PATTERNS OF HOUSEHOLD LEVEL AVAILABILITY, ACCESSIBILITY AND UTILISATION OF FOOD IN SOME RURAL AREAS OF SEKHUKHUNE DISTRICT IN SOUTH AFRICA

by

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DECLARATION

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

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To my late father, *Mr Kgasago Sekokotla Raphesu* and my late mother, *Raesetja,* who both throughout their lives helped people appreciate their innate potential to improve their livelihood

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ABSTRACT

Sekhukhune district is considered as one of the district that is food insecure, and one of the poorest districts in the country. However, few studies have attempted to study issues of food insecurity looking specifically into poverty, livelihoods and asserts portfolio overlooking issues related to food availability, accessibility, utilisation and coping strategies/ stability in this district The purpose of the study was to identify and assess the factors that determine food insecurity of the rural households along with their coping strategies which they use to avert food insecurity. The objectives of this study was to identify and describe the factors that affect the level of food insecurity among the rural households; to document the current coping strategies in instances of food insecurity, and develop a framework that could be used for intervention programmes. The study was conducted in 21 villages in three municipalities of Sekhukhune District (Makhuduthamaga, Elias Motswaledi and Ephraim Mogale municipalities). A total of 602 respondents were involved in the quantitative study. Furthermore, qualitative data was collected by conducting 8 focus group inter*views* and discussions with 70 women living in 4 villages (Elandskraal, Mmatilu, Mogaladi and Letebejane) in the study area. A cross-sectional descriptive survey design that applied both quantitative (structured questionnaire) and qualitative (focus groups using open-ended set of questions and a check list) method of data collection and analyses was used. Food insecurity was measured using a composite index (HFIAS) that assessed the extent of hunger each household experienced. Binary logistic and stepwise backward elimination regression procedures were performed.

Results obtained from the study showed that 104 of the 602 households in the study (17%) had adequate food security at home, while 498 of the 602 respondents (83%) had inadequate food security at home. The predictors of rural household food insecurity in decreasing order of importance as indicated by odd ratios (OR) and P- values were found to be: (a) not having enough food for children (OR=26.10); P=0.001], (b) inability to eat desired

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food due to shortage of food (OR=5.80; P=0.001], (c) inability to afford food (OR=5.26; P=0.001], (d) excessive dependence on remittance (OR=3.66; P=0.001], (e) having to borrow food or money due to shortage of food [OR=2.96; 95% C.I. = (1.38, 6.35); P=0.005], and (f) having an occupation that is different from that of a farmer/ non- farm occupations [OR=2.49; 95% C.I. = (1.21, 5.16); P=0.014]. . Chronologically, food - insecure households used various coping strategies, namely: (a) relying on normally less preferred and inexpensive food (91%); depending on government grants for purchasing food (81%); reducing the number of meals eaten in a day (71%); borrowing money to buy food or borrowing food (57%); purchasing food on credit from the local shops (57%); limiting food intake to ensure that children got enough of it (50%); relying on handouts from relatives and friends outside the household (46%); skipping meals in a day (28%). In addition to this, results from the focus groups discussions revealed the following coping strategies: taking up piece jobs or temporary employment, moving out of the area (out migration), eating elsewhere or sending children to eat elsewhere, resorting to small business operations, backyard farming and the wheel methods (when members of a social groups known as wheels/ "mabili" buy food and rotate in sharing the food). Based on the findings of this study, a theoretical framework that could be used for household food insecurity intervention programmes was developed.

The present study clearly shows that the majority of residents of the study are food-insecure. To address food insecurity in the study area in a sustainable manner, intervention strategies should be based on some of these coping mechanisms identified in this study. Moreover, relevant agricultural extension programmes that places the households at the centre of the process should be promoted. However, emergency relief and other forms of social protection should be reinforced, specifically targeting the most food insecure households. This could be done based on the predictors identified in the present study. Policies that could enhance income earning capacity of household members and their access to higher education and the promotion of backyard and subsistence farming are advocated. Based on the findings of

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the present study, the author recommends that proposed framework should be tested to establish its suitability in addressing food insecurity in the study area, and adopted or improved upon.

Key words: Food insecurity, coping strategies, South Africa, Odds ratio, predictors, theoretical framework, Sekhukhune District

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired immunodeficiency syndrome
CAADP	Comprehensive Africa Agriculture Development Programme
COGHSTA	Cooperative Governance, Human Settlement and Traditional Affairs
CRDP	Comprehensive Rural Development Programme
CSI	Coping Strategy Index
DBSA	Development Bank of Southern Africa
DOA	Department of Agriculture
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organisation
HFIAS	Household Food Insecurity Access Scale
FIVIMS	Food Insecurity and Vulnerability Modelling System
HSRC	Human Sciences Research Council
HIV	Human immunodeficiency virus
IFRCRCS	International Federation of Red Cross and Red Crescent Societies
IFSS	Integrated Food Security Strategy
IFSNP	Integrated Food Security and Nutrition Programme
MDGs	Millennium Development Goals
NEPAD	New Partnership for Africa`s Development
NFCS	National Food Consumption Survey
NGO`s	Non- Governmental Organizations
RSA	Republic of South Africa
ROC	Receiver Operating Characteristic
S.A.	South Africa
SASSA	South Africa Social Security Agency
Stats S.A.	Statistics South Africa
UN	United Nations
UNDP	United Nations Development Programme
UNISA	University of South Africa
UNICEF	United Nation's Children Fund
WFP	World Food Programme
ZCC	Zion Christian Church

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CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction to the Study

South Africa is an upper middle income country in sub-Saharan Africa which has its food policy located within a wider regional context of the Southern Africa Development Community. According to its Integrated Food Security Strategy (S.A. Department of Agriculture, 2002), the country is considered to be food secure at national level, but with pockets of food insecurity at local level.

The annual report issued by the Limpopo provincial government for the financial year 2011/2012 shows that a lack of food security affects rural households in its five districts, namely Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg (Sakyi, 2012). According to Barrett (2010), and Roos and Ruthven (2011), ensuring food security is the primary duty and responsibility of the state. This issue was reiterated during the 1996 World Food Summit. Food security is commonly conceptualised as resting on four pillars, namely availability, accessibility, utilisation patterns and stability (Barrett, 2010). This study is greatly based on three of the four pillars namely availability, accessibility, utilisation patterns and the coping strategies as a subsystem of stability.

1.2 Background to the Study

The annual report issued by the S.A. Department of Agriculture and Land Affairs (2012) shows that the District of Sekhukhune is one of the districts in South Africa in which rural households are constantly affected by adversities such as flood, prolonged draught and food insecurity. This finding has been corroborated by studies conducted by Labadarios, Michize, Steyn, Gericke, Maunder, Davids and Parker (2011), Maponya and Moja (2012), and the Human Sciences Research Council (2014). According to the millennium development goals adopted by South Africa (Stats S.A., 2010), one of the key goals of the South African government is to reduce the current level of food insecurity in rural households in districts such as Sekhukhune by half by the year 2015. A technical report issued by Statistics South Africa provides details of the resource and logistical requirements needed to fully realise the millennium development goals for South Africa (Stats S.A., 2011).

The present study was conducted against the background of lack of reliable information on the degree to which rural households in Sekhukhune district are affected by food insecurity, lack of information on coping strategies that are used by vulnerable people living in

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Sekhukhune district, and the lack of reliable, complete and up-to-date data on copying strategies employed by the population living in Sekhukhune district.

In view of this, the present study was prompted by the following:

- the lack of accurate, up-to-date and complete data on socioeconomic and demographic factors that impact on food insecurity in rural households in Sekhukhune district
- the need to describe the current level of food insecurity in Sekhukhune district.
- the need to assess the current state of food habits and dietary intake by households in Sekhukhune district, the need to identify and describe key predictors of food insecurity in Sekhukhune district
- the need to describe the coping strategies used by the rural population in Sekhukhune district

The lack of food security in rural populations is a growing concern worldwide. The issue of food insecurity was discussed for the first time during the 1974 World Food Summit. During the World Food Summit held in 1996, member states acknowledged that food security represents "a situation that exists 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" (Abdu-Raheem and Worth, 2011; Alemu, 2010; Abhas and Stanton-Geddes, 2013; Roos and Ruthven, 2011; Abebwa and Ayalneh, 2007). One of the questions facing government, non-governmental organisations and society is what constitutes safe and nutritious food to ensure household food security, especially in rural areas. Understanding safe and nutritious food and its contribution to the well-being of the rural households is a complex process which needs a holistic multidisciplinary approach in research on food availability, accessibility and utilisation patterns (S.A. Department of Agriculture and Land Affairs, 2014).

South Africa as young democracy needs better ways to reduce poverty as one of its major millennium development goals. The Integrated Nutrition Programme as promoted by the South African Department of Health (2014) identifies household food insecurity and poverty as some of the underlying causes of malnutrition in South Africa. Rural households, especially those living within the former homelands (such as Sekhukhune district) are the worst affected by poverty because of their inability to command sufficient resources to satisfy basic needs (South African Social Security Agency, 2014). The Integrated Food Security

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Strategy of South Africa (S.A. Department of Agriculture and Land Affairs, 2002); Altman, Hart and Jacobs (2009) emphasized that at national level the country can be regarded as food secure, but still has regional and households pockets of food insecurity. To understand ways and means of decreasing poverty and ensuring household food security, research needs to be conducted focusing on the rural community's food availability, accessibility and utilisation patterns at household and individual levels (S.A. Department of Social Development, 2014).

Understanding household food insecurity and knowing its consequences are essential and important steps in determining effective policy interventions. The measurements of household food insecurity are essential for planning, targeting, monitoring and evaluations, but existing measures are often inadequate and difficult to do (Budlender, 1993; Roos and Ruthven, 2011). Operational agencies lack method for differentiating households at varying degrees of food insecurity in order to target and evaluate their interventions; therefore there is a sense of urgency underlying the search for better measures (Webb, Coates, Fangillo, Rogers, Swindale and Bilinskey, 2006). According to Webb et al, (2006), the definition adopted by signatories of the World Food Summit of 1996 acknowledged four equally important core concepts to the attainment of food security namely: food availability, accessibility, utilisation patterns and stability. This research study focuses mainly on the three concepts (availability, access and utilisation) as applied to the rural households in Sekhukhune district and the issue of stability in relation to coping strategies of the targeted rural households.

1.3 Rationale of the Study

Poverty and food insecurity in South Africa are the results of several centuries of colonial and apartheid policies, designed specifically to create general conditions unfavourable to the overall well-being of black people, especially in the former homelands (Machete, Reardon and Mead, 1997). With the dawn of the democratic dispensation, the South African government started pursuing agricultural policies that emphasised food self-sufficiency (Fraser, Monde and Van Averbeke, 2003). Although this objective has largely been realised, many people in South Africa still experience food insecurity. Reports issued by Statistics South Africa since 2007 show that the Sekhukhune district is one of the most poverty-stricken districts in South Africa (Stats S.A, 2007, 2010, 2011, 2012, 2013, 2014). Moreover, little is known about the seriousness of food insecurity and poverty in Sekhukhune district. This is mostly due to a lack of up-to-date research findings on food availability, accessibility and utilisation patterns at household level.

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In view of this, there is a need to investigating food availability, accessibility and utilisation patterns of selected rural households in the study area. Furthermore, there is a need to also assess the coping strategies adopted by communities in the study area in event of food insecurity, and how food security projects/programmes implemented by the government and non-governmental organisations contribute to the livelihoods of the residents of the study area, and their overall development.

Food availability, accessibility, utilisation patterns and stability/ coping strategies are very essential components of household food security. However, food security studies in Sekhukhune district are very inclusive on the situation in the area (Ziervogel et al, 2006; Drimie et al, 2009; Maponya and Moja, 2012; Sakyi, 2012). As a result, factors that impact on food availability, accessibility and utilisation patterns are not clearly understood. This is because previous researchers focused on poverty, asset portfolios and food access without focussing on all the four components. It is against this context that the study was conducted.

1.4. Statement of the Research Problem

Sekhukhune district is considered as one of the districts that is food insecure, and one of the poorest district in the country (Maponya and Moja 2012; Altman et al, 2009; Modirwa and Oladele, 2012; Sakyi, 2012). Few studies have attempted to address the problem of food, access in Sekhukhune district (Maponya and Moja, 2012; Sakyi, 2012). Nonetheless, these studies have overlooked issues related to food availability, utilisation and coping strategies/ stability. Furthermore, the few studies that have been conducted in the Sekhukhune have focused on the livelihoods of the rural households, poverty and malnutrition (Ziervogel et al, 2006). Therefore in light of this, there is a need for a study like the present one that investigates food availability, accessibility, utilisation and the stability/ coping strategies of the rural households in event of food insecurity.

1.5 Research Aim

The main aim of the study was to identify and assess the factors that determine food availability, access and utilisation of food and also the copying strategies at household level in the Sekhukhune district of Limpopo province in South Africa.

