### **8.3 Food transfers**

Food transfers have been found to be an integral part of the urban food economy in cities of the global South and in kaKhoza, in particular. Some urban households maintain links with their rural relatives from which they transfer food to use in the urban environments. The rural areas are a crucial food source for the informal sector in urban areas since they provide a better option for cheaper or cost-effective food, hence a reasonable proportion of those households who do not even have relatives in the rural areas were found to utilize this important food source. Since street vendors can scavenge for cheap food, this makes the informal sector an important source of food in the urban environment in time of food crisis, just as Tawodzera (2011) rightly observed in Epworth in Harare during the economical melt down and food crisis in Zimbabwe. Due to drought induced crop failure in rural Swaziland, food became too expensive with other food items not available and vendors had to travel long distances to purchase food in South Africa and this also inflated food prices in the informal sector.

The study found that drought has a profound influence on food transfers (mainly rural-urban transfers) by reducing the number of urban households sourcing food from rural areas. Food shortage in rural areas as a result of poor crop yields forced those urban households who still transfer food to reduce the quantity of transferred food. As it is observed in one case study above, some urban households could sometimes transfer enough food for themselves and their urban neighbours and this was terminated by the food shortage in rural areas. This forced households to transfer just enough for their own households. This means that those households who relied on this remittance food are now 'denied' access to food and are exposed to food insecurity as they could no longer benefit from these transfers due to inadequate rural food supply.

It was also found during the survey that some urban households own or sometimes rent fields in rural areas in which they grow food to feed their families. Again, the impacts of drought are clearly seen in this food source. The number of households who grow their own food had declined. As a result, during the time of the survey, it was found that fewer households (than normal) had eaten food from their fields a week prior to the survey, indicating a steep decline in the utilization of this food source. This also provides another evidence that indeed drought has reduced the number of urban households who relied on rural food supply for their food needs. It was much interesting to also note that drought had introduced a much stronger reverse flow of food (urban to rural transfers) in kaKhoza. The study found that more households (compared to the past) were found to send food to their rural relatives, following the widespread drought induced crop failure experienced by most rural households in Swaziland.

Due to the vulnerability of their rural relatives to hunger (following the crop failure), most urban households with affected relatives were forced to send food to their relatives in the rural areas. This depicts the power of cultural practice, more particularly the sharing of food between households in Swaziland, even in times of hardship. This seemingly strong cultural tradition drives the rural households to share the little they have with their urban relatives in the like manner the urban share their hard-earned high priced food with their rural families. This is reflective of some underlying forces that shape the food security landscape in cities, and points at the importance of broader

approaches to addressing urban food security in strong cultured societies such as Swaziland and Africa in general.

Although it is a common practice to send food to rural areas for some households in Swaziland to supplement rural food production, in the recent drought year, there was almost nothing to supplement. As a result, larger quantities of food had to be sent to rural areas to support relatives in these areas, and this was worsened by the large extended families that characterize most rural families in Swaziland. This compulsory reciprocal food sharing strategy, which drought has induced for some households and magnified for others, eroded the already empty food reserves of most poor urban households in kaKhoza and is most likely to compromise their food security situation, particularly given the steep increase in food prices since most of these food parcels had to be purchased.

The drought-food price cocktail have indeed paused a challenge for business owners and individuals, and also threatened the job security of some people in Manzini and in Swaziland in general. The steep increase in food prices as a result of food scarcity (due to shortfall in food production) led to some informal business people falling out of business, particularly in Manzini market. As already noted above, this did not only affect the market owners but also the people who survive by transporting the purchased food to the bus terminus. While the market owners were complaining of fewer customers and shorter shelf life of their perishable food items, those who transport goods for those who buy were complaining about fewer customers for which to transport food. Retail owners were also not spared from the drought rage. Retailers also had to run around looking for affordable food to fill the already empty supermarket shelves. It was gathered during an interview with retail owners that in some cases, retailers had to scavenge for certain types of food, particularly vegetables (such as cabbages, spinach, tomatoes, green paper etc.), which had become very scarce as most farmers could not harvest anything.

Those farmers who managed to harvest something charged very high prices, which filtered to the consumers in urban areas, leading to some food items either missing in the shelves or too expensive to be affordable to the majority of the poor households.

This leads to high expenditure on food for most households, and also increases their vulnerability, not only to food insecurity, but also to poverty. This frustrates the effort of the national government in the country in achieving the SDGs (1 & 2) of ending poverty and hunger (and malnutrition) among the Swazi population. While the study's focus was on drought and how drought influences the food security situation of urban households, it also acknowledges that there are other underlying factors that may affect food security in cities, particularly in Swaziland and these may be policy matters, governance issues and other socio-cultural variables as correctly captured by the conceptual framework of the study (Figure 3.1).

#### **8.4 Coping with limited access to food in the urban environment**

Vulnerable urban households find themselves had to contend with a variety of challenging situations which include poverty, unemployment and lack of access to food. How these households construct their livelihoods through these trying times, and more importantly, in the recent drought situation remains a matter of concern. Just as Tevera *et al.* (2012) noted, when households cannot access enough food, they resort to a variety of coping strategies in order to remain resilient in trying times. This study found that some households adjust their diets, others eat smaller meals than they feel they needed, while there are also those who either skip certain meals or go the whole day having eaten nothing. Eating smaller meals was found to be a common survival strategy that almost all households (95.9%) have practiced, at least a month prior to the survey.

Some food insecure households responded to food shortage by eating any food that might be available to them, regardless of whether they liked it or not, while others were forced to eat less nutritious food with a limited variety. Had it not been for the casual jobs in which most kaKhoza residents found refuge (availed by the upgrading of the Manzini-Mbabane Highway) the situation could have been worse. As a result, a good majority of residents resorted to casual labour, while others relied on remittances for food. Some households resorted to begging while others opted to the use of informal credit to ensure access to food. Much interesting also was the decline in the number of households who relied on agricultural based livelihoods such as livestock rearing who dropped from 28.9 percent in the past (before the drought) to a merely 16.6 percent during the drought period. Crop cultivation also saw a decline as well in the number of

households surviving by this livelihood strategy, while hawkers increased significantly. It is also important to note the leading survival activities employed by kaKhoza residents to source food and income, which include begging, crop cultivation, hawker, remittances and use of informal credit. An analysis of these strategies, particularly with regards to the changes observed, reflect the harsh conditions faced by the residents in the study areas, most of which are a result of the drought experienced in the country. For instance, the reduction (28.9% to 16.6%) in the number of households keeping livestock as a form of livelihood and those who survived on crop cultivation (29.7% to 25.5%) reflect the drought situation in the country, which resulted in widespread crop failure and death of livestock.

Also interesting to observe was the increase in the number of households who were found to engage in urban agriculture, particularly those who were found to have just started relying on this livelihood strategy. Although some households had always utilized urban agriculture for food more than five years ago, 2015 and 2017 saw a remarkable increase (60%) in the proportion of households relying on this strategy compare to the minority who engaged in same in 2013 and 2014. The widely cited reasons (cited by 86.1%) for the decision to engage in urban agriculture was again linked to food prices or unaffordability of food and food scarcity which were all, in one way or the other, attributed to the recent drought condition. Drought seemed to have induced urban agriculture for some households and reinforced its practice for others as they constructed their livelihoods and plodded through the trying times.

### **8.5 Thesis' contribution to knowledge**

The study's focus was on the investigation of the connection between drought and urban food security, using the informal settlement of kaKhoza as a case study site. The study managed to make several contributions to the urban food security discourse. The first, and perhaps fundamental, contribution made by the study was to investigate a pertinent issue on the relationship between drought and urban poverty, livelihoods and urban food security. The study managed to highlight the inextricable link (which is mostly indirect) between drought and urban food security. This relationship has not been explored in any detail in most urban food security studies and has been very unclear. No studies in Swaziland have addressed, in depth, the connection between



urban food security and drought brought about by climate change; hence there was a dearth of information on how drought contributes to urban food insecurity in Swaziland, where drought has become more recurrent and devastating hydrological disaster. This study has, therefore, managed to highlight this less obvious link between drought and urban food security by uncovering the multifarious ways by which drought compromises access to food for most poor households in the urban environment.

The study was able to demonstrate, for instance, how the drought-food price nexus has potentially induced shifts in food sources and prioritized the informal food outlets over supermarkets (the main source of urban food) during the drought period. This helps in understanding and appreciating the complexity of achieving urban food security in low income areas, particularly during some compounding factors such as droughts. The study has thus broadened our understanding of the precise ways in which drought contributes to the food insecurity of low income urban households in cities, and how it shapes urban livelihoods, ultimately contributing to the rising levels of urban poverty in urban spaces of Manzini. The study has provided a different lens through which the urban food insecurity challenges can be viewed and, it is hoped, that these findings will trigger relevant and timely policy responses that will help in tackling urban food insecurity issues, hence minimize the vulnerability of the urban poor, particularly those living in drought prone areas.

Secondly, this study has highlighted the importance of the crucial food reciprocity strategy between rural and urban households (rural-urban food transfers) that is underpinned by migration, and how this contributes to urban food (in)security. This study has shown how, even in drought conditions, this cultural concept shapes the food security of urban households in Swaziland. Although these rural-urban food dynamics have been captured in several food security studies preceding this study, there has been less engagement and linkages with urban food security issues in these studies and there has been less empirical evidence on how rural-urban transfers contribute to urban food security in Swaziland, and more so during drought periods. This study, therefore, managed to bridge this knowledge gap by supplementing the existing food security and food transfers literature for a clearer picture on the contribution of this crucial food sharing strategy to urban food security in kaKhoza and in Manzini, in general.

Thirdly, the study was also able to uncover some copying mechanisms that are area specific or 'unique' to kaKhoza informal settlement, in addition to the general copying strategies that have been captured by other urban food security studies conducted in the region. The study was able to capture, for instance, some risky survival mechanisms in kaKhoza, which appear more to be desperate measures, and highly likely to have been induced or triggered by the desperate condition brought about by the 2015/16 drought condition. The selling of sexual favours is one such example. Needless to say, such copying strategy has a potential of exacerbating the already precarious poverty and food insecurity situation in the study area and potentially increase the vulnerability of the poor urban households to HIV and AIDS infection. To the Kingdom of Swaziland, this finding and contribution is particularly important given the country's high rate of HIV and AIDS infection (which is among the world's highest rates) which militates against the country's vision of reducing new HIV infections and related deaths by 2022 (Vision 2022).