1.6 Research Objectives

The study has the following specific objectives:

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- identify and describe the factors that affect the level of food security among the rural households in Sekhukhune district.
- investigate food availability and utilisation patterns of the rural households
- investigate the ability to access food among selected rural households in Sekhukhune district
- document the current coping strategies of the rural households in instances of food insecurity.
- investigate the role of the various agricultural projects in the study area in addressing food insecurity
- investigate the external and internal environmental factors which determine food availability, accessibility and utilisation patterns
- develop a framework that could be used for intervention programmes in rural households in Sekhukhune district

1.7.Research Questions

The study attempts to provide answers to the following six key research questions:

- What factors impact on the level of food security among rural households in Sekhukhune district?
- What factors influence food availability among rural households in the study area?
- What are the food utilisation patterns of the rural households?
- What factors determine food access of the rural households in Sekhukhune district?
- What coping strategies are adopted by rural households in Sekhukhune district to alleviate food insecurity?
- What role does the various agricultural projects implemented by government and none governmental organisation play in addressing food insecurity in the study area?
- How do the external and internal environmental factors determine food availability, access and utilisation of the rural household?

1.8 Research Assumptions/Hypotheses of Study

This study is based on the following research hypothesis:

(a) It will be possible to identify the factors that impact on food security in Sekhukhune district.

(b) It will be possible to document the copying strategies adopted by rural households in Sekhukhune to alleviate food insecurity.

(c) It will be possible to describe how selected rural households in Sekhukhune district access food despite the prevailing food insecurity.

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1.9. Limitations of the Study

(a) Due to financial constraints, the study was only conducted in Sekhukhune district and so it is not possible to generalise and apply the results of the present study to other five districts of Limpopo province.

(b) Due to time constraints, and lack of resources, the design of the study was cross-sectional, and not longitudinal. In view of this, the researcher is aware that she might not have been to get in-depth understanding of factors that impact on food security in the study area. To achieve this, it would have necessitated the research to be conducted over a period of several years.

(c) In terms of food access and utilisation the study used a HFIAS (Household Food Insecurity Access Scale), 24 hour food recall and a one month food recall in assessing the various food consumed by the households. It also relied on households responses to their experiences of food access and utilisation problems within the past 30 days (1 month period) prior to the start of the study.

(d) The limitation in this regard is that information obtained could be affected by the memory of the respondents since the time period between their experiences and the survey period could be relatively too long. Therefore, these issues must be taken into consideration when analysing the household food security situation.

(e) There were only a few (16) projects that could be investigated. Furthermore, members of the projects were also not willing to disclose their current financial status for further analysis of whether they were sustainable and contributed to household food security to their members.

The above limitations could be addressed in future by adequately resourced researchers.

1. 10 Expected Outcomes of the Study

The major expected outcomes from the study were as follows:

- The results of this study will be useful to policy-makers in government as well as non-governmental organisations interested in household food security for planning purposes.
- Recommendations would be used as input into the current food security programmes of Sekhukhune district.

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- Recommendations based on the findings from the study would be made available to different stakeholders such as households, extension workers, rural development practitioners, food security specialists, governments and training institutions.
- The findings of the present study will be available for the wider body of researcher in form of a thesis and scientific publication.

1.11 Definition of Key Concepts/Terms

Food: Food is any substance either in solid or liquid form taken by mouth that maintains life and promotes growth.

Food security: Food security is described as the situation where all people, at all times, have physical and economic access to sufficient food to meet their dietary needs and preferences for an active and healthy life (FAO 2003; Kgaphola, 2003).

Food insecurity: Food insecurity exist when the availability of nutritionally adequate and safe food or the ability to acquire acceptable food in a socially acceptable ways are limited or uncertain (Norhasmah, Zalilah and Asnarulkhadi, 2010). This shows that food insecurity describes people who frequently do not get or have enough food to eat, based on the accepted cultural norms or have economic barriers to enough food for an active and healthy lifestyle.

Household: A household is a group of people who are generally bound together by ties, kinship, or joint financial decisions and live together under a single roof or compound. They are normally answerable to one person who is the head and share the same eating arrangement.

Household food security: In the South African context, household food security includes the availability, accessibility and utilisation of food (S.A. National Department of Agriculture and Land Affaires, 2002). Household food security means the ability of the household to acquire food either through direct production, or purchase/ transfer/ exchange, which is adequate in quantity and quality, to fulfil the nutritional needs of all members of the household (Kinabo, 2008)

Food availability: Food availability refers to sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports or donors that are consistently

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available, within reasonable proximity or within their reach (Hoddinott and Yohannes, 2002; Sayed, 2002).

Food accessibility: Food access refers to the individuals having adequate incomes or other resources to purchase or barter to obtain levels of appropriate food needed to maintain consumption of an adequate diet or to attain an acceptable level of nutrition (Hoddinott and Yohannes, 2002; Sayed, 2002).

Food utilisation: Food utilisation is the final use of food by the individuals at household level including processing, selection, preservation, proper food storage conditions, preparation, adequate knowledge of nutrition, and the intake of food/consumption (Kgaphola and Boshoff, 2002; Kgaphola, 2003; Sakyi, 2012).

External environmental factors: external environmental factors refer to the natural and physical, technological, socio-cultural, economic and educational environments, which determine food availability, accessibility and utilisation at community/ village and household level (Kgaphola and Boshoff, 2002; Kgaphola, 2003).

Internal environmental factors: internal environmental are factors such as knowledge about food security, beliefs, attitudes, customs, values and taboos which affect food accessibility and utilisation patterns. (Sims,1982; Kgaphola and Boshoff, 2002; Kgaphola, 2003).

Stability: stability of food and nutrition status is defined in terms of two concepts namely vulnerability and resilience (Sakyl, 2002). Vulnerability is defined as "the likelihood of experiencing future loss of welfare, generally weighted by the magnitude of expected welfare loss" (Sakyi 2012). Vulnerability mean exposure to stresses either expected or unexpected but also involves the sensitivity and resilience of the system to these stresses (Ziervogel et al., 2006). Resilience refers to "the ability to recover from such a welfare loss" (Sakyi, 2012), in this study stability is linked to coping strategies.

1.12 Organisation of the Thesis

The thesis is made up of nine chapters which were structured as follows:

Chapter 1 provides the introduction, the background, the rationale, the general and specific objectives of the study, the statement of the research problem, the research questions, the

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research hypothesis, the limitations of study, definitions and explanations for theoretical concepts that are used in the study and the structure of the dissertation.

Chapter 2 provides an in-depth review of the literature on food security. The review consists of both local and international publications. The review included topics such as factors that are known to affect food security, key concepts such as the right to food, food security, food availability, food accessibility, food utilisation, stability, household food security, food security, and coping strategies will be discussed. The review includes theories that have been proposed in the past years by various researchers who have studied factors that affect food security in rural sub-Saharan African communities. An introduction to the state of food security in South Africa is given. A theoretical framework based on the literature reviewed is presented.

Chapter 3 outlines the methods and material used for conducting the study. These include the study design, sample size and procedure, schematic flow of work, data collection, training of research assistants, permission to conduct research, pilot study, interviewing participants, methods of data analyses, statistical methods of data collection and analyses, validity and reliability of measurements, list of variables and their levels, binary logistic regression analysis and ethical considerations.

Chapter 4 presents the results and discussions of the socio demographic profiles of the respondents and the relationship between socio demographic profiles and food security of the respondents. These includes household size, food security status, age distribution, gender distribution, education status, livelihood activities, depending on government grants, employment status, remittances. Furthermore, the results and discussion based on food expenditure patterns per month were discussed. The chapter concluded by outlining key recommendations.

Chapter 5 presents the results and discussions of measurement of household food availability using a five point ordinal scale that measured food availability and its causes. Focus group discussions were also used to discuss external environmental factors that affect food availability at village and household level. The chapter concluded by outlining key recommendations.

Chapter 6 presents household food access, coping and accessing strategies. Household Food Insecurity Access Scale (HFIAS) was used to measure food access of the respondents. Furthermore, the chapter present the results and discussions of coping

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strategies employed by the rural households in instances of food insecurity. The results and discussion of food accessing strategies were also discussed based on focus group discussions. The chapter outlined conclusion and key recommendations.

Chapter 7 provides the results and discussions of the effect of external and internal environmental factors on food availability, access and utilisation using focus groups discussions. The food utilisation patterns of the respondents were investigated and discussed. Furthermore, the results from the existing community projects were tabulated and discussed. Conclusion and key recommendations for the chapter were outlined.

Chapter 8 provides the results and discussion from binary logistic regression analysis which indicated that there were six predictor variables which were highly influential predictors of household food security. Furthermore, the chapter outlined and discussed a theoretical framework to be taken into consideration when conducting any interventions in Sekhukhune district.

Chapter 9 provides conclusion of the study, recommendations for rural development practice and policy and lastly recommendations for further research.

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CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents a discussion of food security and its key concepts (the right to food, food security, food availability, food accessibility, food utilisation, household food security, food security coping strategies) as applied in this study. An introduction to the state of food security in South Africa is outlined. A conceptual framework based on literature reviewed is presented. Lastly, the chapter presents definitions and explanations of the concepts used in the study.

2.2 Food Security and its Key Concepts

According to the World Bank (2014), long-term commitment on the part of national governments is essential for alleviating hunger and food insecurity in rural households in sub-Saharan African countries. Development programmes must be well planned, integrated, adequately resourced, monitored and evaluated. Intervention programmes must be focused on building capacity at grassroots level as a means of achieving sustainable solutions (Hart, 2009). The study conducted by Hendricks and Lyne (2009) found that temporary hand-outs and assistance packages do not result in sustainable solutions, and that emphasis should be placed on community-based developmental programmes and initiatives in which all relevant stakeholders are encouraged to play a meaningful role in the alleviation of abject poverty and hunger.

Integrated community-based rural development programmes are vital for empowering impoverished people in the world's least developed nations. The district of Sekhukhune is predominantly rural and under-developed, and shares the characteristics of other sub-Saharan African rural communities (Marula Marketing S.A., 2010). Strategies followed by the World Bank (2014) for alleviating rural poverty are also fairly well applicable to Sekhukhune district in view of the common developmental challenges it also faces. A study conducted by the United Nations Developmental Programme (UNDP, 2014) in several sub-Saharan African countries has shown that successful intervention programmes are based on long-term plans, and that they are adequately monitored, funded and evaluated. The survey conducted in South Africa by Drimie et al (2009) has also shown that problems of food insecurity are common and highly prevalent in rural South African communities such as the ones seen in Sekhukhune district, and that food insecurity in rural impoverished South

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African communities requires the implementation of intervention programmes that are adequately resourced, monitored and evaluated by all relevant stakeholders. The role to be played in such intervention programmes has been pointed out by Maponya and Moja (2012) in a study they conducted in Sekhukhune district. The authors have pointed out that the private sector, faith-based institutions, academic and research institutions, entrepreneurs and non-governmental organisations must be encouraged and enabled to participate adequately in integrated community-based development programmes.

The annual report issued by the Department of Agriculture and Land Affairs (2012) shows that the district of Sekhukhune is one of the districts in South Africa in which rural households are constantly affected by natural disasters such as flood, prolonged draught and food insecurity. This finding has been corroborated by studies conducted by Labadarios et al (2011), Maponya and Moja (2012), Marula Marketing South Africa (2010), the HSRC (2014), Hart (2009), Majake (2005), Lemke (2001), Machete, Mollel, Ayisi, Mashatola, Anim and Vanasche (2004), Roos and Ruthven (2011) and Swindle and Bilinsky (2009). The study conducted by Labadarios et al. (2011) found that the root causes of chronic food insecurity in rural households are abject poverty, lack of access to basic health, sanitation and education services, poor infrastructure, lack of employment opportunities, and lack of community-based development programmes and initiatives that are suitable for alleviating socioeconomic problems. Maponya and Moja (2012) , Maxwell, Watkins, Wheeler and Collins (2003) and Ziervogel, Taylor, Thomalla, Takama and Quinn, 2006) have found that the rural population in Sekhukhune district is one of the most severely affected districts in South Africa with regard to chronic food insecurity and a lack of basic services. Based on their findings, these authors suggest that studies should be conducted in order to gather more information on the coping strategies used by rural households as a means of alleviating hunger and malnutrition.

The study conducted by Marula Marketing South Africa (2010) shows that the lack of reliable and up-to-date information on the plight of the rural population living in Sekhukhune district is a major obstacle to sound planning and intervention in the district. Studies conducted by May, Rogerson and Vaughan (2000), May and Woodlard (2007), McLachlan and Thorne (2009) and Modirwa and Oladele (2012) have found that there is a significant link between food insecurity and abject poverty. Studies conducted by Monde (2003), Mjonono (2008) and Mjonono, Ngidi and Hendriks (2009) found that poor service delivery and lack of access to basic health and education services have the potential for perpetuating food insecurity in rural communities such as Sekhukhune district. The study was conducted against the background of lack of reliable information on the degree to which rural households in

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Sekhukhune district are affected by food insecurity, lack of information on coping strategies that are used by vulnerable people living in Sekhukhune district, and the lack of reliable, complete and up-to-date data on the needs and plight of the population living in the district.

The study conducted by Labadarios et al (2011) highlights the need for accurate, up-to-date and complete data on socioeconomic and demographic factors that are responsible for food insecurity in rural households in Sekhukhune district. Maponya and Moja (2012) pointed out the need for studies that explain the current level of food insecurity in Sekhukhune along with an assessment of farming skills. Jacobs (2012) pointed out that there is a need for empirical studies that explain the current state of food habits, dietary intake and farming skills by households in Sekhukhune. Mojonono, Ngidi and Hendricks (2009) argued that the lack of well-planned, integrated and community-based development programmes is a major obstacle to sustained growth and development. Khumbane (2004) emphasized the need for studies that explain the coping strategies that are used by the rural population in Sekhukhune district, and the need to identify and quantify key predictors of food insecurity in Sekhukhune district. The Human Sciences Research Council (2014) emphasized the need for a feasible framework that could be used for intervention programmes in rural households who are prone to food insecurity, excessive dependence on remittance and social grants and abject poverty.