Fourthly, the study has also been able to highlight the high levels of poverty and food insecurity in the informal settlement of kaKhoza. In addition to being the first food security study to be conducted in this important rural migrant destination site, this study has also validated the 2012 findings of the AFSUN survey conducted in the low income households of Ticanweni, Moneni and Standini in Manzini, hence highlighting the persistently rising levels of food insecurity in the city's poor areas. Most, importantly, this study has employed a different approach which has not been employed before to the study of urban food security in the low income households of Manzini. This approach (mixed method approach) has provided an in-depth exploration and understanding of food security issues in Manzini, and the underlying factors that impact negatively and positively on the food security of the urban poor in the city.

## **8.6 Policy implications**

This study was focusing on the impacts of drought on low income urban households in Manzini and the coping strategies they employ to ensure adequate access to food, hence remain resilient in the drought situation. The study managed to highlight several interesting findings with explicit policy implications in the Kingdom of Swaziland. To begin with, the research study revealed that a substantial segment of low income

households in Manzini live in abject poverty and thus fail to meet their basic food requirements for a healthy and productive life. This pathetic situation has been aggravated by the 2015/16 drought condition in the country, which has heightened the levels of food insecurity to unacceptable levels. These findings have helped us understand that a substantial fraction of the population in urban Manzini is equally vulnerable to drought impacts and food insecurity as their rural counterparts. It is a prerequisite, therefore, that local government accepts this fundamental truth and begins to channel resources and efforts towards addressing the food security needs of poor urban households which has reached the crisis level.

Secondly, the study has also shown that the informal sector becomes a mainstay for the survival of most of the urban poor in times of food crisis. Since the contribution of these informal structures to food access (and food security) of the most disadvantaged urban groups in Swaziland (and southern Africa in general) is plausible, there is need for policy adjustment to help create enabling urban environment on which these important structures can thrive rather than maintaining the repressive policies that fail to recognize the importance of this sector. Informal sectors need support and, in line with it, must be creation of job opportunities to reduce the rate of unemployment among the urban poor so that they can sustain their household food needs, hence minimize the incidence of food insecurity.

Thirdly, the study has further highlighted that rural-urban food transfers are of great importance to the food security needs of the poor urban households, particularly in trying times of food price hike and scarcity to ensure access to adequate food in the urban environment. These transfers were found to be important, not only to the transferring households who always maintain links with their rural relatives, but also to the urban neighbours to these transferring households who also stand to benefit from such transfers. It is vital that government promotes these transfers by removing regulatory structures that hinder the smooth flow of rural food to the city.

Fourthly, a significant proportion of households in kaKhoza were found to engage in urban agriculture, and more so in the current drought years (2015/16) where crops like maize and several vegetables were produced mainly for family consumption. There is,

therefore, a need for a proper policy framework that will not only recognize the importance of urban agriculture in the alleviation of poverty and food insecurity in the urban environment, but one which will also promote the practice of this livelihood strategy to promote food self-sufficiency in urban areas. Enacting these enabling laws will help urban households to practice urban agriculture without fear of arrest due to bridging municipal laws and regulations which prohibits the practice of farming in urban space.

Lastly, the absence of safety nets to which the poor urban dwellers can find cover, is also a matter of great concern, not only because it indicates the inadequate attention given to issues of poverty and food insecurity by local authorities in Manzini, but also because of the exposure of these vulnerable households to risky coping strategies that may expose them to HIV infection. Due to their vulnerability and food needs, some poor urban dwellers were found to engage in risky coping strategies such as engaging in commercial sex for food which expose them to HIV infection. There is thus an urgent need for deliberate efforts to create formal safety nets targeting vulnerable urban households and enacting of structures that will help local authorities to monitor and understand the needs of the voiceless and poor urban dwellers. Even in the recent drought which was declared a state of emergency, the food needs of the urban poor were ignored and urban population remained highly marginalized. In this regard, government, and all stakeholders concerned, need to acknowledge that the poor urban dwellers are also equally vulnerable and, therefore, need also to benefit from the food aid programme directed to rural communities.

### **8.7 Areas of further research**

A number of issues have been raised by this study pertaining to the effects of drought in the urban environment and how urban households construct their livelihoods in the drought and food-price crisis. There is a need to replicate this study to other towns and cities to establish if similar trends are also observed in other cities in the country or whether the results are consistent with other urban centers in the Kingdom.

There is also a need for a more detailed national study to establish the extent of food flows between rural and urban areas in Swaziland, to determine whether the observed

patterns of food flows (and their impacts) captured by this study are a reflection of the national picture, or are just unique for Manzini. Since it was also gathered that drought induced reverse flows of food, it is also important that the study also captures the extent to which these reverse flows, particularly in drought situations, contribute to the food (in)security of both the sending and receiving households.

Since urban agriculture was found to be one of the coping strategies that drought had induced in Manzini, further research needs to be conducted in order to determine if there are long lasting impacts of this form of livelihood and whether it is really perceived as a coping mechanism during harsh conditions in the urban setting or it has become a permanent livelihood option in Swazi cities. Finally, there is a need for a national study that will focus on coping strategies employed by urban dwellers in response to drought induced food price and inadequate access to food, to determine the nature of these survival strategies and the extent to which they expose women to HIV infection. There seems to be a connection between coping strategies and exposure to HIV infection in Swaziland as this finding keeps on emerging in similar micro food security studies. This will help the country in its tireless fight against the ever high level of HIV infection incidence by providing a different lens through which this problem can be viewed and another angle through which the HIV pandemic can be addressed.

The focus of the study was on drought, resilience and urban food security and has used the 2015/16 drought to examine how drought restricts access to food in urban areas and to further capture the various ways in which the affected population copes with the situation in order to remain resilient in the drought context in the country. The thesis has been successful in capturing the effects of drought in the urban environment, particularly with regards to access (or lack of access) to food. It has also managed to trace the flow of food between rural and urban areas and has captured how these flows are affected by drought conditions and further looked at urban agriculture and its role in enhancing increased access to food during food crisis, particularly during drought which inflates food prices. Lastly, the study was also able to capture the food insecurity levels in kaKhoza in Manzini, thereby directly contributing to the urban food security debate in Swaziland and in Southern Africa, in general.

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## APPENDICES

### Appendix A: Urban Household In-depth Case Study Interview Guide



Dear Participants

My name is Siphon Felix Mamba. I am a PhD student in the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape, South Africa. I am carrying out an academic research on drought, urban food security and resilience of urban households in Manzini and you have been selected to participate in this survey. My intention is to use this information for my doctoral thesis. I also intend to publish all or part of my findings from this study, which may include information that you would have kindly provided. The general purpose of this interview is to collect information on urban food security, particularly issues surrounding the effects of droughts on food access, the contribution of urban agriculture towards food security, food transfers and levels of food insecurity. Your opinion is important in helping me to understand how people in Manzini generally, and in kaKhoza in particular, live with and cope with a variety of food security issues. I hope that you will participate in this survey as your views are important to my research. The interview will take about 40-60 minutes.

Are you willing to participate?

Yes	1
No	2

If No, Thank you for your time. Goodbye.

If Yes, do you want me to tape record the interview or write notes as we progress?

Use Tape Recorder	1
Write Notes	2

Do you understand that you have the right to stop this interview any time you want and you can choose not to answer some or all the questions on particular issues that you may not wish to discuss?

Yes	1
No	2

At this time, do you wish to ask me anything or are there issues that you need to be clarified about the survey before we proceed?

Yes	1
No	2

If yes; Question/clarification.....

May I begin the interview now?

Yes	1
No	2

1. I fully understand the purpose of the research.
2. I am participating in this research on my own free volition without force or coercion.
3. I am aware that I have the right to terminate this interview whenever I may feel so without any prejudice on my part.

Participant signature.....Date.....

THEME	INTERVIEW QUESTIONS
<p><b>Section A: General information</b></p>	<ul style="list-style-type: none"> <li>• What is your position in the household?</li> <li>• Were you born here or you migrated? Please tell me where you are from and explain why you migrated to here.</li> <li>• For how long have you been here?</li> <li>• What is your highest level of education?</li> <li>• What is your marital status?</li> <li>• What are you doing to earn a living?</li> </ul>
<p><b>Section B: Food sources</b></p>	<ul style="list-style-type: none"> <li>• Where do you currently get food supply for your household? Please tell me all sources (rural &amp; urban).</li> <li>• Are these the same food sources you have been using the past two years?</li> <li>• How long have you been sourcing food from these food sources?</li> <li>• Among these sources you have mentioned, which source would you say is currently the major/main source of food for your household?</li> <li>• Has this source been the major/main source for your household in the past two years?</li> <li>• In terms of your food sourcing strategies, what are the reasons you have changed food sources/suppliers. Please also give reasons why you have fewer or have added more sources.</li> <li>• What would you say in terms of the volume of food you get from these sources, would you say it has increased, decreased or still the same now compared to two years ago?</li> <li>• Why has the volume of food supply changed? Explain in details.</li> <li>• What effects do these changes (in food sources &amp; volume of supply) have on your household?</li> <li>• What would you say in relation to food sources and food variety available now in your household compared to two years ago. Would you say you have more or less food variety and why? Please explain in details.</li> <li>• What other food procurement challenges do you have in your household and how do you deal with them? Please be more elaborate on this.</li> </ul>
<p><b>Section C: Rural – urban links and food transfers</b></p>	<ul style="list-style-type: none"> <li>• Do you have relatives in rural and/or urban areas?</li> <li>• Do you sometimes get food from your relatives in rural and/or urban areas?</li> <li>• What kind of food do you get, how often and in what quantities?</li> <li>• Have you been getting the same amount and type of food from your relatives the past two years?</li> <li>• How often was the food received?</li> <li>• What are the causes of the changes in type, quantity and frequency of receiving food from your relatives?</li> <li>• Do you sometimes send food to your relatives in the rural areas and/or urban areas?</li> <li>• What kind of food do you send, how often and in what quantities?</li> <li>• Have you been sending the same amount and type of food to your</li> </ul>