South Africa is classified as an upper middle-income country with one of the most skewed distributions of income in the world (Mojonono, Ngidi and Hendricks, 2009). Food insecurity and poverty are realities in rural areas of South Africa (Hendricks, 2005). Hendricks further states that South Africa is nationally food secure, but available data in 1999 suggested that between 58.5% and 73% of South African households experienced food insecurity and 15.9% consumed less than adequate energy requirements (Hendriks, 2005). The National Food Consumption Survey (NFCS) of 2005 recorded that 52% of the South African households experienced hunger and in 2010, 60% of all deaths of children below five years of age were associated with malnutrition (Roos and Ruthven, 2011).

Since April 1994, several studies have shown that rural communities in South Africa are often exposed to food insecurity, hunger and poverty due to lack of employment opportunities, lack of basic services, poor planning, poor utilisation of resources, and inadequate information (Maunder and Labadarios, 1999; Hendricks, 2005; Bartfeld and Dunifon, 2006; Carr, 2005; Coates, Swindale and Bilinsky, 2006 and 2007; Craythorne, 2006; Ndhleve, Musemwa and Zhou, 2012). However, there are a few studies in South Africa that empirically estimate the extent of food insecurity, household vulnerability and

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coping strategies employed by the rural households (Hendricks, 2005). The examination of the effectiveness of food insecurity, coping strategies in achieving food security in South Africa has not been attempted (Oldewage-Theron, Dicks and Napier, 2006; Rose and Charlton, 2002; Rule, 2005; Sakyi, 2012). This calls for an urgent need to investigate the strategies employed by the rural households in terms of ensuring food availability, accessibility, utilisation and coping strategies. Such strategies, if known, will help in designing appropriate policies and programmes that are dedicated to help alleviate food insecurity; thus, contributing to one of the millennium development goals.

Over the past two decades, development has been shifting its focus towards smaller scales and particular problems. As a result, the household has become an increasingly important institution for development, and has come under increased scrutiny as development practitioners and scholars seek to understand this institution's functions better (Carr, 2005). One of the critical issues impacting on the household is food insecurity. Food insecurity exists when individuals within the household lack access to sufficient amounts of safe and nutritious food and, therefore, are not consuming enough for an active and healthy life. According to the Food and Agricultural Organisation of the United Nations (FAO) food insecurity is "a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life" (FAO, 2003). Thus, food insecurity may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household and individual level. Therefore, in order to understand food insecurity at household level with the aim of developing the households, there is a need to undertake a critical study of the household's food accessibility, availability and utilisation patterns.

There is a danger in assuming that once food is physically available, individuals and households will automatically benefit from it. Although food may be physically available sociocultural factors, for example, may prevent the food from being available to some individuals (Kgaphola and Boshoff, 2002). Culture may determine what people regard as food, how it is prepared, where and when it is eaten and, in some cases, who consumes it (Fieldhouse, 1995). This research was conducted with the aim of looking into internal and external factors of the households in Sekhukhune district. Greater Sekhukhune (the research area) is regarded as one of the poverty nodes of South Africa (Drimie et al., 2009). In order to unpack the nature of poverty in Greater Sekhukhune, there is a need to critically investigate and operationalise food security at household level. Such a process facilitated the need to investigate food availability, accessibility, utilisation and coping strategies of the household members.

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Household food security issues have become the concern of provincial and national governments as well as international communities during the last few decades. Household food shortage is one of the most important effects of population growth and population dynamics affecting multidimensional social and economic life of household members. Some households might be food insecure because of environmental or socioeconomic factors such as low incomes, lack of access to arable land, lack of resources or money to purchase food. Furthermore, a given household, the household structure, the food preferences and food attitudes of household members may determine which foods are obtained, what cooking techniques are used, how food is distributed and what the utilisation patterns are (Khaphola and Boshoff, 2002). The current assumption is that Sekhukhune district is one of the poverty-stricken areas of Limpopo province in South Africa (Drimie et al., 2009). The question arises: what constitutes this poverty and food insecurity? A close examination and analysis of household food security is very important not only from the economic and social point of view but also because of its high correlation with maternal mortality, child survival and many other reproductive concerns (Drimie et al., 2009).

a. Food sovereignty

Food sovereignty is an important concept that assesses the extent to which ordinary people are capable of securing the food they need for survival. The state has a responsibility to enable its population to acquire enough food by creating an enabling environment through appropriate policy tools. According to a report released by the HSRC (2014), 87% of all arable land in South Africa is in the hands of white South Africans, whereas the majority of the population in South Africa only has ownership of 13% of land (including communal land, commonage). Food production and commercial agriculture are mostly in the hands of white South Africans. Although the South African Government is committed to redistributing land to the majority population, the redistribution of land is likely to take long (Marula Marketing S.A., 2010).

South Africa ranks among the countries with the highest rate of income inequality in the world. Compared to other middle income countries, it has extremely high levels of absolute poverty (Jacobs, 2009, 2012). According to Statistics South Africa (2013), the unemployment rate in South Africa is above 28%, and the poorest 60% of South Africans live in the rural areas in mostly female-headed households. Rural households pay higher prices for the purchase of food products. Rural households spend a larger share of their food budget on grain products, fruit and vegetables and a lower share on meat. Six supermarkets dominate food distribution in South Africa. More women than men work in rural agricultural settings,

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but women often face challenges such as HIV/AIDS, low wages on farms, and oppression by traditional authorities. Suitable recommendations to change the state of affairs are to create employment opportunities in the formal and informal economies (Ziervogel et al., 2006; Marula Marketing S.A., 2010; Maponya and Moja, 2012).

b. Food poverty

Food poverty arises when an individual becomes too poor to buy food. The inability to buy food and hunger are linked because poverty causes hunger. According to the HSRC (2014), although not every poor person is hungry, almost all hungry people are poor. Hunger can be viewed as a dimension of extreme poverty, and is referred to as the most severe and critical manifestation of poverty. Rural households are the most heavily burdened by the consequences of poverty and hunger. In addition to causing hunger, poverty limits a rural community's ability to invest in its own development. According to Statistics South Africa (2012), South Africa has made poverty a top priority as a part of Millennium Development Goal 1.

c. Resilience

According to Devereux (1988), hunger and lack of food security among rural populations require a long-lasting and sustainable solution. Sustainable solutions require long-term commitment, infrastructural investment, skills-based training, monitoring and evaluation, agricultural and health-related education, proper nutrition, access to basic health-related, nutritional, educational and sanitary services. Social protection schemes are critical. In this regard, rural women must be empowered so that they can acquire skills with which they can support their families. Building up resilience in vulnerable rural households is essential for acquiring long-lasting solutions to chronic problems of hunger. Such programmes are needed in Sekhukhune district because the area is prone to draught, flood and food insecurity (Jacobs, 2012).

2.2.1 The right to food

The 1996 World Food Summit acknowledged the importance of peoples` rights to food and to make choices regarding the food they prefer to consume. In doing so, the ethical and human rights dimension of food security was brought into focus (Hart, 2009). The right to adequate food means that every man, woman and child alone and in a community with

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others must have physical and economic access to adequate food at all times using a resource base appropriate for its procurement in ways consistent with human dignity. The right to adequate food is a distinct part of the right to an adequate standard of living (Hart, 2009). The right to food contributes to food security.

In South Africa, sound nutrition is a basic human right, guaranteed in the South African Constitution through the Bill of Rights. The Department of Health has as one of its obligations, to ensure that nutrition security is respected, protected, facilitated and provided to the people of South Africa (S.A. Department of Health, 2014). In terms of chapter 2, section 27.1b of the Constitution of the Republic of South Africa (1996), government guarantees progressive social rights. Every citizen has the right to have access to sufficient food and water and the state must take reasonable legislative and other measures, within its available resources, to achieve the realisation of this right (S.A. Department of Agriculture and Land Affairs, 2002). For an individual to have the right to food, issues of availability, accessibility, utilisation patterns and coping strategies need to be known. Therefore, this study aimed to create a body of knowledge which would contribute to the right to food as a component of food security.

2.2.2 Food security

According to the FAO, food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Hart, 2009; Roos and Ruthven, 2011) This definition comprises four key dimensions of food supplies namely: availability, stability, accessibility and utilisation (FAO, 2009; Pieters et al., 2013). A food system is vulnerable when one or more of the four key dimensions of food security are uncertain and insecure (FAO, 2009). In the South African context, food security rests on four pillars, namely availability, accessibility, utilisation of food and stability (S.A. Department of Agriculture and Land Affairs, 2002; Roos and Ruthven, 2011). According to McLachlan and Throne (2009), food security is crucial for any human society, and is one of the most basic needs of human beings. The definition of food security involves a wide range of diverse roles that food plays in human society. Food security has nutritional, symbolic, cultural, economic, social and political implications to human beings in all part of the world.

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Food security on the other hand is a complex and multidimensional phenomenon associated with poverty. Food security has long been used as an important macro-level indicator of agricultural stability and progress for both agricultural and economic researchers. But little work has been done to operationalise the concept at the household level (Obayelu, 2010). The need to focus on both national and household levels is essential in the promotion of food security. One cannot assume that once food security is attained at national level it will automatically trickle down to the household level. Examples from the past have taught us that a country may be food secure to the extent that it exports food to other countries while a large proportion of its citizens are suffering from hunger and malnutrition (Kgaphola and Boshoff, 2002). According to Kgaphola and Boshoff (2002), it is important to develop strategies that will facilitate the accessibility of food at the household and individual levels. One of these strategies might be to focus on the social institution, the family or household, where people's food-related needs are met or not met.

Attempts to coin a definition of food security and lack thereof dates back to the Food and Agriculture Conference held in 1943 (Alemu, 2010). The conference adopted the concept of "secure adequate and suitable food for everyone". In response to this, bilateral organisations were created in developing countries to dispose of their surplus in the form of food aid. In the 1960s, the World Food Programme (WFP) was created. However, it became clear that food aid could harm food production in recipient countries. This lead to the creation of new conditions to the way food aid should be distributed leading to the concept of "food for development" (Alemu, 2010).

In the 1970s, instability in national and global food supplies and high prices became a problem due to population pressure and an occurrence of drought in major grain producing nations (Alemu, 2010). This evoked global and national responses. Hence, the 1974 World Food Conference debated a need to increase food production through the creation of new international bodies, such as the World Food Council, the FAO Committee on World Food Security and the International Fund for Agricultural Development (FAO, 2003; Alemu, 2010). To address the problem of food insecurity at national level, national governments formulated policies to ensure food availability and hence food self-sufficiency. Food availability is understood as the sum total of domestic food production, domestic food stock, commercial food import, and food aid (FAO, 2003; Alemu, 2010).

In the 1980s, Green Revolution from Asia emerged and food production increased and made food availability less of a concern. Much of the grains from increased production were controlled by the elite. Therefore, issues of equity surfaced in the food security debate. In

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1981 Sen wrote an article on poverty and famine which overshadowed the popular belief that food insecurity is caused by lack of availability of foodstuffs (Alemu, 2010). Sen revealed that individual food security could be compromised despite sufficient food supplies. This led to the shift in emphasis towards physical and economic access to food. According to Alemu (2010), access not only implies own production but also a household's ability to generate sufficient resources/income which could be made available to buy food in time of need. Access depends on household resources such as labour, land, capital, skills, prices and all other factors which could inhibit or promote its ability to meet its food needs.

Food security is a term that emerged following the 1980s shift in food policy debate from food supply to food demand and the emergence of new emphases on food entitlement, vulnerability, risk and access (Hendriks, 2005). Hendriks (2005) explains that food security arose partly as a "proxy for poverty" during structural adjustment. While food security does not capture all dimensions of poverty, food security may indicate poverty and is an important indicator of well-being (Hendriks, 2005). Definitions of food security commonly include food supply, access, adequacy, utilisation, safety and in some cases, cultural acceptability of food for all people at all times (Hendriks, 2005). According to Pieters, Guariso and Vandeplas (2013), food security has four pillars namely: food availability, food accessibility, food utilisation and Stability. Stability refers to two additional dimensions namely vulnerability and resilience (FAO, 2009; Pieters et al, 2013).

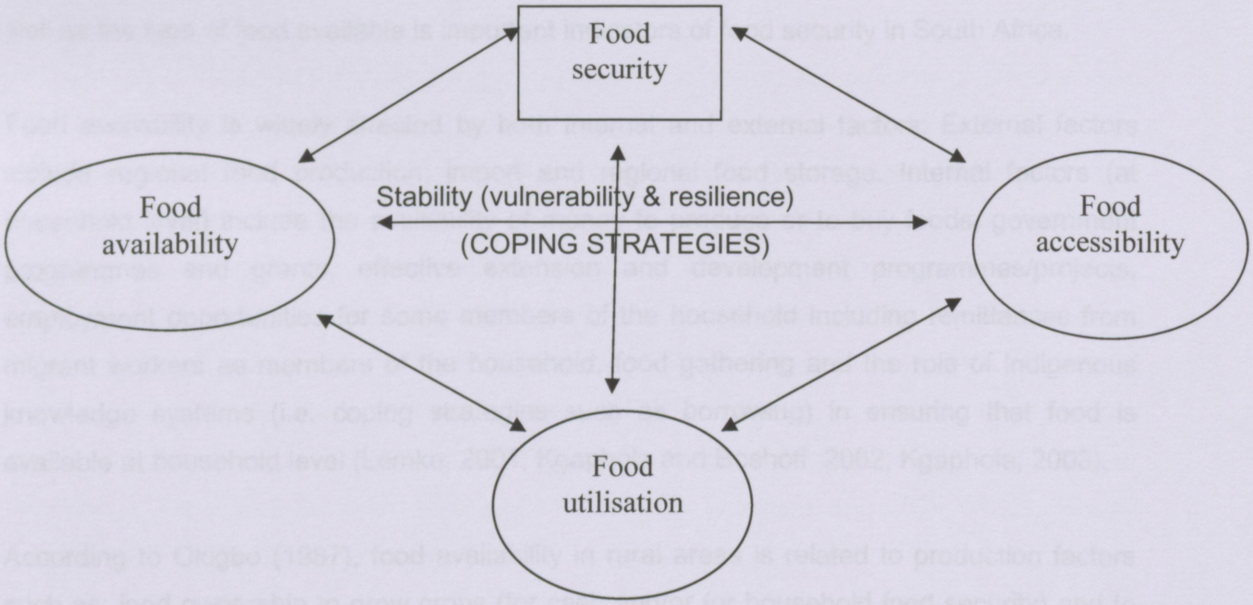


Figure 2.1: A conceptual model for food security (Adapted from Ericksen, 2007; Pieters et al, 2013)

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Figure 2.1 shows a conceptual model for food security as proposed by Ericksen (2007) and Pieters et al., (2013). The availability of food involves the production, distribution and exchange of food. The accessibility of food involves the affordability of food and related economic factors. The utilisation of food involves nutritional values, social values and food safety. Stability involves vulnerability and resilience which form part of the coping strategies of the households (Pieters et al., 2013)

2.2.3 Food availability

Food availability implies that a country must have sufficient quantities of food available on a consistent basis at both national and household level. Food availability refers to sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports or donors that are consistently available, within reasonable proximity or within their reach (Hoddinott and Yohannes, 2002; Sayed, 2002). Availability of food is achieved when an adequate amount of food is distributed in local outlets so that the public can purchase it (Lemke, 2001). This availability is reached through market channels as a function of production, stock holdings and trade opportunities. According to Lemke (2001), official figures in the past indicate that on national level South Africa is self-sufficient regarding most basic foods. However, within the country there are huge imbalances regarding supply between the centres and the periphery. In rural areas, there is still a considerable lack of infrastructure. Therefore, availability of food in shops, at vendors, and from other sources as well as the type of food available is important indicators of food security in South Africa.

Food availability is widely affected by both internal and external factors. External factors include regional food production, import and regional food storage. Internal factors (at household level) include the availability of money to produce or to buy foods, government programmes and grants, effective extension and development programmes/projects, employment opportunities for some members of the household including remittances from migrant workers as members of the household, food gathering and the role of indigenous knowledge systems (i.e. coping strategies such as borrowing) in ensuring that food is available at household level (Lemke, 2001; Kgaphola and Boshoff, 2002; Kgaphola, 2003).

According to Okigbo (1987), food availability in rural areas is related to production factors such as: land ownership to grow crops (for cash and/or for household food security) and to gather wild and/or cultivated vegetables, harvesting and processing methods such as drying and transportation, proper storage methods, conducive ecological factors, incentives to

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produce food and social roles. May, Rogerson and Vaughan (2000) in a study conducted in South Africa to look at poverty and inequality issues concluded that multiple crop production is important in rural communities because it facilitates the process of food availability while ensuring household food security. According to Drimie, Germishuyse, Rademeyer and Schwabe (2009), food availability at household level in most rural areas has been limited largely as a result of inadequate production, inadequate farm inputs, rain fall variations or rain fall failure.

2.2.4 Food accessibility

According to Drimie, Germishuyse, Rademeyer and Schwabe (2009), food accessibility implies that households and or individuals are able to produce or purchase sufficient quantities of foods that are nutritionally adequate and culturally acceptable, at all times. According to Sakyi (2013), food accessibility has four main dimensions namely: Physical access which refers to the availability of physical infrastructure such as markets, roads and transport facilities and food distribution. Economic access refers to the affordability of food and whether the households have the money to purchase food or to produce their own food. Social access refers to the food that is culturally acceptable or fits into the diet of the household or the community the household belongs to. Technological access refers to the technological facilities that a household has to process, preserve and prepare food. Example: the availability of electricity or fire wood to prepare food.

Accessibility of food encompasses both economic and physical accessibility (Ballantine et al 2008). Economic accessibility refers to the capacity of the household to purchase food for an adequate diet without compromising the satisfaction of other basic needs. Other household needs such as medical bills, electricity, school fees increase the costs at household level resulting in households not being able to afford and to access food. In instances of high unemployment, economic accessibility may be severely compromised (Ballantine et al, 2008). The South African Government provides some financial access to food in the form of social assistance (S.A. Social Security Agency, 2014). This is known as social welfare "grants" to the elderly, war veterans, the disabled, foster children and children of the poor who are younger than 18 years (Ballantine et al 2008; Maponya and Moja, 2012). Social grants therefore contribute to economic food accessibility.

Physical accessibility implies that food must be accessible to everyone, including the vulnerable groups such as women, children, the elderly, sick, physically disabled, mentally

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ill, and victims of natural disasters and armed conflicts (Ballantine et al., 2008:1). Food access implies the ability of a nation and its households to acquire sufficient food on a sustainable basis. Food access refers to individuals having adequate incomes or other resources to purchase food (or barter) or to obtain levels of appropriate food needed to maintain the consumption of an adequate diet or to attain an acceptable level of nutrition (Hoddinott and Yohannes, 2002; Sayed, 2002). The inability of households to access enough food for a sustainable and healthy life is an important indicator of the level of poverty that may be present in food insecure households. According to Hoddinott and Yohannes (2002), an appropriate measure of household food access is useful to:

- identify the food insecurity in a community
- assess the severity of food shortfall
- characterize the nature of food insecurity (seasonal versus chronic)
- monitor change over time
- assess the impact of intervention/s

In South Africa, the cause of hunger and malnutrition is not as a result of food shortage but rather the inadequate access (accessibility) to food by certain categories of individuals and households in the population (Sakyi, 2012; S.A. Social Security Agency, 2014). According to Latham (1997), food accessibility refers to whether food can be approached, including people who have access to resources, abilities, knowledge to gather and produce food or procure it. In a rural context, this includes people and/or households who have their own money, own land or have a job or any stable source of income. Therefore, food accessibility implies physical, economic, social and technological environmental issues which impact on households and/or individuals and their sustainable livelihoods.

Among the poor, who by definition suffer the brunt of the lack of jobs in the South African economy, the main sources of cash used to access food are insecure piece jobs, the government's social welfare safety net (old age pension and child support grants) and private transfers from working relatives and neighbours (S.A. Social Security Agency, 2014). In addition to cash, some households depend on access to land for supplementary food production and accessing natural resources for the harvesting of wood fuel, wild foods and livestock production. They also access food through sharing with family and community networks.

Research about food access and the impact of income on food consumption in developing countries have been pursued in different ways. However, the sociocultural orientation to

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understand the actual actions of members in rural households to acquire and access, prepare and consume food still needs attention (Campbell and Desjardins, 1989). Campbell and Desjardins (1989) acknowledge that nutritional needs evaluated with reference to food accessibility and consumption patterns serve as proxy for more rigorous assessment of nutritional status. These food-related activities and practices are subject to change depending on the level of urbanization, acculturation and mostly the ecology of the area.

Access to food depends on an adequate, stable, local food supply. This is influenced by many interacting factors, which play a role in undermining the extent of food security. According to Shiferwa, Kilmer and Gladwin (2005), the most frequently cited factors include:

- access to land
- livestock ownership
- food garden availability
- safe, accessible water supply
- stable climatic conditions
- access to food outlets
- access to alternative food supply such as school feeding programmes
- cash/income to buy foods

2.2.5 Food utilisation

Food utilisation refers to the proper use of food, proper food processing and storage techniques, adequate nutritional knowledge and child care techniques and adequate health and sanitation services (Hoddinott and Yohannes, 2002; Ericksen, 2007; Drimie et al., 2009; Pieters et al., 2013). Food utilisation is the final use of food by individuals at household level. This includes storage, selection, preservation and the intake of food, education, facilities for cooking and preparing food, access to clean water and hygiene practices (Ericksen, 2007; Drimie et al., 2009; Pieters et a.l, 2013). These activities rely on the allocation and use of households' personal and material resources (such as knowledge, equipment available and financial means) and it may be influenced by social values, attitudes and norms held in the household or by the individual concerned (Kgaphola and Boshoff, 2002; Ericksen, 2007).

Food utilisation refers to the appropriate use of food, based on the knowledge of basic nutrition and care practices, as well as adequate water and sanitation (Ericksen, 2007; Pieters et al., 2013). The necessity of revealing the marked differentiation in resources, access and decision making in the household sphere and also between socially connected

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households has been indicated as of utmost importance in improving household food security thus facilitating food utilisation (Lemke, 2001). The utilisation of food in any rural setting depends on an additional set of conditions related to gaining access to food supplies through production, purchase, government grants, and/or food aid. Food utilisation includes household factors such as food processing and cooking, methods of food preparation, meal patterns, household food distribution which includes gender issues, household size, food wastage, state of health of each household member, cultural and religious beliefs pertaining to food and social status (Okigbo, 1987; Drimie et al., 2009; Pieters et al., 2013).

According to the International Federation of Red Cross and Red Crescent Societies (IFRCRCS, 2007), food utilisation is the way in which people use food. It is dependent upon a number of interrelated factors: the quality of the food and its method of preparation, storage facilities, and the nutritional knowledge and health status of the individual consuming food. Food utilisation may also be adversely affected if people have limited resources for preparing food, such as a lack of fuel or cooking utensils. Food utilisation includes seasonal fluctuations in food and in financial means, and food ideology which includes the underlying food-related behaviour such as rituals, preferences, dislike, the prestige value of food and beliefs (Sanjur 1982; Kgaphola and Boshoff, 2002; Kgaphola, 2003).

The above factors are regarded as internal factors which if not taken into consideration might have an impact in ensuring household food and nutrition security. Food utilisation and consumption imply the use of food by the individual (Lemke, 2001). Food consumption also involves the decision-making process within the household about who should get what portion of food and the role of gender in household food distribution. It also involves the quality and frequency of consuming nutritious foods by members of the household and portions given to each individual.

2.2.6 Food stability

Food stability is the fourth component of food security that cuts across food availability, accessibility and utilisation. Stability refers to the temporal dimension, or time- frame, of food security as implied by the wording “at all times” (FAO, 2003, 2009). Food stability is defined as “ maintaining the availability, accessibility and utilisation of food over time in the face of a variety of natural, economic, social and political shocks and stresses” (Drimie et al., 2009).

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Food stability focuses on chronic food insecurity and transitory food insecurity. Chronic food insecurity is the long-term of persistent inability to meet food needs, whereas transitory food insecurity is a short-term food deficit (Drimie et al., 2009). Transitory food insecurity is a short term food deficit which can be divided into two subcategories namely cyclical/ seasonal food security and temporal food insecurity. An example of cyclical food security is lean season that occurs in the period just before harvest. Temporal food insecurity occurs for a limited time due to unforeseen and unpredictable circumstances (Drimie et al., 2009).

Food stability has two dimensions namely vulnerability and resilience (FAO, 2009; Pieters, Guariso and Vandeplas, 2013). Vulnerability can be described as the risk that the food and nutrition status of the household is undermined by negative shocks. Households generally face multiple negative shocks over time, and each shock may affect the general welfare and food and nutrition status of the household. By adopting particular livelihood strategies to deal with these shocks, households can ease the welfare impact and reduce their vulnerability of food and nutrition insecurity (FAO, 2009; Pieters et al., 2013). Vulnerability to food and nutrition security can be temporary or chronic (FAO, 2009). Vulnerability can be averted by using one or more of the three possible livelihood strategies namely: (a) risk prevention; (b) risk mitigation and (c) risk coping (FAO, 2009; Pieters et al., 2013).

Risk prevention is an action taken by the household to reduce the probability of unexpected events such as engaging in risky production, migration and or proper feeding (Pieters et al., 2013). In this instance the household make a risk prevention decision ahead of any food insecurity occurrence. Risk mitigation is strategies adopted before the shock with the purpose of reducing the negative welfare impact of future shocks. Example is when a household member has multiple jobs, or relying on social networks and relationships- based risk sharing rather than formal markets (Pieters et al., 2013). Furthermore, informal or formal insurance can be used as a risk mitigation strategy. Example of informal insurance is community arrangements such as marriage or funeral insurance groups (Pieters et al., 2013) where households contribute money to buy food or contribute food.