	<p>relatives the past two years?</p> <ul style="list-style-type: none"> <li>• How often was the food sent?</li> <li>• What are the causes of the changes in type, quantity and frequency of sending food to your relatives?</li> </ul>
<p><b>Section D: Food Prices</b></p>	<ul style="list-style-type: none"> <li>• Is there any increase in food prices that you have observed?</li> <li>• How does this increase in food prices affect your household?</li> <li>• Compared to the price hike experienced in the past years, would you say this most recent price increase is normal or abnormal? Please explain giving specific examples why you say so.</li> <li>• What are the reasons for the recent increase in food prices?</li> <li>• Do you think there is any connection between price increase and changing food sources?</li> <li>• Do you think the changes in food sources may have played a major role in the increase in food prices? Please explain why you think so, giving examples to support your argument.</li> <li>• What are the challenges you are facing as a result of the increase in food price in relation to access to sufficient food for your household?</li> <li>• How has the increase in food prices affected food flow, volume of food purchased and variety of food purchased?</li> </ul>
<p><b>Section E: Drought &amp; its effects</b></p>	<ul style="list-style-type: none"> <li>• Have you noted that there is currently a drought going on in Swaziland?</li> <li>• Do you think as urban communities you are affected by drought? Please explain how?</li> <li>• Have you experienced effects of drought in this household? How were you affected by this drought in your household?</li> <li>• How were you affected by this drought (if you were affected)?</li> <li>• Do you think the food status of your household was also affected?</li> <li>• In what way was it affected (elaborate)?</li> <li>• Do you think the drought affected the prices of food? How was your household affected by drought induced food prices increase (if it was affected)?</li> <li>• Do you think this drought has played a role in the recent price increase experience in the country? Please explain how drought influenced food prices</li> <li>• Do you think the recent drought has affected you in terms of where you source your food from? Please provide detailed explanations and examples how this has happened?</li> <li>• How has drought affected food flow, food variety and volume purchased?</li> <li>• How do you deal with these food-related challenges?</li> </ul>

<p><b>Section F:</b> <b>Urban agriculture</b></p>	<ul style="list-style-type: none"> <li>• What is your understanding of urban agriculture (UA)?</li> <li>• Do you practice UA?</li> <li>• Where is your field? (Backyard garden, field away from residential place?)</li> <li>• When did you start engaging in UA?</li> <li>• What are the reasons for engaging in UA?</li> <li>• Which crops do you grow currently and why these particular crops?</li> <li>• Are these the same crops you were growing in the past two years?</li> <li>• If not, which crops were you growing and why have you changed?</li> <li>• How does UA help you? What is its role in your household food security?</li> <li>• Does the current drought affect the crops you grow here? How.</li> <li>• Would you say drought has impacted on water sources and reduced water availability for irrigation?</li> <li>• What are the problems and challenges of practicing UA in this area?</li> <li>• What the policy issues with regards to the practice of UA?</li> </ul>
<p><b>Section G:</b> <b>Food security</b></p>	<ul style="list-style-type: none"> <li>• How could you rate the food security status of your household today compared to two years back?</li> <li>• What are the causes in the changes of the food security status of your household?</li> <li>• Would you say that the current drought in the country has worsened the food security status of your household? How?</li> <li>• Do you think the food security status of your household has been worsened by the current food price hick? How?</li> <li>• What are the strategies that you use to cope with these persistent food-related problems in your household?</li> </ul>

**Appendix B: Standardized Urban Household Questionnaire**



STUDY SITE:

Homestead ID.....

Household ID.....

GPS Location	
<i>Latitude</i>	
<i>Longitude</i>	
<i>Altitude</i>	

**Introduction and consent**

**READ OUT ALOUD**

My name is Mamba Siphon Felix. I am a researcher from the University of the Western Cape. I am conducting an academic research on urban food security and are therefore talking to people in KaKhoza, Manzini about how they get food, where they get it, its adequacy, the problems they face in accessing food, and how they deal with food shortages, as well as other related important social and economic issues. Your household has been randomly selected and I would like to discuss these issues with you, or any adult member of your household.

Your opinion is valuable to me as it will help me to get a better understanding on how people in Manzini feel about these food-related issues. There are no right or wrong answers. The interview will take approximately 45 minutes. The answers you give will be treated with confidentiality. It will not be easy also to identify your answers from the many other people I will interview, and moreover, I will not record your name, address or any information that may make it easy to pick you out from what you say. Feel free to tell us what you think.

Are you willing to participate? (TICK THE ANSWER GIVEN)

Yes  No

IF NO: READ OUT: ‘Thank you for your time. Goodbye.

IF YES: IF WILLING TO PARTICIPATE, READ OUT THE FOLLOWING:

Thank you for agreeing to participate in this study. Just to emphasize, any answers you provide will be kept absolutely confidential, and there is no way anyone will be able to identify you by what you have said in this interview. We are not recording either your address or your name, so you will remain anonymous. The data we collect from these interviews will always be kept in a secure location. You have the right to terminate this interview at any time, and you have the right to refuse to answer any questions you might not want to respond to.

Are there any questions you wish to ask before we begin?

Specify: .....  
 .....  
 .....

**SECTION A: DEMOGRAPHIC & SOCIO-ECONOMIC DATA (HHD)**

**1. List on the grid below the details on demographic and socio-economic status of the household and/or household head (HHD). See page2 for codes to be entered.**

PNO	Code
1a Relation to HHD head	
1b Sex	
1c Age	
1d Marital status	
1e Highest level of education	
1f Occupation (most important first accept up to two)	
1g Income last month for main occupation	
1h Lives away from this household?	
1i Work status	
1j Current country of work	
1k Where born?	
1l Where living now?	
1m Why moved to present location? <i>(Enter up to three reasons for moving)</i>	
1n Where was main meal eaten yesterday?	
1o Household size	



**Codes for Q1 (One code for each)****1a Relation to head**

- 1 Head
- 2 Spouse/partner
- 3 Son/ daughter
- 4 Adopted/ foster child/ orphan
- 5 Father/ mother
- 6 Brother/sister
- 7 Grandchild
- 8 Grandparent
- 9 Son/ daughter-in-law
- 10 Other relative
- 11 Non-relative
- 97 Refused
- 98 Don't know

**1b Sex**

- 1 Male
- 2 Female

**1c Age at last birthday**

- 0 under 1 year
  - Whole numbers only
  - 97 Refused
  - 98 Don't know
  - 99 Missing
- (If respondent is older than 96, record 96)

**1d Marital status**

- 1 Unmarried
- 2 Married
- 3 Living together/ cohabiting
- 4 Divorced
- 5 Separated
- 6 Abandoned
- 7 Widowed
- 97 Refused
- 98 Don't know

**1e Highest education**

- 1 No formal schooling
- 2 Some Primary
- 3 Primary completed  
(Junior or Senior)
- 4 Some high school
- 5 High school completed
- 6 Post-secondary qualifications not  
university (diploma, or degree from  
technikon or college)
- 7 Some university
- 8 University completed
- 9 Post-graduate
- 97 Refused
- 98 Don't know

**1f Occupation**

- 01 Farmer
- 02 Agricultural worker (paid)
- 03 Agricultural worker (unpaid)
- 04 Service worker
- 05 Domestic worker
- 06 Managerial office worker
- 07 Office worker
- 08 Foreman
- 09 Mine worker
- 10 Skilled manual worker
- 11 Unskilled manual worker
- 12 Informal sector producer

- 13 Trader/ hawker/ vendor
- 14 Security personnel
- 15 Police/ Military
- 16 Businessman/ woman (self-employed)
- 17 Employer/ Manager
- 18 Professional worker
- 19 Teacher
- 20 Health worker
- 21 Civil servant
- 22 Fisherman
- 23 Truck driver
- 24 Pensioner
- 25 Scholar/ Student
- 26 House work (unpaid)
- 27 Unemployed/ Job seeker
- 28 Other (specify)
- 97 Refused
- 98 Don't know

**1h Lives/works away from this household but still a member of the household**

- 1 No
- 2 Yes, migrant-working
- 3 Yes, migrant-looking for work
- 4 Yes, attending school
- 5 Other (specify)

**1i Work status (wage employment)**

- 1 Working full-time
- 2 Working part-time/ casual
- 3 Not working - looking
- 4 Not working - not looking
- 7 Refused
- 8 Don't know

**1j Current country of (work**

- 1 Works in home country
- 2 Mozambique
- 3 Namibia
- 4 Angola
- 5 Zimbabwe
- 6 Lesotho
- 7 Botswana
- 8 Malawi
- 9 Zambia
- 10 Swaziland
- 11 Tanzania
- 12 South Africa
- 13 Rest of Africa
- 14 Europe/UK
- 15 North America
- 16 Australia/NZ
- 17 Asia/China
- 18 Other
- 19 Not applicable (students, pensioners,  
etc)
- 97 Refused
- 98 Don't know

**1k Where born**

- 1 Rural area
- 2 Urban area
- 3 Foreign country rural area
- 4 Foreign country urban area
- 7 Refused
- 8 Don't know

**1l Where living now?**

- 1 Same rural area

- 2 Different rural area
- 3 Same urban area
- 4 Different urban area
- 5 Foreign country rural area
- 6 Foreign country urban area
- 7 Urban area
- 8 Rural area
- 97 Refused
- 98 Don't know

**1m Why to present location**

- 1 Housing
- 2 Land for livestock/grazing
- 3 Land for crop production
- 4 Formal sector job
- 5 Informal sector job
- 6 Food/hunger
- 7 Military Service
- 8 Drought
- 9 Overall living conditions
- 10 Safety of myself/family
- 11 Availability of water
- 12 Political exile
- 13 Asylum
- 14 Education/schools
- 15 Crime
- 16 Attractions of the city: urban  
life/modern life
- 17 Illness related (HIV/AIDS)
- 18 Illness related (not HIV/AIDS)
- 19 Moved with family
- 20 Sent to live with family
- 21 Marriage
- 22 Divorce
- 23 Abandoned
- 24 Widowed
- 25 Freedom/democracy/peace
- 26 Retirement
- 27 Retrenchment
- 28 Eviction
- 29 Deaths
- 30 Floods
- 31 Religious reasons
- 32 Returned to former home
- 33 Other (specify)
- 96 Not moved
- 97 Refused
- 98 Don't know

**1n Where was main meal eaten yesterday?**

- 1 Home (this household)
- 2 Small shop
- 3 Informal market/street food
- 4 Shared meal with neighbours/ or  
other households
- 5 Work place
- 6 School
- 7 Community food kitchen
- 8 Food provided by neighbours/ or  
other households
- 9 Did not eat a meal
- 10 Other (specify)

**SECTION B: HOUSEHOLD DATA**

2	<p><b>Which one of the following housing types best describes the type of dwelling this household occupies?</b></p> <p><i>(DO NOT read aloud - circle only ONE answer for the column labeled 'Code')</i></p>	<b>Housing Type</b>	<b>Code</b>
		a. Bricks & Tiles	1
		b. Brick & Corrageted Iron	2
		c. Squatter hut/ shack	3
		d. Other (specify)	4

3	<p><b>Which of the following best describes the household structure?</b></p> <p><i>(DO NOT read aloud - ask about household type and circle only ONE answer)</i></p>	<b>Household Structure</b>	<b>Code</b>
		a. Female Cantered <i>(No husband/male partner in household, may include relatives, children, friends)</i>	1
		b. Male Centered <i>(No wife/ female partner in household, may include relatives, children, friends)</i>	2
		c. Nuclear <i>(Husband/ male partner and wife/ female partner with or without children)</i>	3
		d. Extended <i>(Husband/ male partner and wife/ female partner and children and relatives)</i>	4
		e. Under 18-headed households female centered <i>(head is 17 years old or less)</i>	5
		f. Under 18-headed households male centered <i>(head is 17 years old or less)</i>	6
		g. Other (specify):	7

4	<b>Household income from all sources (in the last one (1) month):</b>					
	<p><i>(a) &amp; (b) Read list aloud, circle the code that applies (column</i></p> <p><i>(b)) and complete the information for that row; leave rows blank for categories that do not apply.</i></p> <p><i>(c) Enter amount over the past one (1) month to nearest currency unit in column (c). For income in kind i.e. 'Remittances - goods/ food', 'Income from farm products' and in some cases perhaps also 'Gifts', estimate the monetary value over the past month and</i></p>	<b>(a) Income categories</b>	<b>(b) Code</b>	<b>(c) Amount (to nearest currency unit)</b>	<b>(d) Adequate</b>	<b>(e) Not Adequate</b>
		a. Wage work	1			
		b. Casual work	2			
		c. Remittances	3			
		d. Income from <b>rural</b> farm products	4			
		e. Income from <b>urban</b> farm products	5			
		f. Income from formal business	6			
		g. Income from informal business	7			
		h. Pension/disability/other social grants	8			

	<i>record this figure in (c).</i>	Other (specify)	9				
5	<b>Are there any changes in the income sources used now from those used in the past, for this household</b>				Yes	1	
					No	2	
6	<b>NB: Answer this question if the answer to question 5 above is Yes. If No, skip this question to question 7.</b>						
	<b>Current household income from all sources</b>						
	<p><i>(a) &amp; (b) Read list aloud, circle the code that applies (column (b)) and complete the information for that row; leave rows blank for categories that do not apply.</i></p> <p><i>(c) Enter amount over the past one (1) month to nearest currency unit in column (c). For income in kind i.e. 'Remittances – goods/ food', 'Income from farm products' and in some cases perhaps also 'Gifts', estimate the monetary value over the past month and record this figure in (c).</i></p>	<b>(a) Income categories</b>	<b>(b) Code</b>	<b>(c) Amount</b>	<b>(d) Reason for change</b>	<b>(e) Adequate</b>	<b>(f) Not Adequate</b>
		a. Wage work	1				
		b. Casual work	2				
		c. Remittances	3				
		d. Income from <b>rural</b> farm products	4				
		e. Income from <b>urban</b> farm products	5				
		f. Income from formal business	6				
		g. Income from informal business	7				
h. Pension/social grants		8					
i. Other (specify)	9						
7	<b>Household monthly expenses for the last month for items (a) through (f) &amp; year for items (g) through (o).</b>						
	<i>(Read list aloud, circle the code that applies and complete the information for that row; leave rows blank for categories that do not apply; if an annual expense gives a monthly estimate. If the household has no expenses, circle ONLY code = '17' for 'NONE'. If respondent refuses to answer, circle ONLY code = '18' for 'Refused to answer'.)</i>						
	<b>(a) Expense categories</b>	<b>(b) Code</b>	<b>(c) Amount (to nearest currency unit)</b>				
	a. Food and Groceries	1				Last month	
	b. Housing (rent, mortgage)	2				Last month	
	c. Utilities (write total for all: water, sewer, electricity, telephone, etc.)	3				Last month	
	d. Transportation	4				Last month	
	e. Savings	5				Last month	
	f. Fuel (firewood, paraffin, gas, candles,	6				Last month	
	g. Medical (medical aid, medical costs)	7				Last year	
h. Education (school fees, books, uniforms)	8				Last year		
i. Insurance (life, burial, etc.)	10				Last year		

j. Funeral costs	11		Last year
k. Home-based care	12		Last year
l. Remittances	13		Last year
m. Debt service/repayment	14		Last year
n. Goods purchased to sell	15		Last year
o. Other (specify type of expenditure and time)	16		Last year

<b>8</b>	<b>Are there any changes in the household monthly expenses for the last month?</b>	Yes	1
		No	2

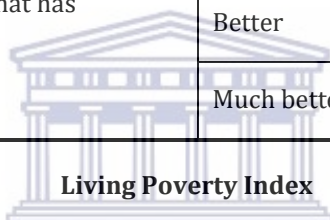
**9** **NB:** Answer this question if the answer to **question 8** above is Yes. Skip this question to **question 10** if the answer above is **No**.  
**Household monthly expenses (previous month) for items (a) through (f) & year for items (g) through (o)**  
(Read list aloud, circle the code that applies and complete the information for that row; leave rows blank for categories that do not apply; if an annual expense gives a monthly estimate.  
If the household has no expenses, circle ONLY code = '17' for 'NONE'.  
If respondent refuses to answer, circle ONLY code = '18' for 'Refused to answer'.)

<b>(a) Expense categories</b>	<b>(b) Code</b>	<b>(c) Amount</b>	<b>(d) Reasons for change</b>	<b>(e) Increased</b>	<b>(f) Decreased</b>
a. Food and Groceries	1				
b. Housing (rent, mortgage)	2				
c. Utilities (water, electricity, telephone)	3				
d. Transportation	4				
e. Savings	5				
f. Fuel (firewood, paraffin, candles)	6				
g. Medical (medical aid/costs)	7				
h. Education (Fees, books, uniforms)	8				
i. Insurance (life, burial, etc.)	10				
j. Funeral costs	11				
k. Home-based care	12				
l. Remittances	13				
m. Debt service/repayment	14				
n. Goods purchased to sell	15				
o. Other (specify type of expenditure)	16				

10	<p><b>To what extent do people in your household use strategies other than jobs (regular formal employment) to make a living?</b></p> <p><i>Use the code list below to record the extent to which people in the household use other strategies:</i></p> <p>1 = Not at all 2 = Slightly 3 = Partly dependent 4 = Totally dependent</p> <p><i>Record the appropriate code in the last column.</i></p>	<b>Way to make a living</b>		<b>Code</b>
		a. Field crops		
		b. Garden crops		
		c. Tree crops		
		d. Livestock		
		e. Marketing		
		f. Crafts		
		g. Begging		
		h. Gifts		
		i. Casual labour		
		j. Rent out space to lodgers		
		k. Formal credit		
		l. Informal credit		
		m. Self-employed at home		
n. Other (specify)				
11	<b>Is this how this household has been surviving in the past two years?</b>			Yes
				No
<p><b>NB:</b> Answer this question if the answer to <b>question 11</b> above is No. Skip this question to <b>question 12</b> if the answer above is <b>Yes</b>.</p>				
	<p>To what extent did people in your household in the past years used strategies other than jobs (regular formal employment) to make a living?</p> <p><i>Use the code list below to record the extent to which people in the household use other strategies:</i></p> <p>1 = Not at all 2 = Slightly 3 = Partly dependent 4 = Totally dependent</p> <p><i>Record the appropriate code in the last column.</i></p>	<b>Way to make a living</b>	<b>Code</b>	<b>Reasons for change</b>
		a. Field crops		
		b. Garden crops		
		c. Tree crops		
		d. Livestock		
		e. Marketing		
		f. Crafts		
		g. Begging		

		h. Gifts		
		i. Casual labour		
		j. Rent out space to lodgers		
		k. Formal credit		
		l. Informal credit		
		m. Self-employed at home		
		n. Other (specify)		

12	<p><b>How would you say the economic conditions of your household are today compared to your household a year ago?</b></p> <p><i>(Circle one answer only)</i>  <i>For reasons, respondent must state:</i>  For <b>Much worse</b> and <b>Worse</b> = state reason(s) why  For <b>The same</b> = state what helped to keep it the same  For <b>Better</b> and <b>Much better</b> = State what has improved</p>	<b>Economic conditions</b>	<b>Code</b>	<b>Reasons</b>
		Much worse	1	
		Worse	2	
		The same	3	
		Better	4	
		Much better	5	



**Living Poverty Index**

13	<p><b>Over the past year, how often, if ever, have you or your family (household) gone without:</b>  <i>(Read each question aloud and circle the most appropriate response. Circle only ONE answer for EACH ROW).</i></p>						
	<b>Conditions</b>	<b>Never</b>	<b>Just once or twice</b>	<b>Several times</b>	<b>Many times</b>	<b>Always</b>	<b>Don't know</b>
	a. Enough food to eat?	1	2	3	4	5	6
	b. Enough clean water for home use?	1	2	3	4	5	6
	c. Medicine or medical treatment?	1	2	3	4	5	6
	d. Electricity in your home?	1	2	3	4	5	6
	e. Enough fuel to cook your food?	1	2	3	4	5	6
	f. A cash income?	1	2	3	4	5	6

**SECTION C: FOOD INSECURITY**

**14**

**HOUSEHOLD FOOD INSECURITY ACCESS SCALE (HFIAS)**

*(READ the list and categories and circle only ONE answer for each question)*

<b>Household Food Insecurity Access Scale (HFIAS) for last four weeks</b>	<b>No (Answer to question is 'No')</b>	<b>Rarely (once or twice)</b>	<b>Sometimes (3 to 10 times)</b>	<b>Often (more than 10 times)</b>
a. In the past four weeks, did you worry that your household would not have enough food?	1	2	3	4
b. In the past four weeks were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	1	2	3	4
c. In the past four weeks did you or any household member have to eat a limited variety of foods due to a lack of resources?	1	2	3	4
d. In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	1	2	3	4
e. In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	1	2	3	4
f. In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?	1	2	3	4
g. In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	1	2	3	4
h. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	1	2	3	4
i. In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	1	2	3	4
j. In the past week, did you or any household member eat a cooked meal less than once a day?	1	2	3	4

### HOUSEHOLD DIETARY DIVERSITY SCORE (HDDS)

**15** **Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night.**  
*(Read the list of foods. Circle yes in the box if anyone in the household ate the food in question, circle no if no one in the household ate the food)*

Types of food	Yes	No
a. Any bread, rice noodles, biscuits or any other foods made from millet, sorghum, maize, rice, wheat, or [INSERT ANY OTHER LOCALLY AVAILABLE GRAIN]?	1	2
b. Any potatoes, sweet potatoes, yams, cassava or any other foods made from roots or tubers?	1	2
c. Any vegetables?	1	2
d. Any fruits?	1	2
e. Any beef, pork, lamb, goat, rabbit, wild game, chicken, duck, other birds, liver, kidney, heart, or other organ meats?	1	2
f. Any eggs?	1	2
g. Any fresh or dried fish or shellfish?	1	2
h. Any foods made from beans, peas, lentils, or nuts?	1	2
i. Any cheese, yoghurt, milk or other milk products?	1	2
j. Any foods made with oil, fat, or butter?	1	2
k. Any sugar or honey?	1	2
l. Any other foods, such as condiments, coffee, tea?	1	2





**MONTHS OF ADEQUATE HOUSEHOLD PROVISIONING (MAHP)**

**16** Now I would like to ask you about your household’s food supply during different months of the year. When responding to these questions please think back over the last 12 months.