Risk coping is an ex-post strategy taken to limit the impact of welfare loss once it occurs (FAO, 2009; Pieters et al., 2013). Example of risk coping is coping strategies such as selling assets, withdrawing savings, migration, seeking temporary employment, withdrawing children from school and reducing the diversity of the diet (Pieters et al., 2013). Women often reduce their own consumption after a shock to leave more food for other household members. Risk coping strategies depend to a large extent on household resources, but social networks also play an important role: the larger the social network, the larger the

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possibilities of finding support whenever a negative shock hits the household (Pieters et al., 2013). Example: poor women in Bangladesh and India for instance form self-help groups to support each other in case of need (Pieters et al., 2013).

Although risk coping is essential to combat vulnerability to food and nutrition security, these strategies do not come without a cost. Example: if a household member resort to migration, he/ she will need resources to migrate, leading to costs attached to such movements. Most ex-ante livelihood strategies tend to reduce household income or wealth in the absence of shocks (Sarris and Karfakis 2008). Vulnerability to shocks can increase overtime if the household has to cope with repeated shocks (Pieters et al., 2013), this mostly relate to resilience to shocks.

As mentioned earlier stability has both vulnerability and resilience. Vulnerability deals with the immediate effects of the negative shocks. Vulnerability is the probability of the household becoming food and nutrition insecure after, say, a food price shock. Resilience focuses on the effects of shocks on the long term. Resilience is the time needed for the household to get back to its food and nutrition status as it was before the shock. Example: resilience focuses on whether households are able to recover easily or whether they are pushed into poverty trap from which recovery is laborious or even impossible. In the context of food and nutrition security, resilience can be defined as "the time needed to achieve or surpass the pre-shock status of a well- being" (Pieters et al., 2013). The strategies adopted by households to reduce the time needed to regain the pre-shock level of well-being can consist of both ex-ante and ex-post measures (Pieters et al., 2013). In practice, most of the measures aimed at reducing vulnerability that were described earlier can also be used to increase resilience.

2.2.7 Household food security

Household food security means the ability of the household to acquire food either through direct production, or purchase/transfer/exchange, which is adequate in quantity and quality, to fulfil the nutritional needs of all members of the household (Kinabo, 2008). It refers to the household's ability to access (procure or produce) adequate food at all times for members in the household (Kennedy and Haddad, 2011; Bellamy 1998; Derrickson, Sakai and Anderson, 2001; Sayed, 2002; Bashir, Schilizzi and Pandit, 2012). Understanding household food security or insecurity and knowing its consequences are essential and important steps in determining effective food security interventions. The measurement of household food insecurity is essential for planning, targeting, monitoring and evaluating interventions, but

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existing measures are often inadequate or difficult (Sayed, 2002, Webb et al., 2006). Therefore, household food security issues have become the concern of local, national as well as international communities during the past few decades.

According to Kinabo (2008) household food security is a concept that integrates environmental, economic and cultural factors in a manner that can provide a useful tool for predicting dietary patterns within the household. These factors affect the manner in which households manage their food resources, either by affecting initial food selection and acquisition (accessibility) or by affecting the use (utilisation) of food once it has been selected. Household food security is an outcome of these decisions (Kinabo, 2008).

Household food security is defined as sustainable access to safe food of sufficient quality and quantity including energy, protein and micronutrients, to ensure adequate intake and a healthy life for all the members of the household (Matla, 2008). Household food security refers to a household's ability to access (procure or produce) adequate food at all times for all members in the household (Bellamy 1998; Hoddinott and Yohannes 2002; Sayed, 2002; Matla, 2008). According to Matla (2008), there are various other forms of food security applicable at the household level, namely:

- Individual food security. This refers to the individual's ability to access food in a household (Sayed, 2002; Matla, 2008).
- Nutrition security. This refers to a diet that is adequate not just in terms of quantity, namely total energy (kilojoules) intake, but also adequate in terms of the quality and variety/diversity, namely protein, vitamin and mineral requirements (Sayed, 2002; Matla, 2008).

Jerome et al. (2012) see household food security as including the household's efforts to find means of providing adequate, palatable, ecologically adaptive and ideologically acceptable diets within a vast range of environmental contexts and cultural patterns. They identified the following environmental elements: the physical environment, technology, social organisation, the social environment, the cultural environment and ideological systems. The physical environment and technology determine the conditions for food production and distribution. The social organisation includes the economic and political structures, which affects access to food while the social environment and cultural and ideological systems influence the beliefs and attitudes people have about food. They also see household members' physiological and psychological needs forming the core of food choices, which affect food availability at household level.

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Internationally, research has been conducted on dietary diversity and household food security among a variety of communities (Drewnowski, Henderson, Shore, Fischler, Prezioski and Hercberg, 1996; Fernandez, Nigri, La Vecchia and Franceschi, 2000; Ruel 2002; Hoddinott and Yohannes, 2002). However, little data relating to South Africa are available (Kgaphola & Boschoff, 2002; Kgaphola, 2003; Matla, 2008). The concept of household food security is useful in emphasizing the possible (and likely) unequal distribution of food, as well as other resources, which allow the household to produce and acquire food, within a country or community. Food, water and fuel are all essential resources for household security, and all involve activities in which women play a predominant role (Matla, 2008; Kgaphola, 2003).

According to Khumbane (2004), household food security means that communities and households in rural areas are able to produce food, preserve and store food for future use. The future is not just to have enough for a year, but also to take into account the following two to three years and beyond (that is in the case of drought). She further indicated that household food security means "taking into account basic food needs which culturally sustain food requirements that the households are accustomed to" Khumbane, 2004). For the rural households of South Africa, household food security implies multiple cropping in dry land fields of a variety of crops such as mealies (maize), sweet reeds, sorghum, millet, cow pea, peanuts, bambarra ground nuts, dry beans, mung beans, watermelons, citrons, gourds, pumpkins and traditional variety of creepers which gives green "morogo" (vegetables both wild and cultivated) for a long period stretching into winter (Khumbane, 2004). "Without accessing animal products, food production is incomplete. Animal husbandry is an integral part of household food security in ensuring that the households have milk, meat and eggs. The question is, is it still possible for the majority of the households in rural areas of South Africa today to access both plant and animal production?" (Khumbane, 2004). It further depends on how available resources are used and distributed within the household, which is addressed by the concept food utilisation in this study.

The study conducted by the World Bank (2014) indicates that rural households in areas prone to flood, prolonged draught, natural disasters, poverty, lack of skills and ownership of land must be supported by national governments so that they can rely on themselves. The study conducted in Bangladesh by the UNICEF (2014) showed that it is possible to alleviate abject poverty among rural households as a means of reducing infant and under-five mortality and morbidity. A similar finding has been reported by the UNDP (2014) based on a study conducted in Ethiopia (Shiferaw, Kilmer and Gladwin, 2005), Malawi (Bukenya, 1994), Mozambique (Bandeira, 1994) and Nigeria (Obayelu, 2010; Okigbo, 1987). The underlying

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theory proposed by Devereux (1988) has been found to be applicable in several studies conducted internationally (Corbett, 1988; Deacon and Firebaugh, 1988; Drewnoski, Henderson, Shore, Fischler, Prezioski and Hercberg, 1996; Den Hartog, Van Staveren & Brouwer, 2006; Development Bank of Southern Africa, 1998; Du Toit, 2011; Engberg, 1990; Ericksen, 2007; Faber, Schwabe and Drimie, 2009; Frongillo and Nanama, 2004; Fernandez, Negri, La Vecchia and Franceschi, 2000).

2.2.8 Food insecurity and coping strategies

Food insecurity and poverty are among the most pressing social and economic issues in South Africa (Lemke, 2001). The majority of the rural population are subject to increasing poverty, with about 44% of the South African rural population considered to be food insecure (Lemke, 2001). While food insecurity may lead to and is often characterised by hunger, its principal meaning refers to the risk of people being hungry. Therefore, food security is not just about the absence of hunger, but it is about the absence of risk relating to adequate food consumption (utilisation). This also entails the way in which food or other resources to get food are obtained (Lemke, 2001; Kumbane, 2004). It further depends on how available resources are used and distributed within the household, which is addressed by the concept household food security in this study.

A small but growing number of studies indicate that food insecurity, hunger and poverty coexist in South Africa (HSRC, 2012; Hendriks and Lyne, 2009). However, there are very few studies in South Africa that empirically estimate the extent of food insecurity and household vulnerability, and which describe the coping strategies employed by rural households (Hendriks and Lyne, 2009). Coping strategies, particularly those adopted by rural households in areas with low-income and food insecurity, have become an important area of study (Kinabo, 2008). Kinabo (2008) defined coping strategies as the bundle of responses by vulnerable households to deal with situations of food insecurity, irrespective of the question of whether these situations are acute, severe, chronic or seasonal.

Various sources have attempted to define coping strategies with regard to food security. Coping strategies form part of food stability as a component of food security (Sakyi, 2012; Pieters et al., 2013). Hendriks and Lyne (2009) define coping strategies as a response to adverse events or shocks. Shocks refer to sudden and unexpected occurrences that require action (Hendriks and Lyne, 2009). The definition by Hendriks and Lyne (2009) captures the broad notion of coping strategies, namely as "… all the strategically selected, acts that

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individuals and households in a poor socioeconomic position use to restrict their expenses or earn some extra income to enable them to pay for their basic necessities (such as food, clothing and shelter) and not fall too below their society's level of welfare". This definition implies that coping strategies involve a conscious assessment of alternative plans of action. The definition is based on the assumption that despite limited resources, the households are asset managers with freedom of choice in relation to their actions (Hendriks and Lyne, 2009).

Coping strategies are employed to mitigate the effects of not having enough food to meet the household's needs. According to Mjonono et al. (2009), some coping strategies are positive means of overcoming food shortages, for example off-farm employment, savings that can be called upon and family networks for sharing. Some coping strategies are negative such as severe reduction in food consumption, selling productive assets, reducing expenditures on basic services such as health and education, and abnormal migration (Mjonono et al., 2009).

2.2.9 Review of South African studies on food insecurity and coping strategies

This sub-section reviews recent studies on food insecurity coping strategies and related work in South Africa. According to Lemke (2001), coping is an array of strategies adopted in response to a crisis. The aim of coping is to maintain the various objectives of the household, with food consumption and health being more immediate objectives and livelihood security and status being long-term objectives. The ability of a household to cope with times of food shortage is an important indicator of the level of food security of the household. Coping strategies can give an indication of the household's socioeconomic situation, but more importantly, they give an indication of the functioning of social networks. According to Lemke (2001), coping strategies vary by region, community, social class, ethnic group, household, gender, age and season. Lemke (2001) spells out the evaluation of coping strategies which should highlight the following main issues:

- What means of coping do members of the household have when food is limited or when there is no food?
- Where/to whom can households go for help besides their relatives?
- What will households do first of all if there is no food?
- What are short-term, what are long-term strategies of coping?

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The study conducted by Maliwichi, Bourne and Sukwana (2002) in Khayelitsha revealed that households employed consumption coping strategies to alleviate food insecurity. The aim of the study was to investigate the coping strategies of households in Khayelitsha, Cape Town to ensure household food security. The findings showed that 70% of the households in the informal settlement used short-term coping strategies including borrowing money (from friends or relatives) to buy food; borrowing from the neighbours or friends; purchasing food on credit; relying on help from friends or neighbours and maternal buffering (i.e. mothers limiting their food intake to ensure that children get enough food to eat).

The study conducted by Majake (2005) in Qwaqwa, showed that food insecure households commonly employed food consumption coping strategies. The objective of the study was to evaluate the impact of food security packages on households in Qwaqwa. A survey of 60 households, half of whom received food security packages was conducted between April and June 2004. The study revealed that the strategies employed by households to survive included most severe coping strategies such as eating from the dust bins and sending households out to beg. They also relied on less preferred foods such as eating porridge with tea, jam or animal fat. These were identified as the least severe strategies employed by households in Qwaqwa (Majake, 2005).

Oldewage-Theron, Dicks and Napier (2006) concluded that similar strategies for coping with food insecurity were used. They conducted their study in the Vaal Triangle. The objective of the study was to determine household food security and coping strategies of an informal settlement in the Vaal Triangle. The households employed different food consumption coping strategies to cope with food insecurity. The coping strategies used were: limiting the variety of foods served (practiced by 75% of households); limiting portion sizes (80% of households); skipping meals (60% of households) and maternal buffing (76% of households). The study concluded that the area was a poverty-stricken community with household food insecurity where the caregivers changed their food consumption patterns to cope, resulting in compromised nutrition (Oldewage-Theron, Dicks and Napier, 2006).

Ziervogel, Taylor, Thomalla, Takama and Quinn (2006) conducted a study in Sekhukhune, Limpopo province. In Sekhukhune, many households had developed a wide range of coping and adaptation strategies in response to changing conditions that affect their livelihoods and well-being (Ziervogel et al, 2006). The objectives of this study were to identify and assess integrated and cross-sect oral adaptive management opportunities. A total of 597 individuals were interviewed across five municipalities. The study revealed that households employed short-term coping strategies, such as relying on piecework, eating less preferred foods,

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reducing the number of meals a day, limiting portion sizes of meals, borrowing food, eating elsewhere and purchasing food on credit.