(a) In the past 12 months, were there months in which you did not have enough food to meet your family’s needs? <i>(READ the question and circle the appropriate answer)</i>	Yes	1	
	No	2	
	(If NO, skip to <b>Section E: RURAL-URBAN LINKS AND FOOD TRANSFERS</b> . If YES, continue with Q 16b)		
(b) If yes, which were the months (in the past 12 months) in which you did not have enough food to meet your family’s needs?  <i>(Do not read the list of months. Working backward from the current month: Circle the one (‘Yes’ column) if the respondent identifies that month as one in which the household did not have enough food to meet their needs. Circle the two (‘No’ column) if the respondent identifies that month as one in which the household did have enough food to meet their needs)</i>	Months in which household did not have enough food to meet needs	Yes	No
	a. January	1	2
	b. February	1	2
	c. March	1	2
	d. April	1	2
	e. May	1	2
	f. June	1	2
	g. July	1	2
	h. August	1	2
	i. September	1	2
	j. October	1	2
	k. November	1	2
l. December	1	2	

**EXPERIENCE OF FOOD PRICE CHANGES**

17	<p><b>Now I would like to ask you about your household's experience of food prices over the past six months. Over the past six months, have you or your household gone without certain types of food because of the price of food (it is unaffordable)?</b></p> <p><i>(Circle the appropriate answer)</i>  <i>(If NEVER OR DON'T KNOW, skip to SECTION E: RURAL-URBAN LINKS AND FOOD TRANSFERS. If YES, continue with Q 16)</i></p>	<b>Frequency of going without food</b>	<b>Code</b>
		Never	1
		About once a month	2
		About once a week	3
		More than once a week but less than every day of the week	4
		Every day	5
		Don't know	9

18	<p><b>You have said that over the past six months, you or your household have gone without food because of the increase in the price of food items. Which types of foods have you gone without?</b></p> <p><i>(Read the list of foods. Circle 'Yes' in the box if anyone in the household ate the food in question. Circle 'No' if no one in the household ate the food).</i></p>		
	<b>Types of food</b>	Yes	No
	a. Any bread, rice noodles, biscuits or any other foods made from millet, sorghum, maize, rice, wheat, or [INSERT ANY OTHER LOCALLY AVAILABLE GRAIN]?	1	2
	b. Any potatoes, sweet potatoes, yams, cassava or any other foods made from roots or tubers?	1	2
	c. Any vegetables?	1	2
	d. Any fruits?	1	2
	e. Any beef, pork, lamb, goat, rabbit, wild game, chicken, duck, other birds, liver, kidney, heart, or other organ meats?	1	2
	f. Any eggs?	1	2
	g. Any fresh or dried fish or shellfish?	1	2
	h. Any foods made from beans, peas, lentils, or nuts?	1	2
	i. Any cheese, yoghurt, milk or other milk products?	1	2
	j. Any foods made with oil, fat, or butter?	1	2
	k. Any sugar or honey?	1	2
l. Any other foods, such as condiments, coffee, tea?	1	2	

19	<p><b>Besides the increase in food price, what other problems (by order of importance) prevented you in the past six months from having enough food to meet your family's needs?</b></p> <p><i>(Do not read options, write number in front of the identified cause by order of importance (1=highest). Probe: Did you experience any other problem?)</i></p>	<b>Problem</b>	<b>Rank</b>
		a. Insecurity/violence	
		b. Death of a working household member	
		c. Death of the head of the household	
		d. Death of other household member	
		e. Serious illness of household member	
		f. Accident of household member	
		g. Loss/ reduced employment for a household member	
		h. Reduced income of a household member	
		i. Relocation of the family	
		j. Reduced or cut-off of remittances from relatives	
		k. Taking in orphans of deceased parent(s)	
		l. Health risks/ epidemics (e.g. cholera)	
		m. Drought, fire and/or other environmental hazards	
		n. Increased cost of water	
		o. End of a social grant	
		p. End of food aid	
		q. Theft	
		r. Political problems/issues	
s. Other (please specify)			
t. None			
u. Don't know	99		

20	<b>a) Where does this household normally obtain its food?</b> <i>(Read the list of food sources. Circle 'Food Code' in the box if anyone in the household answers yes to the food source)</i>							
	<b>b) How often does the household normally obtain its food from these sources?</b> <i>(Probe for frequency that food is obtained from the source as given by respondent (a - k) and circle the appropriate number on the scale)</i>							
	Source of food	(a) Food Code	(b) Frequency Food Obtained from this Source					
			At least five days a week	At least once a week	At least once a month	At least once in six months	Less than once a year	Never
	a. Supermarket	1	1	2	3	4	5	6
	b. Small shop	2	1	2	3	4	5	6
	c. Informal market	3	1	2	3	4	5	6
	d. Grow it ( <i>Specify where</i> )	4	1	2	3	4	5	6
	e. Food aid	5	1	2	3	4	5	6
	f. Remittances (food)	6	1	2	3	4	5	6
	g. Shared meal with neighbours and/or other households	7	1	2	3	4	5	6
	h. Food provided by neighbours and/or other households	8	1	2	3	4	5	6
	i. Community food kitchen	9	1	2	3	4	5	6
j. Borrow food from others	10	1	2	3	4	5	6	
k. Other (specify):	11	1	2	3	4	5	6	
l. Don't know	99							
21	<b>In the last week, where did members of this household obtain their food?</b> <i>(Read the list of food sources. Circle 'Yes' in the box if anyone in the household answers yes to the food source on the list.). (Circle 'No' if no one in the household obtains food from the source being read out on the list.)</i>							
	Source of food						Yes	No
	a. Supermarket						1	2
	b. Small shop						1	2
	c. Informal market						1	2
	d. Grow it ( <i>Specify, where</i> ) See example bottom of this page						1	2
	e. Food aid						1	2
	f. Remittances (food)						1	2
	g. Shared meal with neighbours and/or other households						1	2
	h. Food provided by neighbours and/or other households						1	2
	i. Community food kitchen						1	2
	j. Borrow food from others						1	2
	k. Other (specify):						1	2
l. Don't know						9	9	

**Example: Grow it:** (Specify, where) – 1. Backyard garden (BG), 2. Distant field in Urban (FU) (Malkerns), 3. Rural home (RH) (Mankayane)

**SECTION E: RURAL – URBAN LINKS AND FOOD TRANSFERS**

22	<b>Do you have a home or relatives in the rural and/or urban areas?</b>			
		Yes	No	Don't know
	Rural	1	2	9
	Urban	1	2	9

23	<b>Did you sometimes get food from your relatives in the rural and/or urban areas in the past two years?</b>			
		Yes	No	Don't know
	Rural	1	2	9
	Urban	1	2	9

**24 (a) What kind of food did people in the household received from the rural and/or urban areas in the past 2 years?**  
*(Circle 'Food Code' in the box if anyone in the household answers yes to the food source on the list. Probe for traditional foods).*

**(b) How often was the food received? (c) Quantities of food received (kg)**  
*(Probe for frequency that food is received from the source as given by respondent (a-k) and circle the appropriate number on the scale)*

Types of food	(a) Source of Food		(b) Frequency of Food Received				Quantity (kg)
	Location	Food Code	At least once a week	At least once every 2 months	3-6 times a year	At least once a year	
a. Maize, sorghum (any grain)	Rural	1	1	2	3	4	
	Urban	2	1	2	3	4	
b. Any potatoes, Sweet potatoes etc	Rural	3	1	2	3	4	
	Urban	4	1	2	3	4	
c. Any vegetables?	Rural	5	1	2	3	4	
	Urban	6	1	2	3	4	
d. Any fruits?	Rural	7	1	2	3	4	
	Urban	8	1	2	3	4	
e. Any meat	Rural	9	1	2	3	4	
	Urban	10	1	2	3	4	

f. Any eggs?	Rural	11	1	2	3	4	
	Urban	12	1	2	3	4	
g. Any fresh or dried fish or shellfish?	Rural	13	1	2	3	4	
	Urban	14	1	2	3	4	
h. Any beans, peas, jugo beans, nuts?	Rural	15	1	2	3	4	
	Urban	16	1	2	3	4	
i. Any cheese, yoghurt, milk or other milk products?	Rural	17	1	2	3	4	
	Urban	18	1	2	3	4	
25	<b>Do you still get food from relatives in the rural and/or urban areas this year?</b>						
	<i>(If no-one visit the rural areas, skip question 29)</i>			Yes	No	Don't know	
	Rural			1	2	9	
	Urban			1	2	9	
26	<b>If No, why have you stopped getting the food? Please give reason(s)</b>						
27	<b>If you still get food from the rural and/or urban areas,</b>						
	<p>(a) Has the type of food received: 1. Still the same <input type="checkbox"/> 2. Changed <input type="checkbox"/> (tick)</p> <p>(b) Has the amount of food received: 1. Still the same <input type="checkbox"/> 2. Increased <input type="checkbox"/> 3. Decreased <input type="checkbox"/></p>						
<p><b>28 (a) What kind of food do people in the household receive now from the rural and/or urban areas?</b>  <i>(Circle 'Food Code' in the box if anyone in the household answers yes to the food source on the list. Probe for traditional foods).</i></p> <p><b>(b) How often is the food received? (c) Quantities of food received (kg)</b>  <i>Probe for frequency that food is received from the source as given by respondent (a-k) and circle the appropriate number on the scale)</i></p>							
Types of food	<b>a) Source of Food</b>		<b>(b) Frequency of Food Received</b>				
	<b>Location</b>	<b>Food Code</b>	<b>At least once a week</b>	<b>At least once every 2 months</b>	<b>3-6 times a year</b>	<b>At least once a year</b>	<b>Quantity (kg)</b>
a. Maize, sorghum (any grain)	Rural	1	1	2	3	4	
	Urban	2	1	2	3	4	

b. Any potatoes, Sweet potatoes etc	Rural	3	1	2	3	4	
	Urban	4	1	2	3	4	
c. Any vegetables?	Rural	5	1	2	3	4	
	Urban	6	1	2	3	4	
d. Any fruits?	Rural	7	1	2	3	4	
	Urban	8	1	2	3	4	
e. Any meat	Rural	9	1	2	3	4	
	Urban	10	1	2	3	4	
f. Any eggs?	Rural	11	1	2	3	4	
	Urban	12	1	2	3	4	
g. Any fresh or dried fish or shellfish?	Rural	13	1	2	3	4	
	Urban	14	1	2	3	4	
h. Any beans, peas, jugo beans, nuts?	Rural	15	1	2	3	4	
	Urban	16	1	2	3	4	
i. Any cheese, yoghurt, milk or other milk products?	Rural	17	1	2	3	4	
	Urban	18	1	2	3	4	
<b>(d) What do you think has caused the changes in type and amount of food received from the rural areas. Please give reason(s)</b>							
<b>29 Did you sometimes send food to your relatives in the rural and/or urban areas in the past two years?</b>							
				Yes	No	Don't know	
Rural				1	2	9	
Urban				1	2	9	

**30 (a) What kind of food did people in the household sent to the rural and/or urban areas?**

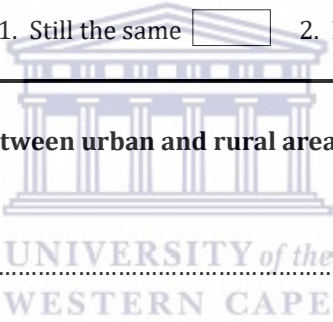
*(Circle 'Food Code' in the box if anyone in the household answers yes to the food source on the list. Probe for traditional foods).*

**(b) How often is the food sent? (c) Quantities of food sent (kg)**

*(Probe for frequency that food is received from the source as given by respondent (a-k) and circle the appropriate number on the scale)*

Types of food	(a) Source of Food		(b) Frequency of Food Received				Quantity (kg)
	Location	Food Code	At least once a week	At least once every 2 months	3-6 times a year	At least once a year	
a. Maize, sorghum (any grain)	Rural	1	1	2	3	4	
	Urban	2	1	2	3	4	
b. Any potatoes, Sweet potatoes etc	Rural	3	1	2	3	4	
	Urban	4	1	2	3	4	
c. Any vegetables?	Rural	5	1	2	3	4	
	Urban	6	1	2	3	4	
d. Any fruits?	Rural	7	1	2	3	4	
	Urban	8	1	2	3	4	
e. Any meat	Rural	9	1	2	3	4	
	Urban	10	1	2	3	4	
f. Any eggs?	Rural	11	1	2	3	4	
	Urban	12	1	2	3	4	
g. Any fresh or dried fish or shellfish?	Rural	13	1	2	3	4	
	Urban	14	1	2	3	4	
h. Any beans, peas, jugo beans, nuts?	Rural	15	1	2	3	4	
	Urban	16	1	2	3	4	
i. Any cheese, yoghurt, milk or other milk products?	Rural	17	1	2	3	4	
	Urban	18	1	2	3	4	



<b>(d) What do you think has caused the changes in type and amount of food sent to the rural areas? Please give reason(s)</b>													
<b>31 Do you still send the food to your relatives in the rural and/or urban area even this year?</b>													
<i>(If no-one visit the rural areas, skip question to Q.34)</i>	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 15%; text-align: center;">Yes</td> <td style="width: 15%; text-align: center;">No</td> <td style="width: 10%; text-align: center;">Don't know</td> </tr> <tr> <td style="text-align: center;">Rural</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">9</td> </tr> <tr> <td style="text-align: center;">Urban</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">9</td> </tr> </table>		Yes	No	Don't know	Rural	1	2	9	Urban	1	2	9
	Yes	No	Don't know										
Rural	1	2	9										
Urban	1	2	9										
<b>32 If No, why have you stopped sending the food? Please give reason(s)</b>													
<b>33 If you still sending food to relatives in rural areas,</b>													
<b>(a) Has the type of food sent:</b> 1. Still the same <input type="checkbox"/> 2. Changed <input type="checkbox"/> (tick)													
<b>(b) Has the amount of food sent:</b> 1. Still the same <input type="checkbox"/> 2. Increased <input type="checkbox"/> 3. Decreased <input type="checkbox"/>													
<b>34 Has drought affected food flows between urban and rural areas?</b>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>												
<b>35 Why .....</b>													
<b>36 If Yes how has drought affected food flows between rural and urban areas?</b>													
1. Less food from rural areas <input type="checkbox"/>													
2. Less trips to rural areas to get food <input type="checkbox"/>													
3. Less food sent to extended family & friends to rural areas <input type="checkbox"/>													
4. More food sent to extended family & friends to rural areas <input type="checkbox"/>													
5. Other (specify).....													

**37 (a) What kind of food do people in the household send now to the rural and/or urban areas?**

*(Circle 'Food Code' in the box if anyone in the household answers yes to the food source on the list. Probe for traditional foods).*

**(b) How often is the food sent? (c) Quantities of food sent (kg)**

*(Probe for frequency that food is received from the source as given by respondent (a-k) and circle the appropriate number on the scale)*

Types of food	(a) Source of Food		(b) Frequency of Food Received				
	Location	Food Code	At least once a week	At least once every 2 months	3-6 times a year	At least once a year	Quantity (kg)
a. Maize, sorghum (any grain)	Rural	1	1	2	3	4	
	Urban	2	1	2	3	4	
b. Any potatoes, Sweet potatoes etc	Rural	3	1	2	3	4	
	Urban	4	1	2	3	4	
c. Any vegetables?	Rural	5	1	2	3	4	
	Urban	6	1	2	3	4	
d. Any fruits?	Rural	7	1	2	3	4	
	Urban	8	1	2	3	4	
e. Any meat	Rural	9	1	2	3	4	
	Urban	10	1	2	3	4	
f. Any eggs?	Rural	11	1	2	3	4	
	Urban	12	1	2	3	4	
g. Any fresh or dried fish or shellfish?	Rural	13	1	2	3	4	
	Urban	14	1	2	3	4	
h. Any beans, peas, juko beans, nuts?	Rural	15	1	2	3	4	
	Urban	16	1	2	3	4	
i. Any cheese, yoghurt, milk or other milk products?	Rural	17	1	2	3	4	
	Urban	18	1	2	3	4	
<b>(d) What do you think has caused the changes in type and amount of food sent to the rural areas. Please give reason(s)</b>							

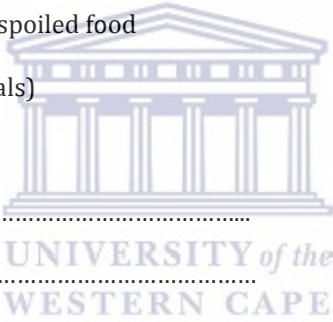
**SECTION F: URBAN AGRICULTURE**

<b>38</b>	<b>Do you practice agriculture in this household?</b> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
<b>39</b>	<b>When did you start practicing urban agriculture in this household?</b> 2016 <input type="checkbox"/> 2015 <input type="checkbox"/> 2014 <input type="checkbox"/> 2013 <input type="checkbox"/> 2012 <input type="checkbox"/> More than 5 years ago <input type="checkbox"/>
<b>40</b>	<b>Which crops are you growing?</b> ..... .....
<b>41</b>	<b>If you were practicing urban agriculture before, which crops were you growing</b> ..... .....
<b>42</b>	<b>What are the reasons for engaging in agriculture? Please indicate (in order of priority)</b> 1. High food prices/food unaffordable <input type="checkbox"/> 2. Food scarcity <input type="checkbox"/> 3. Lack of food variety <input type="checkbox"/> 4. Lack of income to buy food <input type="checkbox"/> 5. Other (specify)..... <input type="checkbox"/>
<b>43</b>	<b>Do you think there is any role played by drought in your decision to practice agriculture?</b> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
<b>44</b>	<b>If yes, in what way has drought made you decide to engage in agriculture? Please indicate (in order of priority)</b> 1. Droughts has resulted in high food prices/food unaffordable <input type="checkbox"/> 2. Droughts has caused food to be scarce <input type="checkbox"/> 3. Drought has resulted to lack of food variety <input type="checkbox"/> 4. Droughts has resulted in loss of on-farm income <input type="checkbox"/> 5. Droughts has reduced yields in rural areas and no food from rural areas <input type="checkbox"/> 6. There is reduced quantities of food from rural areas due to droughts <input type="checkbox"/> 7. Other (specify)..... <input type="checkbox"/>
<b>45</b>	<b>How can you rate the importance of urban agriculture in your household?</b> 1. Very important <input type="checkbox"/> 2. Important <input type="checkbox"/> 3. Not important <input type="checkbox"/>

46	<p><b>Can you say urban agriculture has improved food availability in your household?</b></p> <p>1. Very much so <input type="checkbox"/>      2. Somehow <input type="checkbox"/>      3. Not at all <input type="checkbox"/></p>
47	<p><b>Can you say urban agriculture has helped you to have different food variety and to eat nutritious food than it would be if you didn't practice it?</b></p> <p>1. Very much so <input type="checkbox"/>      2. Somehow <input type="checkbox"/>      3. Not at all <input type="checkbox"/></p>
48	<p><b>Can you say urban agriculture has ensured that you always have food in this household?</b></p> <p>1. Very much so <input type="checkbox"/>      2. Somehow <input type="checkbox"/>      3. Not at all <input type="checkbox"/></p>
49	<p><b>Can you say that urban agriculture has helped to provide income for your family to buy preferred food?</b></p> <p>1. Very much so <input type="checkbox"/>      2. Somehow <input type="checkbox"/>      3. Not at all <input type="checkbox"/></p>
50	<p><b>Can you say that urban agriculture has helped minimize drought induced food shortage in your household?</b></p> <p>1. Very much so <input type="checkbox"/>      2. Somehow <input type="checkbox"/>      3. Not at all <input type="checkbox"/></p>
51	<p><b>Are there any problems faced in the practice of urban agriculture?</b>      1. Yes <input type="checkbox"/>      2. No <input type="checkbox"/></p>
52	<p><b>Explain problem faced.....</b></p> <p>.....</p> <p>.....</p>
53	<p><b>What do you do to solve the problem(s).....</b></p> <p>.....</p> <p>.....</p>