2.3 The State of Food Security in South Africa

South Africa ranks among the countries with the highest rate of income inequality in the world (Franz, 1971; Green, 2004; Leary, 1964; Wolf, 1986; Mwanyambo, 1994; Terry, 1994; Latham, 1997; Krondl, 1990; Fieldhouse, 1995; Bellamy, 1998; Food and Agricultural Organization, 2003 and 2009; Ngqangweni, Kristen and Delgado, 2001; Nieuwoudt and Groenewald, 2003; Van den Heever, 1995; Vermaak and Van Niekerk, 2004; International Federation of Red Cross and Crescent Societies, 2007; Altman et al 2009; Machete et al., 1997; Modirwa and Oladele, 2012). Compared to other middle-income countries, it has extremely high levels of absolute poverty and food insecurity. South Africa has set itself the overarching target of halving poverty between 2004 and 2015 as part of the millennium development goals and the National Constitution includes a clause affirming the right to food security (Altman et al., 2009), achieving household food security is a critical component in meeting that objective. To help in achieving this target, government adopted an Integrated Food Security Strategy (IFSS) in 2002 which explicitly aims to eradicate hunger and nutrition deficits among low-income households. This strategy was subsequently translated into the Integrated Food Security and Nutrition Programme (IFSNP), with a task team in the National Department of Agriculture (DOA) overseeing its implementation (S.A. DOA, 2002; Hart, 2009). The War on Poverty campaign, launched by government at the height of the food price crisis in 2008, also gives priority to food insecurity among low-income households (Jacobs, 2009). However, for this policy commitments to be realised more research needs to be conducted at household level to monitor and assess the nature of household food insecurity with reference to food availability, accessibility, and utilisation patterns.

According to Altman et al (2009), lack of food security in rural South African communities is a major problem that needs to be investigated thoroughly by gathering empirical evidence from communities living in districts such as Sekhukhune. Although South Africa is regarded as food secure as a nation, large numbers of households within the country are food insecure. A small but growing number of studies indicate that food insecurity, hunger and poverty coexist in South Africa (May and Woodlard 2007; HSRC, 2004; Mjonono et al., 2009). However, there are very few studies in South Africa that empirically estimate the extent of food insecurity and household vulnerability, and which describe the coping strategies employed by rural households. This study was conducted in order to make an additional

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contribution to the body of knowledge that has so far been reported in the literature by the above researchers.

In South Africa, the cause of food insecurity is not due to a shortage of food but rather to an inadequate access to food by certain categories of individuals and households in the population (Modirwa and Oladele, 2012). Food insecurity is not an exceptional, short-term event, but is rather a continuous threat for more than a third of the South African population (Hart, 2009).

The growth of the South African economy has contributed significantly to improving food security across the country, particularly as most citizens access food via purchase (Drimie et al., 2009). According to Drimie et al. (2009), the cause of hunger and malnutrition in South Africa is not the overall shortage of food but lack of access to food by certain parts of the population. Even in rural areas such as Greater Sekhukhune, most households are net deficit food producers, as their access to food is partially or wholly reliant on household income. As a result, food security is largely about direct or indirect access to cash to purchase food. The majority of rural households' income is accrued in the form of employment, remittances from migrant workers and from welfare payments (Drimie et al., 2009; Maponya and Moja, 2012).

Despite a strong government commitment to addressing development issues in South Africa, tremendous disparities in food security exist between communities and households across the country, reflecting continuing social and economic inequalities (Drimie et al., 2009). Estimates suggest that approximately 14 million people are food insecure and 1.5 million children suffer from malnutrition (HSRC 2004; Drimie et al., 2009). Despite interventions, there are signs that there is increasing food insecurity in specific places, largely poverty nodes in rural contexts, related to increasing unemployment, food price increases, HIV and AIDS, and adverse environmental conditions and poverty in general. As a result, it can be argued that food insecurity is not an exceptional short-term event in the lives of many South Africans, but a continuous threat for more than a third of the population (Drimie et al., 2009).

According to Altman et al. (2009), the problem of household food insecurity is further exacerbated by a range of additional factors that have recently increased the cost of food such as the high cost of domestic electricity, rising oil prices, high costs of fertilizers because petroleum is an output of chemical fertilizers, and agro-food transport costs. Rising food prices, particularly of maize and wheat which are the staple diet of the poor in South Africa, pose serious problems for the urban and rural poor as most are the net buyers of food.

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Given increasingly strong linkages between the local level and national and international commodity chains and economic networks, even remote rural households in South Africa are affected by changes in these networks. Unless there are new policy directions, poor households will increasingly be forced to allocate a greater proportion of their expenditure to food, with the result that diets will become less diverse, low in quality, and energy intake (calories consumed) will drop as people try to cope with the situation.

2.4 Conceptual Framework

2.4.1 Description of the proposed framework

Many researchers and scientists working in the field of food, nutrition and food security have suggested frameworks or models that can be used for research in programmes related to food habits, food behaviour, nutrition and food security. The essential characteristics used in some of these original frameworks are summarised below.

In Sims (1978; 1982) and Kgaphola (2003), the theoretical model proposes the use of the ecological system's perspective in the formation of nutrition policy, programme design and evaluation. The unique feature of the ecological system's approach is its "focus upon the process by which inputs from the environment are transformed or utilised by the system to produce certain products as outputs of the system". Sims and Smiciklas-Wright (1978), believe that the ecological perspective promotes a holistic approach, including "linking the natural and social sciences, assessing technological and environmental impacts and bringing together scientific, economic, and politico-legal spheres of action".

Sims and Smiciklas-Wright (1978) indicate that the natural environment will determine what kind of food to be produced while the man-made environment will influence the processing, storing and distribution of food thus influencing the food made available for consumption, and the behavioural environment determines which foods will be chosen from the variety available. According to their model, these are the so-called external environmental factors influencing the food behavioural patterns of the individuals. The individual's choice of food will also be influenced by ideological or personal factors such as values, attitudes, beliefs and knowledge. These factors are called internal or endogenous factors influencing food habits.

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Jerome et al (2012) are of the opinion that more comprehensive models are needed to understand human food systems, food-distribution policies and programmes. Jerome et al (2012), consider household food security to include the household's efforts to find means of providing adequate, palatable, ecologically acceptable diets within a vast range of environmental contexts and cultural patterns. Aspects of the environment identified by Jerome et al (2012) are the physical environment, technology, social organisation, the social environment and the cultural and ideological systems. The physical environment and technology establish the conditions for food production and distribution, social organisation including the economic and political structures affect access to food while the social environment and the cultural and ideological systems influence the beliefs and attitudes of people towards food. They also see household members' physiological and psychological needs forming the core of food choice.

Terry (1994) identifies aspects of food behaviour and the food environment that have to be understood for providing nutrition services. These aspects are also relevant for providing food security programmes in communities. The identified factors in the food environment of the household and community are: availability, acceptability, safety and nutritive quality of food, while the factors relating to food behaviour of the household and community are: selection, procurement, distribution, manipulation, storage, consumption and disposal. Krondl (1990) requires that the formulation of a conceptual framework or model for studying food behaviour be as follows: "...conceptual models identify factors and suggest their pathways. Thus they simplify a complex reality such as food accusation, selection and become indispensable in designing research in this area".

2.4.2 Conceptual framework for studying patterns of household-level availability, accessibility and utilisation of food

The conceptual framework was compiled with reference to the following sources: Sims 1978; Sims 1982; Sims and Smiciklas-Wright, 1978; Paolicci, Hall and Axinn, 1977; Jerome et al, 2012; Deacon and Firebaugh, 1988; Engberg, 1990; Bubolz and Sontag, 1993; Kgaphola and Boshoff, 2002; Kgaphola, 2003; Ericksen, 2007, Sakyi, 2012). The framework is built around the environment and its subsystems. The environment of the household system includes the macro (national) and micro (community) environments (Deacon and Firebaugh 1988). According to Sims (1978); Sims (1982); Sims and Smiciklas-Wright (1978), the environment of the household has two subdivisions, namely external environmental factors and internal environmental factors, while Sakyi (2012) indicated that

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the environment has three components namely the natural, policy and social environment. These environments affect food availability, accessibility, utilisation patterns and stability of the food and nutrition status.

(a) External environmental factors

External environmental factors refer to natural, structured, technological, sociocultural, educational, and economic and policy environments which affect the availability, accessibility and utilisation of food.

The natural and structured systems are physical, biological and man-made surroundings within which the societal systems function. They include geographical/ natural space with the accompanying biological systems such as plants and animals, and the man-made structures such as buildings, roads and dams. The natural/structured environment will determine the types of animals and plants available in a particular geographical area and the type of agricultural production possible and wild foods available (Jerome et al., 2012; Sanjur, 1982; Kgaphola and Boshoff, 2002) as well as the infrastructure in a specific community.

Sims and Smiciklas-Wright (1978), Ziervogel et al., (2006) and Sakyi (2012) have a similar view, but they see the natural environment as a system which includes the following: climate conditions, topography and soil conditions as factors determining what food can be produced in which area. The natural environment also includes such factors as agricultural potential, available land, animals, plants, insects, birds and fish. Therefore, the natural environment has a direct influence on food gathering and production and affects food availability, accessibility and utilisation patterns.

According to Sims (1982), Ziervogel et al. (2006) and Sakyi (2012), the external environment consists of the interaction of the following:

- economic cost and availability of food (if the cost of food is high this will affect food availability and accessibility)
- the ability of growers and producers to supply food through their technological system
- the ability of processors, manufacturers to deliver food through the delivery system
- packaging, advertising and mass media to promote foods
- educators and the education system to create awareness on the quality and quantity of food to be consumed (education imply both formal and non-formal schooling)
- sociocultural factors

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- life styles of families, households and peers

According to Kgaphola and Boshoff (2002), the macro-environment represents the societal subsystems, namely the political, technological, economic and sociocultural subsystems. The societal subsystem/external environment may influence the availability and accessibility of food at the community and the household level. The political subsystem, through its agricultural and food-related policies and regulations and the technological subsystem through agricultural development in food production, processing and transportation may influence the availability of food to communities (Deacon & Firebaugh, 1988; Engberg, 1990; Paolucci, Hall and Axinn, 1977; Sims and Smiciklas-Wright, 1978; Sanjur, 1982; Kgaphola and Boshoff, 2002; Ziervogel et al., 2006; Sakyi, 2012).

According to Jerome et al. (2012); Sanjur, (1982) and Kgaphola (2003) technology refers to tools and techniques of food production and distribution, including agricultural practices, food processing and transportation systems. The technological environment is the man-made environment which includes technological development for cultivation, processing, storing and distribution of food which affect what foods will be made available for consumption (Sims and Smiciklas-Wright, 1978; Kgaphola, 2003; Ziervogel, 2006; Sakyi, 2012). It includes the transportation system, community water supply, food markets and food technology that determine the availability of food.

Technology is the application of human knowledge to solve practical problems. It includes transformation of matter, energy and information in the development of goods and techniques that increase capacity for adaptation and survival (Bubolz and Sontag, 1993; Kgaphola and Boshoff, 2002; Kgaphola, 2003). Technology also refers to technological methods currently used in food supply and acquisition, storage and preservation, preparation, distribution and sharing; and also any material influences at household level.

The economic subsystem of the environment influences the income and nett worth of the households and thus their ability to produce and purchase food (Kgaphola and Boshoff, 2002; Kgaphola, 2003). For the purpose of this study, economic subsystem implies self-sustainment, money from outside the household, money available for food and the size of the household to consume the food in stock. Changes in the socioeconomic structure also determine the food availability, accessibility and utilisation patterns of the household.

The sociocultural subsystem determines the specific foods that will be chosen and that are acceptable to the cultural and social group to which the family or household belongs (Sims

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and Smiciklas-Wright, 1978; Kgaphola, 2003). With reference to food, the sociocultural system refers to the cultural and ideological systems which include ideas about the role of food in health, religious beliefs involving food, special foods, food restrictions and the use of food in social interactions (Sanjur, 1982; Jerome et al. 2012; Terry, 1994; Kgaphola and Boshoff, 2002; Kgaphola, 2003).

According to Den Hertzog, Van Staveren and Brouwer (2006), Kgaphola (2003) the sociocultural environment is the behavioural environment with factors such as religion, ethnicity, economics, sociocultural traditions and education. The above factors will determine what specific foods will be chosen from an available variety because they are acceptable for consumption in the particular group to which the individual belongs (Sims and Smiciklas-Wright, 1978; Kgaphola, 2003). Other factors which determine food availability, accessibility and utilisation patterns are religion, cultural availability and sociocultural factors.

- **Religion**

In this context religion is a subsystem of the sociocultural environment. Religious beliefs have a great importance in the lives of many people as they influence what they choose to eat (Quin, 1959; Kgaphola, 2003). Often, religions have special laws or instructions about what should and should not be eaten. Some foods are regarded as taboo because of religious beliefs which the society regards as their cultural heritage. Consumption of some animals is forbidden because of religion and cultural totems (Quin, 1959; Kgaphola, 2003).

- **Cultural availability of food**

The sociocultural environment influences the cultural availability of food (Sanjur, 1982; Kgaphola, 2003; Sakyi, 2012). Cultural availability of food is defined as edible material that one's culture considers acceptable for consumption or as part of one's diet (Sanjur, 1982; Sakyi, 2012). Cultural food is expressed in both the conscious and unconscious decisions one makes on the basis of experience and knowledge. If foods are culturally available, they are further categorized on the basis of cultural, nutritional knowledge and experiences of the individual, household or community members. According to Sanjur (1982); Kgaphola (2003), cultural food availability may be categorized according to several determinants associated with food, namely:

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- Foods for social status: what type of foods, where they come from, how and where they are prepared, served, when and how the food is to be served, and who and/or with whom should the food be consumed.
- Physical status of foods: what kinds of foods are for example babies and the sick, and how these foods should be prepared and served.
- Food's role in social and ceremonial events: what type of food can be prepared for celebrations, special occasions such as weddings, funerals, and in which season of the year, for whom and why.
- Etiquette and eating patterns during meal times which might affect their food consumption decisions and/or food habits.
- Division of labour during all occasions: cultural knowledge of who does what in any food provisioning, preparation and serving processes.