63	<p><b>How did droughts affect the amount of food you have in this household? Please indicate effects (<i>in order of priority</i>).</b></p> <ol style="list-style-type: none"> <li>1. Decreased yields <input type="checkbox"/></li> <li>2. Shorter shelf life <input type="checkbox"/></li> <li>3. Increase need for food aid <input type="checkbox"/></li> <li>4. Decrease in agricultural based income <input type="checkbox"/></li> <li>5. Instability of food supply <input type="checkbox"/></li> <li>6. Others (specify)..... <input type="checkbox"/></li> </ol>
64	<p><b>How did droughts affect the way in which food is used (utilized) in this household? Indicate (<i>in order of priority</i>)</b></p> <ol style="list-style-type: none"> <li>1. Diet adjustment (less varied and less nutritious diet) <input type="checkbox"/></li> <li>2. Change in food types ate <input type="checkbox"/></li> <li>3. Need to eat food with shorter shelf life sooner <input type="checkbox"/></li> <li>4. Risk of ill health from eating spoiled food <input type="checkbox"/></li> <li>5. Food rationing (skipping meals) <input type="checkbox"/></li> <li>6. Less cooked food required <input type="checkbox"/></li> <li>7. Others (specify)..... <input type="checkbox"/></li> <li>8. None of the above..... <input type="checkbox"/></li> </ol> <div style="text-align: center;">  <p>UNIVERSITY of the WESTERN CAPE</p> </div>

**Thank you very much for spending this time talking with me. The information you have provided is very valuable and I appreciate you sharing it with me. Just to reiterate, as I have not recorded your family name or address, no one can link what you have said to you or this household, so your confidentiality is totally guaranteed.**

Goodbye.

## Appendix C: Focus Group Discussion Guide – KaKhoza residents



Dear Participants

My name is Siphon Mamba. I am a PhD student in the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape, South Africa. I am conducting an academic research on drought, urban food security and resilience of urban households in Manzini and your area has been selected as a case study area. The information will be used only for my doctoral thesis. I also intend to publish all or part of my findings from this study, which may include information that you would have kindly provided. You have been selected to participate, on the basis of being the local authorities for KaKhoza and Moneni, the selected study sites. The general purpose of this interview is to collect data on urban food security, particularly issues surrounding the effects of droughts on food access, food transfers and levels of food insecurity at both household and community level. Your opinions and experiences gained in working with your communities are important in helping me to understand how people in Manzini generally, and in kaKhoza and Moneni in particular, live with and cope with a variety of food security issues. I hope that you will participate in this survey as your views are important to my research. The interview will take about 40-60 minutes.

Are you willing to participate?

Yes	1
No	2

If No, thank you for your time. Goodbye.

If Yes, do you want me to tape record the interview or write notes as we progress?

Use Tape Recorder	1
Write Notes	2

Do you understand that you have the right to stop this interview any time you want and you can choose not to answer some or all the questions on particular issues that you may not wish to discuss?

Yes	1
No	2

At this time, do you wish to ask me anything or are there issues that you need to be clarified about the survey before we proceed?

Yes	1
No	2

If yes; Question/clarification.....

May I begin the interview now?

Yes	1
No	2

1. I fully understand the purpose of the research.
2. I am participating in this research on my own free volition without force or coercion.
3. I am aware that I have the right to terminate this interview whenever I feel so.

Participant signature.....Date.....



THEMES	FOCUS GROUP DISCUSSION GUIDE WITH WOMEN/MAN IN KAKHOZA & MONENI, MANZINI, SWAZILAND.
<p><b>Section A:</b> <b>Food sources</b></p>	<ul style="list-style-type: none"> <li>• Current &amp; past food sources used in the community.</li> <li>• Reasons for changes in food sources used.</li> <li>• Food quantity (volume) and variety currently compared to past.</li> <li>• Food flows (current directions of flow and past flow) - : rural to urban/urban to rural/urban to urban etc.</li> <li>• Importance of rural-urban links on food flows.</li> <li>• Challenges with regards to food sources and flow</li> <li>• Solutions to the challenges.</li> </ul>
<p><b>Section B:</b> <b>Food Prices</b></p>	<ul style="list-style-type: none"> <li>• Increase in food prices, causes and effects on households and community.</li> <li>• Comparison of current food prices increase with previous food price hikes.</li> <li>• Food sources vs food price increase, any connection?</li> <li>• What are the reasons for the recent increase in food prices?</li> <li>• Food prices increase and effects on food flows.</li> <li>• Food prices and food quantity (volume) and variety.</li> <li>• Solutions to the challenges.</li> </ul>
<p><b>Section C:</b> <b>Drought &amp; its effects</b></p>	<ul style="list-style-type: none"> <li>• Drought and drought experiences &amp; effects on food access.</li> <li>• Drought, food prices and food prices increase.</li> <li>• Drought, food sources, flows and food transfers.</li> <li>• Droughts, food variety and quantity.</li> <li>• Copping strategies: with droughts, food shortages and food prices rise.</li> </ul>
<p><b>Section D:</b> <b>Urban agriculture</b></p>	<ul style="list-style-type: none"> <li>• Understanding of urban agriculture (UA), engagement and crops grown currently and in the past two years.</li> <li>• Reasons for engaging in UA, year it was first practiced, reasons for crop changes.</li> <li>• Role played by UA in household food security and access.</li> <li>• Drought effects on urban agriculture e.g. irrigation water availability.</li> <li>• Urban agriculture and household income.</li> <li>• Problems and challenges of practicing UA.</li> <li>• UA and policy issues.</li> </ul>
<p><b>Section F:</b> <b>Food sources and food transfer</b></p>	<ul style="list-style-type: none"> <li>• Food transfers and direction of flow currently and past two years.</li> <li>• Volume of transfers (currently compared to past two years)</li> <li>• Reasons for change in volume of transfers (if any).</li> <li>• Role of food transfers in household food security.</li> <li>• Droughts and food transfers (flows).</li> </ul>
<p><b>Section G:</b> <b>Food security</b></p>	<ul style="list-style-type: none"> <li>• Economic conditions of most households today compared to the past two years.</li> <li>• Food security situation of most households in the areas.</li> <li>• Importance of food aid and remittances to households in the areas.</li> <li>• Food security issues and challenges in the area &amp; solutions.</li> </ul>

## Appendix D: Interview Schedule for Retailers



Dear Participants

My name is Siphon Felix Mamba. I am a PhD student in the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape, South Africa. I am carrying out an academic research on drought, urban food security and resilience of urban households in Manzini and you have been selected to participate in survey. My intention is to use this information for my doctoral thesis. I also intend to publish all or part of my findings from this study, which may include information that you would have kindly provided. The general purpose of this interview is to collect information on urban food security, particularly issues surrounding the effects of droughts on food access, the contribution of urban agriculture towards food security, food transfers and levels of food insecurity.

Are you willing to participate?

Yes	1
No	2

If No, thank you for your time. Goodbye.

If Yes, do you want me to tape record the interview or write notes as we progress?

Use Tape Recorder	1
Write Notes	2

Do you understand that you have the right to stop this interview any time you want and you can choose not to answer some or all the questions on particular issues that you may not wish to discuss?

Yes	1
No	2

At this time, do you wish to ask me anything, or are there issues that you need to be clarified about the survey before we proceed?

Yes	1
No	2

If yes; Question/clarification.....

May I begin the interview now?

Yes	1
No	2

1. I fully understand the purpose of the research.
2. I am participating in this research on my own free volition without force or coercion.
3. I am aware that I have the right to terminate this interview whenever I may feel so without any prejudice on my part.

Participant signature.....Date.....

THEME	GUIDING INTERVIEW QUESTIONS
<p><b>Section A:</b> <b>Food Sources</b></p>	<ul style="list-style-type: none"> <li>• Where do you currently get food supply for your business? Please tell me all sources: international &amp; local (rural &amp; urban)</li> <li>• Are these the same food sources you have been using the past two years?</li> <li>• How long have you been sourcing food from these food sources?</li> <li>• Among these sources you have mentioned, which source would you say is currently the major/main source of supply for your business?</li> <li>• Has this source been the major/main supply source for your business in the past two years?</li> <li>• In terms of your food sourcing strategies, what are the reasons you have changed food sources/suppliers. Please also give reasons why you have fewer or have added more sources.</li> <li>• What would you say in terms of the volume of food supplies, would you say it has increased, decreased or still the same now compared to two years ago?</li> <li>• Why has the volume of food supply changed? Explain in details.</li> <li>• What effects do these changes (in food sources &amp; volume of supply) have on your business and/or consumers/clients?</li> <li>• What would you say in relation to food sources and food variety available now in your shop compare to two years ago? Would you say you have more or less food variety and why? Please explain in details.</li> <li>• In what ways have the changes in food supply source affected food flows in your business?</li> <li>• What other food procurement challenges do you have in your business? Please be more elaborate on this.</li> <li>• How has your clients been affected by these changes?</li> <li>• What can you say about competition and demand for food? Would you say the competition and demand for food has increased today than it was two years ago? What causes this?</li> </ul>
<p><b>Section B:</b> <b>Food Prices</b></p>	<ul style="list-style-type: none"> <li>• Is there any increase in food prices that you have observed?</li> <li>• Compared to the price hike experienced in the past years, would you say this most recent price increase is normal or abnormal? Please explain giving specific examples why you say so.</li> <li>• What are the reasons for the recent increase in food prices?</li> <li>• Do you think the changes in food sources may have played a major role in the increase in food prices? Please explain why you think so, giving examples to support your argument.</li> <li>• What are the challenges you are facing as a result of the increase in food price?</li> <li>• How has the increase in food prices affected food flow, volume of food purchased and variety of food purchased?</li> </ul>
<p><b>Section C:</b> <b>Drought &amp; its effects</b></p>	<ul style="list-style-type: none"> <li>• Have you noted that there is currently a drought going on in Swaziland?</li> <li>• Do you think as business owners selling food items you are affected by this drought? Explain how you are affected.</li> <li>• Do you think this drought has played a role in the recent price increase experience in the country? Please explain how drought influenced food prices</li> <li>• Do you think the recent drought has affected you in terms of where you source your food from? Please provide detailed explanations and examples how this has happened?</li> <li>• Do has drought affected your food sourcing strategies? How has that happened?</li> <li>• How has drought affected food flow, food variety and volume purchased?</li> <li>• How do you think your clients are affected by droughts?</li> </ul>
<p><b>Section D:</b> <b>Resilience, coping mechanism</b></p>	<ul style="list-style-type: none"> <li>• What strategies are you using as business owner to deal with the effects of drought in relation to food issues? Elaborate.</li> <li>• To what extent have these strategies been helpful to your business?</li> <li>• From your point of view, how do consumers deal with this current drought situation in relation to food purchased, food choices and food variety?</li> <li>• How are you affected by this and how do you deal with the effects?</li> </ul>

## Appendix E: Interview Schedule for Marketing & Distribution Manager NAMBOARD



Dear Participants

My name is Sipho Felix Mamba. I am a PhD student in the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape, South Africa. I am carrying out an academic research on drought, urban food security and resilience of urban households in Manzini and you have been selected to participate in this survey. My intention is to use this information for my doctoral thesis. I also intend to publish all or part of my findings from this study, which may include information that you would have kindly provided. The general purpose of this interview is to collect information on urban food security, particularly issues surrounding the effects of droughts on food access, the contribution of urban agriculture towards food security, food transfers and levels of food insecurity. Your opinion is important in helping me to understand how people in Manzini generally, and in kaKhoza in particular, live with and cope with a variety of food security issues. I hope that you will participate in this survey as your views are important to my research. The interview will take about 40-60 minutes.