- **Socio cultural structure**

The sociocultural environment includes sociocultural structure. Social structure implies customs and meal patterns that are governed by the social and cultural environments, which determine the rules of etiquette and meal patterns of different occasions governed by customs (Parraga, 1990; Sakyi, 2012). Customs are standards, norms of behaviour that one acquires as member of a social group (Parraga, 1990; Sakyi, 2012). The individuals within a culture respond to approved behaviour pressures by selecting from available foods those foods that are acceptable based on specific customs. Each cultural group passes on its food customs and patterns through socialisation of children, thereby transmitting the customs and food patterns to succeeding generations.

(b) Internal environmental factors

According to Sims (1978) Sims (1982) Kgaphola (2003) internal environmental factors are factors that affect households and individuals within the households. According to Deacon and Firebaugh (1988), Engberg (1990), Kgaphola and Boshoff (2002); Kgaphola (2003) internal environmental factors are part of the microenvironment, namely the household system and personal subsystem. According to the ecosystem perspective as applied by Sims (1978) and Sims (1982), Sims and Smiciklas-Wright (1978) and Jerome et al (2012) the study of food habits, food security and/or food insecurity regards the household as a system and all the factors that impinge on it as the environment. According to Kgaphola and Boshoff (2002); Kgaphola (2003) the household is seen as a subsystem of the ecosystem that is in interaction with and therefore influenced by factors in the environment. At the same

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time the household, as subsystem, is composed of several smaller subsystems that may also have an influence on the ability of the household to be aware of the availability, accessibility, and utilisation of food (Kgaphola and Boshoff, 2002; Kgaphola, 2003). According to Kgaphola and Boshoff (2002), the physical microenvironment of a household is composed of the physical and social elements within which the household functions. Deacon and Firebaugh (1988) and Engberg (1990) see the physical microenvironment as the space occupied and used by the household while the social microenvironment is described as the interaction of the household with its neighbours, relatives and friends with the purpose of being informed about the availability, accessibility and utilisation of food. At the micro-level the physical aspects of the village and the social aspects of the community within which the household resides are important since it is the immediate setting within which the household system functions (Kgaphola and Boshoff, 2002; Kgaphola, 2003). The physical aspects will determine the infrastructure and facilities available to the household such as water and electricity supply, roads, transport and market-places that influence food availability. The social aspect of the microenvironment may impact on the intra-community support systems through which food production by a household can be hindered or facilitated (Kgaphola and Boshoff, 2002; Kgaphola, 2003).

According to Paolucci et al. (1977); Kgaphola (2003), household members organise themselves into a system for making food consumption decisions (such as supply/acquisition, storage/ preservation, preparation and sharing) using resources. Because each household member is an individual with biological, psychological and social food needs (Sanjur, 1982; Jerome et al., 2012), the household organisation must serve as an adaptation system and assist members as they interact with one another and with the environment. The adaptation takes place in everyday living through activities such as producing and preparing food to fulfil basic human needs.

In the context where the household is seen as an adaptation system through which the basic needs of its members are provided for, the availability, accessibility and utilisation of food are seen as some of the processes of adaptation (Kgaphola and Boshoff, 2002). The processes of accessing and utilising food both involve accessing, obtaining, allocating, transforming and utilising resources in one way or another. Since both processes involve decision making about the use of household resources, they can be seen as managerial processes (Deacon and Firebaugh, 1988; Engberg, 1990; Paolucci et al., 1977; Kgaphola and Boshoff, 2002). The decisions that the household system makes about the use of resources will determine the quality of living of the system and the availability of the environment that surrounds it (Kgaphola and Boshoff, 2002).

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Internal environmental factors refer to the unique characteristics of the individual that influence food habits and food preferences (Sims, 1978; Sims, 1982; Kgaphola, 2003). These factors are used by individuals to choose food out of the available, culturally accepted foods. These characteristics include ideological structure, namely knowledge, attitudes, values and beliefs and sociocultural structures such as technology used in food preparation, customs and meal patterns and personal factors such as nutritional knowledge. According to Sims (1978); Sims (1982) Kgaphola, (2003), the internal environment includes biological and physiological characteristics as well as endogenous characteristics of knowledge, attitudes, values and beliefs, decision making and planning abilities.

- **Ideology**

For the purpose of this study, the views as explained in Fieldhouse (1995); Sims (1982); Kgaphola (2003) are combined. According to Fieldhouse (1995); Kgaphola (2003), ideology is the sum of the attitudes, beliefs, customs and taboos affecting the diet of a given group. Sims (1982); Kgaphola (2003) and Sakyi (2012) has a similar view point, but they also sees knowledge and values as endogenous factors influencing food availability, accessibility, utilisation and the stability . Fieldhouse (1995) defines ideology as a set of cognitive rules, explicit or implicit, which define good and/or bad, right or wrong, appropriate or inappropriate. Ideology includes "values, norms, knowledge, themes, philosophies, beliefs, sentiments, ethical principles, world views, ethos, symbolism and the like" (Fieldhouse, 1995). Ideological factors embedded within the household members affect what type of food should be accessed, utilised or consumed.

- **Knowledge**

For the purpose of this study knowledge implies a person's range of information gained by experience. Knowledge is based on information related to food matters learned through perceptions which is of outmost importance. People store a vast amount of knowledge regarding foods, their characteristics, the availability, accessibility and utilisation thereof, acceptability and preference. This knowledge is used in decision making (Engberg, 1990; Kgaphola, 2003). Each person has indigenous knowledge about what food constitutes. People learn about food from other people in their environment; they learn about their physical environments and build up a store of knowledge which determines their food accessibility, availability and utilisation patterns.

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Knowledge forms part of the cognitive capacities of people. It refers to the accumulations of facts and the ability to see functional relationships between them (Paolucci et al., 1977; Kgaphola, 2003). It entails the body of shared and relatively standardised explanations and interpretations of a variety of phenomena from natural occurrences to social behaviour and containing solutions to everyday problems (Kgaphola and Boshoff, 2002; Kgaphola, 2003). Knowledge includes indigenous knowledge acquired through socialisation and apprenticeship. The food knowledge within the household will determine the members' food choices, in other words how the household should approach the availability, accessibility and utilisation of food for the benefit of all its members.

- **Beliefs**

Beliefs are conscious conceptions of the underlying expectations about the physical and social world. They are statements about reality that is accepted as true and factual based on empirical observation, logic, tradition and acceptance by others. Beliefs form the basic structure of an individual's conception of the world. They provide the basic framework and cognitive structure within which a person's perceptions occur (Kgaphola, 2003). Beliefs are related to values. Beliefs might be descriptive or evaluative. Beliefs therefore, will control what household members will perceive as food.

- **Attitudes**

According to Kgaphola and Boshoff (2002); Kgaphola (2003), attitudes are "enduring mental representations of various features of the social or physical world". Attitudes are acquired through experience and exert a direct influence on subsequent behaviour, thus they have a strong relationship with actions (Kgaphola and Boshoff, 2002; Kgaphola, 2003). The definitions of attitudes are many but for the purpose of this study we will take the views of Kgaphola and Boshoff (2002) when they defined attitudes as a more or less stable set or disposition of opinion, interest, or purpose, involving expectancy of certain kinds of experiences, and readiness with an appropriate response. This emphasizes the fact that specific attitudes have a strong relationship with actions. Attitudes are considered to be goal facilitating when positive or inhibiting when negative (Sanjur 1982; Kgaphola and Boshoff, 2002; Kgaphola, 2003).

An attitude is a relatively enduring set of beliefs about an object or situation, predisposing one to respond in some preferential manner (Rokeach 1968; Kgaphola, 2003). According to Sanjur (1982) attitudes are our likes and dislikes. Attitudes are the organisation of beliefs

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around an object or situation predisposing one to respond in some preferential manner. Attitudes are related to beliefs. Attitudes are formed because of a person's beliefs about an issue such as food. Attitudes are learned and are related to preferences; they are patterned and they can be changed (Rokeach, 1968; Kgaphola, 2003). Attitudes are similar to values, but are less rigid. Attitudes exist in the personal environment of the self. Attitudes imply action to be considered and a certain degree of firmness regarding opinions about foods. They involve expectations of what constitutes food.

- **Values**

Rokeach (1968 in Kgaphola and Boshoff, 2002) describe value(s) as follows: "An abstract, generalized principle of behaviour to which the member of a group feels a strong, emotionally toned positive commitment and which provides a standard for judging specific acts and goals ... Values provide essential organizing principles for the integration of individual and group goals". The emphasis in this definition is on group values. At the individual level a value is referred to as a value orientation and it is seen as a value to which an individual is committed and which influences his/her behaviour (Kgaphola and Boshoff, 2002; Kgaphola, 2003).

A value is a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of desirables which influence the selection of variable modes, means and ends of action (Rokeach, 1968; Kgaphola, 2003). Values are generalized standards which are more or less bonded to culture. A value can be seen as one of the many ways which decide action. In other words, values are not rules or laws; but important principles that give direction in food choices (Kgaphola, 2003). The values of an individual or group will usually be part of the value system of the society in which they live. For example: some foods might be valued because they offer security, prestige and/or hospitality, but all this will differ from culture to culture.

(c) Critical development issues and development goals

According to Todaro (1984), **development** is the process of improving the quality of all human lives. Four equally important aspects of development are:

- raising people's living levels, that is their incomes and consumption levels of food to ensure household food and nutrition security

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- improved services such as medical, educational, social and welfare services, through "relevant" economic growth processes
- creating conditions conducive to the growth of people's self–esteem through the establishment of social, political and economic systems and institutions, which promote human dignity and respect, for example taking the indigenous knowledge systems of the communities into account
- increasing people's freedom to choose by enlarging the range of their choice variables, in other words increasing varieties of consumer goods and services

From a South African perspective, development should take place at several levels, namely national, provincial, regional, district, community/village, household and individual. According to Engberg (1990), development planners in most developing and underdeveloped countries are not always committed to the lower levels or to the rural households. This study focussed on the household and individual levels. Figure 2.2 is a conceptual framework showing factors that are known to affect food availability, accessibility and utilisation by rural households.

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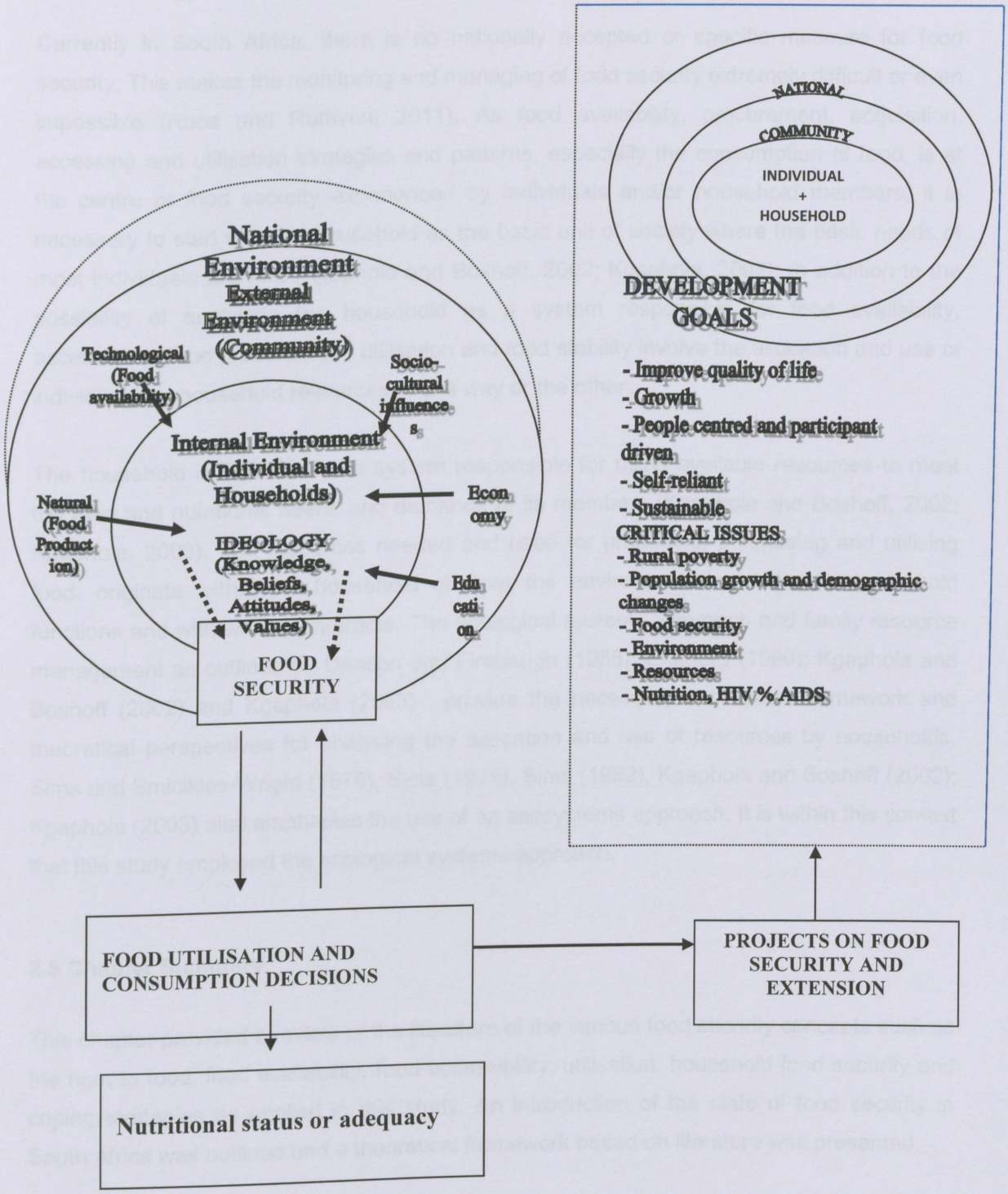


Figure 2.2: A conceptual model for factors that affect food security
Sources: Sims (1982); USAID (1992) in Sakyi (2012); Kgaphola (2003)

The conceptual framework shown above in Figure 2.2 indicates factors that affect food availability, accessibility, utilisation and stability in rural households and communities. The model is useful for monitoring and evaluating programmes (Roos and Ruthven, 2011).