Are you willing to participate?

Yes	1
No	2

If No, Thank you for your time. Goodbye.

If Yes, do you want me to tape record the interview or write notes as we progress?

Use Tape Recorder	1
Write Notes	2

Do you understand that you have the right to stop this interview any time you want and you can choose not to answer some or all the questions on particular issues that you may not wish to discuss?

Yes	1
No	2

At this time, do you wish to ask me anything or are there issues that you need to be clarified about the survey before we proceed?

Yes	1
No	2

If yes; Question/clarification.....

May I begin the interview now?

Yes	1
No	2

1. I fully understand the purpose of the research.
2. I am participating in this research on my own free volition without force or coercion.
3. I am aware that I have the right to terminate this interview whenever I may feel so without any prejudice on my part.

Participant signature.....Date.....

THEME	GUIDING INTERVIEW QUESTIONS
<p><b>Section A:</b> <b>Food Sources</b></p>	<ul style="list-style-type: none"> <li>• Where do you currently get the vegetables (and any other foodstuffs) you stock and distribute? Please tell me all sources: international &amp; local (rural &amp; urban) and the type of food sourced</li> <li>• Are these the same vegetable sources you have been using the past two years?</li> <li>• For how long have you been sourcing vegetables from these sources you are using?</li> <li>• Among these sources you have mentioned, which source would you say is currently the major/main source of supply for your business?</li> <li>• Has this source been the major/main supply source for your business in the past two years?</li> <li>• What can you say about the internal (local) sources and the quantity of vegetables sourced from these areas? Would you say it has increased, decreased or stayed the same compared to the past two years?</li> <li>• What do you think has caused the changes and how does this affect you and consumers?</li> <li>• In terms of your food sourcing strategies, what are the reasons you have changed sources where you get vegetables? Please also give reasons why you have fewer or have added more sources.</li> <li>• What can you say about the volume or quantity of vegetables stock (and other foodstuffs)? Available? Would you say we have more vegetables available this year compared to the past two years, less vegetables or same quantity?</li> <li>• Why has the volume (of vegetables &amp; other food stuffs) stocked changed? Explain.</li> <li>• What effects do these changes (in food sources &amp; volume of supply) have on consumers/clients?</li> <li>• In what ways have the changes in vegetable supply source affected vegetable flows in your business?</li> <li>• What other vegetable procurement challenges do you have in your business? Please be more elaborate on this.</li> <li>• What can you say about competition and demand for vegetables? Would you say the competition and demand for vegetables has gone up this year than it was two years ago? What caused this?</li> </ul>
<p><b>Section B:</b> <b>Food Prices</b></p>	<ul style="list-style-type: none"> <li>• Is there any increase in vegetable prices that you have observed? Briefly explain about the changes that have taken place.</li> <li>• Compared to the vegetable price hike experienced in the past years, would you say this most recent price increase is normal or abnormal? Please explain giving specific examples why you say so.</li> <li>• What are the reasons for the recent increase in vegetable prices?</li> <li>• Do you think the changes in vegetable sources may have contributed to the increase in vegetable prices? Please explain why you think so, giving examples to support your argument.</li> <li>• What challenges are you facing due to the increase in vegetable price?</li> <li>• How has the increase in vegetable prices affected flow of supply and volume of vegetable stock?</li> </ul>

<p><b>Section C:</b></p> <p><b>Drought &amp; its effects</b></p>	<ul style="list-style-type: none"> <li>• Have you noted that there is currently a drought going on in Swaziland?</li> <li>• Do you think in your business you have been affected by this drought? Explain how you are affected.</li> <li>• Do you think the current drought has contributed to the recent vegetable price increase experience in the country? Please explain how this has happened, and if previous droughts have actually contributed to increase in vegetable price.</li> <li>• Do you think the recent drought has affected you in terms of where you source vegetables from? Please provide detailed explanations and examples how this has happened?</li> <li>• How has drought affected vegetable flow and the quantity of vegetable stock?</li> <li>• Would you say your clients have also been affected by droughts? Why do you think so and how are they affected?</li> </ul>
<p><b>Section D:</b></p> <p><b>Resilience, coping mechanism</b></p>	<ul style="list-style-type: none"> <li>• What strategies are you using in your business to deal with the effects of drought in relation to vegetable availability and distribution? Explain.</li> <li>• From your point of view, how do consumers deal with this current drought situation in relation to vegetable purchased?</li> <li>• How are you affected by this and how do you deal with the effects?</li> </ul>



## Appendix F: Interview Schedule for Marketing & Distribution Manager - NMC



Dear Participants

My name is Siphon Felix Mamba. I am a PhD student in the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape, South Africa. I am carrying out an academic research on drought, urban food security and resilience of urban households in Manzini and your organization has been selected to participate in this research on the bases that it is the only organization authorized to purchase maize locally, import, stock and distribute maize in the country and is thus well placed to give an overview of the effects of drought on food, particularly Maize, the staple food. My intention is to use this information for my doctoral thesis. I also intend to publish all or part of my findings from this study, which may include information that you would have kindly provided. The general purpose of this interview is to collect information on issues surrounding the effects of droughts on food access, food transfers and food insecurity.

Are you willing to participate?

Yes	1
No	2

If No, Thank you for your time. Goodbye.

If Yes, do you want me to tape record the interview or write notes as we progress?

Use Tape Recorder	1
Write Notes	2

Do you understand that you have the right to stop this interview any time you want and you can choose not to answer some or all the questions on particular issues that you may not wish to discuss?

Yes	1
No	2

At this time, do you wish to ask me anything or are there issues that you need to be clarified about the survey before we proceed?

Yes	1
No	2

If yes; Question/clarification.-----

May I begin the interview now?

Yes	1
No	2

1. I fully understand the purpose of the research.
2. I am participating in this research on my own free volition without force or coercion.
3. I am aware that I have the right to terminate this interview whenever I may feel so without any prejudice on my part.

Participant signature.....Date.....

THEME	GUIDING INTERVIEW QUESTIONS
<p><b>Section A:</b> <b>Food Sources</b></p>	<ul style="list-style-type: none"> <li>• Where do you currently get the Maize (and any other foodstuffs) you stock and distribute? Please tell me all sources: international &amp; local (rural &amp; urban) and the type of food sourced</li> <li>• Are these the same Maize sources you have been using the past two years?</li> <li>• For how long have you been sourcing Maize from these sources you are using?</li> <li>• Among these sources you have mentioned, which source would you say is currently the major/main source of supply for your business?</li> <li>• Has this source been the major/main supply source for your business in the past two years?</li> <li>• What can you say about the internal (local) sources and the quantity of Maize sourced from these areas? Would you say it has increased, decreased or stayed the same compared to the past two years?</li> <li>• What do you think has caused the changes and how does this affect you and consumers?</li> <li>• In terms of your food sourcing strategies, what are the reasons you have changed sources where you get maize? Please also give reasons why you have fewer or have added more sources.</li> <li>• What can you say about the volume or quantity of Maize stock (and other foodstuffs)? Available? Would you say we have more maize available this year compared to the past two years, less maize or same quantity?</li> <li>• Why has the volume (of Maize &amp; other food stuffs) stocked changed? Explain.</li> <li>• What effects do these changes (in food sources &amp; volume of supply) have on consumers/clients?</li> <li>• In what ways have the changes in maize supply source affected maize flows in your business?</li> <li>• What other Maize procurement challenges do you have in your business? Please be more elaborate on this.</li> <li>• What can you say about competition and demand for Maize? Would you say the competition and demand for maize has gone up this year than it was two years ago? What caused this?</li> </ul>
<p><b>Section B:</b> <b>Food Prices</b></p>	<ul style="list-style-type: none"> <li>• Is there any increase in Maize prices that you have observed? Briefly explain about the changes that have taken place.</li> <li>• Compared to the maize price hike experienced in the past years, would you say this most recent price increase is normal or abnormal? Please explain giving specific examples why you say so.</li> <li>• What are the reasons for the recent increase in maize prices?</li> <li>• Do you think the changes in maize sources may have contributed to the increase in maize prices? Please explain why you think so, giving examples to support your argument.</li> <li>• What challenges you are facing as a result of the increase in maize price?</li> <li>• How has the increase in maize prices affected flow of supply and volume of maize stock?</li> </ul>



<p><b>Section C:</b></p> <p><b>Drought &amp; its effects</b></p>	<ul style="list-style-type: none"> <li>• Have you noted that there is currently a drought going on in Swaziland?</li> <li>• Do you think in your business you have been affected by this drought? Explain how you are affected.</li> <li>• Do you think the current drought has contributed to the recent maize price increase experience in the country? Please explain how this has happened, and if previous droughts have actually contributed to increase in maize price.</li> <li>• Do you think the recent drought has affected you in terms of where you source maize from? Please provide detailed explanations and examples how this has happened?</li> <li>• How has drought affected maize flow and the quantity of maize stock?</li> <li>• Would you say your clients have also been affected by droughts? Why do you think so and how are they affected?</li> </ul>
<p><b>Section D:</b></p> <p><b>Resilience, coping mechanism</b></p>	<ul style="list-style-type: none"> <li>• What strategies are you using in your business to deal with the effects of drought in relation to maize availability and distribution? Explain.</li> <li>• From your point of view, how do consumers deal with this current drought situation in relation to maize purchased?</li> <li>• How are you affected by this and how do you deal with the effects?</li> </ul>