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Currently in South Africa, there is no nationally accepted or specific measure for food security. This makes the monitoring and managing of food security extremely difficult or even impossible (Roos and Ruthven, 2011). As food availability, procurement, acquisition, accessing and utilisation strategies and patterns, especially the consumption of food, is at the centre of food security experienced by individuals and/or household members, it is necessary to start with the household as the basic unit of society where the basic needs of most individuals are met (Kgaphola and Boshoff, 2002; Kgaphola, 2003). In addition to the possibility of analysing the household as a system responsible for food availability, accessibility, food procurement, utilisation and food stability involve the allocation and use of individual and household resources in one way or the other.

The household is regarded as a system responsible for using available resources to meet the food and nutritional needs and demands of its members (Kgaphola and Boshoff, 2002; Kgaphola, 2003). The resources needed and used for producing, purchasing and utilising food, originate within the household or from the environment in which the household functions and with which it interacts. The ecological system approach and family resource management as outlined by Deacon and Firebaugh (1988); Engberg (1990); Kgaphola and Boshoff (2002) and Kgaphola (2003) , provide the necessary conceptual framework and theoretical perspectives for analysing the allocation and use of resources by households. Sims and Smiciklas-Wright (1978), Sims (1978), Sims (1982), Kgaphola and Boshoff (2002); Kgaphola (2003) also emphasise the use of an ecosystems approach. It is within this context that this study employed the ecological systems approach.

2.5 Chapter Summary

This chapter provided a review of the literature of the various food security concepts such as the right to food, food availability, food accessibility, utilisation, household food security and coping strategies as applied in this study. An introduction of the state of food security in South Africa was outlined and a theoretical framework based on literature was presented.

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CHAPTER 3: RESEARCH METHODOLOGY

3.1 Description of the Study Area

The target population for this study was residents of Sekhukhune district in Limpopo province, South Africa. Sekhukhune district forms part of an Integrated Sustainable Rural Development (ISRD) node, and comprises of districts and local municipalities prioritised by the South African government for development. ISRD nodes constitute some of the poorest areas in the country characterised by poor infrastructure, limited resources and economic depression (Drimie et al., 2009).

Sekhukhune district comprises an area of approximately 13 264 square kilometres (1,326,437 ha), the majority of which is rural (Drimie et al., 2009). The district consists of five local municipalities: Marble Hall (Ephraim Mogale), Greater Tubatse, Fetakgomo, Makhuduthamaga and Greater Groblersdal (Elias Motswaledi). The district area lies within previous Bantustan areas of the apartheid era. Limpopo province is regarded as the second poorest in the country with 89% of its population living in rural areas like Sekhukhune as compared to the national average of 46% (Drimie et al., 2009).

Sekhukhune district has two types of vegetation: pure grass-veldt in the western portion and tropical bush and savannah in the northern-eastern portion of the region (Development Bank of Southern Africa, 1998). The region has a summer rainfall and receives 90% of its total annual rainfall during the period October to March each year (Human Science Research Council, 2012). If an annual rainfall of 500 mm is the accepted norm for successful summer grain crop production, then Sekhukhune district could be regarded as unsuitable for crop production. According to the Human Sciences Research Council (HSRC, 2012), the major rainfall received in the area is between 300 mm and 400 mm per annum. This is experienced by about 90% of the area, except the southern portion of the region, which receives slightly higher rainfall of 400 mm and 450 mm. The rainfall pattern is suitable for the survival of indigenous crops such as sorghum and millet (Khumbane, 2004).

The district has extreme fluctuating temperatures between one degree Celsius in winter and 36 degrees Celsius in summer months respectively. As temperatures can be as high in summer as indicated above, with an average evaporation of 1 750-2 500 mm per annum leading to high humidity, summer days can be very oppressive (Human Sciences Research Council, 2012). Two major types of soil are identified. In the northern part of Sekhukhune district, there is a red, massive, rather weak structured soil with high basic status with a

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depth of 450 mm to 750 mm. In the southern part of the region, about 30% of the area is rocky. The depth of the soil in the southern part is less than 450 mm. The clay content of the soil in both North and South portions of the region is between 15 and 35%. According to Quin (1959), the soil in Sekhukhuneland was classified into two sections, namely sub-tropical black clay soils and grey ferruginous lateritic soils. The Ba-Pedi tribes are conversant with the basic differences between soil types and classify them as lešikihledi (sandy soil), mehlabane (sandy loam soil), and seloko (clay soil) (Quin 1959).

The cropping qualities of the various soil types are fully appreciated by the Ba-Pedi. The sandy soils are avoided on account of their relatively low fertility and whereas the clays are famous for their good crops in a favourable rainy season, the relatively low moisture requirements of the loam soil are fully appreciated among the Ba-Pedi in Sekhukhuneland. Sekhukhune district consists of forests and woodlands where indigenous fruits and vegetables are gathered. Figure 3.1 shows a map of Limpopo province which depicts the Greater Sekhukhune district with its five municipalities.

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Figure 3.1: Map of Limpopo province showing Sekhukhune district (Statistics South Africa, 2014)

The main economic activities in Sekhukhune are mining and irrigated agriculture. Platinum, chrome, gold and Palaedium mines are situated in the eastern part of the district, around the Leolo Mountains (Ziervogel et al., 2006). The development of the Dilokong Corridor, an area rich in mineral deposits that stretches across the north east of Sekhukhune through Fetakgomo and Tubatse, is expected to provide increased economic opportunity in the district. There are commercial irrigated farms near Groblersdal and Marble Hall in the south west and Zebediela in the north. However, only 30% of the land area of the district is under commercial farming (Ziervogel et al., 2006). The scarcity of water and the uncertain status of land ownership, with 75% of the land being under land claims, hamper the growth of the agricultural sector (Ziervogel et al., 2006).

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Despite large-scale mining and commercial agricultural activities in the area, there is a very high poverty level, with 84% of people defined as poor (having less than R1500 per household per month) and 66% defined as very poor (having less than R550 per month) (Ziervogel et al., 2006). Sparse rainfall and high evaporation rates limit the success of subsistence farming activities, which involve mainly growing maize, pumpkins and sorghum and rearing cattle, goats and chickens. According to Quin (1959) and Khumbane (2004) the communities practise mixed cropping which they use to produce crops for household consumption with the aim of ensuring household food security. The most commonly produced crops are sorghum, sweet reed, millet, pumpkin, maize, bambarra groundnuts, mung beans, cowpea, gourds, watermelon and citron (Khumbane, 2004).

In the livelihood survey conducted as part of the Food Insecurity and Vulnerability Modelling System (FIVIMS) pilot in 2006, it was revealed that although over 40% of the households in Sekhukhune indicated that they grew their own crops, this was largely for supplementary purposes and by means of a vegetable garden or maize plot (Drimie et al., 2009). This reinforced the importance of purchasing food for household requirement and the related necessity of having an income source to ensure food security.

Employment levels are very low in Sekhukhune and large numbers of people are not economically active. Unemployment currently stands at 69%, much higher than the provincial average of 49% (Ziervogel et al., 2006). It is estimated that the economy in Sekhukhune needs to grow in such a way that it creates 2800 new jobs per year if the unemployment rate is to be reduced by 1% per year. Currently, government employs 16% of the population; therefore, the public sector plays an important role in the economy of the district (Ziervogel et al, 2006). Many people who have no formal income rely on government grants and remittances from family members working in other areas, while others engage in activities in the informal economic sector with varying degrees of success (Maponya and Moja, 2012).

According to the 2011 census conducted by Statistics South Africa (2012), the total number of people living in Sekhukhune district at the end of 2011 was equal to 1, 076,840. The district had 546 villages and five towns. According to the study conducted by Ziervogel et al. (2006), Sekhukhune district had an average population density of 85 people per square kilometre in 2006. This figure shows that the population in Sekhukhune district is adversely affected by population growth and scarcity of arable land. Of this total population, over 90% live in rural areas. The population is largely a youthful one with approximately 50% of the population under the age of 18 (Ziervogel et al., 2006). HIV/AIDS is having a significant

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impact on the growth rate of the district, as in the rest of the country. The current growth rate is just over 1% per annum, compared to a growth rate of about 3.4% per annum in the early 1980s before the AIDS pandemic (Ziervogel et al., 2006). According to Ziervogel et al., (2006) the growth rate is expected to drop even lower in years to come. There were a higher proportion of women than men in the district, partly related to high levels of male absenteeism (Maponya and Moja, 2012). Many men have migrated in search of work mainly to the Mpumalanga coal fields and Gauteng (Ziervogel et al., 2006; Maponya and Moja, 2012).

Sekhukhune has an extensive road network, but road quality is a problem. Many roads are poorly surfaced and conditions become even worse in the rainy season when large gullies form (Ziervogel et a.l, 2006). Public transport is limited in many parts of the district. Only a few minibus taxis pass daily and tariffs are high considering the unemployment and low income levels. The nature of transport affects food availability and accessibility in the sense that some foods are to be transported from the towns to the periphery in good quality and quantities. The costs of travelling to towns to buy food are also too high.

The province of Limpopo is one of the least developed provinces of South Africa (Statistics South Africa, 2012). The province needs to significantly boost the pace at which infrastructural developments are implemented as a means of improving the quality of basic services that are provided to the general population. The province is characterized by a lack of infrastructural development, rural poverty, lack of employment opportunities, and poor education and health-related services. The province of Limpopo is synonymous with natural disasters caused by adverse weather conditions (Statistics South Africa, 2013). The South African Departments of Cooperative Governance, Human Settlements and Traditional Affairs (COGHSTA) is responsible for the provision and management of disaster and relief operations that are provided to the general population of Limpopo province.

3.2 Data Sources

This study used both primary and secondary data sources. The primary data were gathered through administration of questionnaires and a check list in the study area. The survey was conducted between May and September 2012. The primary data consists of both qualitative and quantitative data which was collected at the household level in three municipalities, namely Elias Motswaledi, Ephraim Mogale and Makhuduthamaga. Secondary data was

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obtained from South African Statistical Service (Stats. SA) Census reports (Census 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014); books and journal publications.

3.3 Study Design

A cross-sectional study design was adopted to realise the objectives of this study. Therefore, data was collected from the respondents only once, and there was no follow-up. This design according to Babbie (1995) is useful for descriptive purposes as well as determination of relationship between and among variables at a particular point in time. A cross sectional design was used because the researcher wanted to get a snap short of food security issues in Sekhukhune district in-line with the objectives of the study. Compared to longitudinal design, the cross sectional study is less costly and suited for studies with a limited time frame (Harris-Fry, Azad, Kuddus, Shaha, Nahar, Hossen, Younes, Costello and Fottrell, 2015).

3.4 Sampling Procedure

A two stage random sampling was adopted for the present study. First three municipalities were randomly selected out of the five municipalities of Sekhukhune district. From the three randomly selected municipalities, 21 villages comprising of 7 villages each from the three selected district municipalities were again randomly selected out of 59 villages. Randomisation at this stage was adopted to avoid biasness.

Out of the 21 villages selected as described above, a combination of proportional sampling and purposive sampling was adopted to select respondents (Henning, 2004; Neumam, 2000). Proportional sampling was adopted because the sizes of the villages were unequal. This means that larger samples were selected from larger villages, while smaller samples were obtained from smaller villages. According to De Vos (2001) purposive sampling is generally suited for small, in depth studies with research design that are based on the gathering of qualitative data and focus on the exploration and interpretation of experience and perceptions of the respondents.

To ensure that the sample within each village was representative, the researcher, the research assistants and the extension officers first met at the central point in the village. From there, a random direction was chosen, and households were purposively selected between the central point and the end of the village. However, only households that volunteered to be interviewed were allowed to participate in the study. The initial plan was to

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purposively collect data from 10 respondents per village but due to the diverse and complexity sizes of the villages more than 10 respondents were selected per village depending on the size of the village so that the sample size reflected the size of the village. The process followed for sampling procedures for the study is as indicated in figure 3,2 below

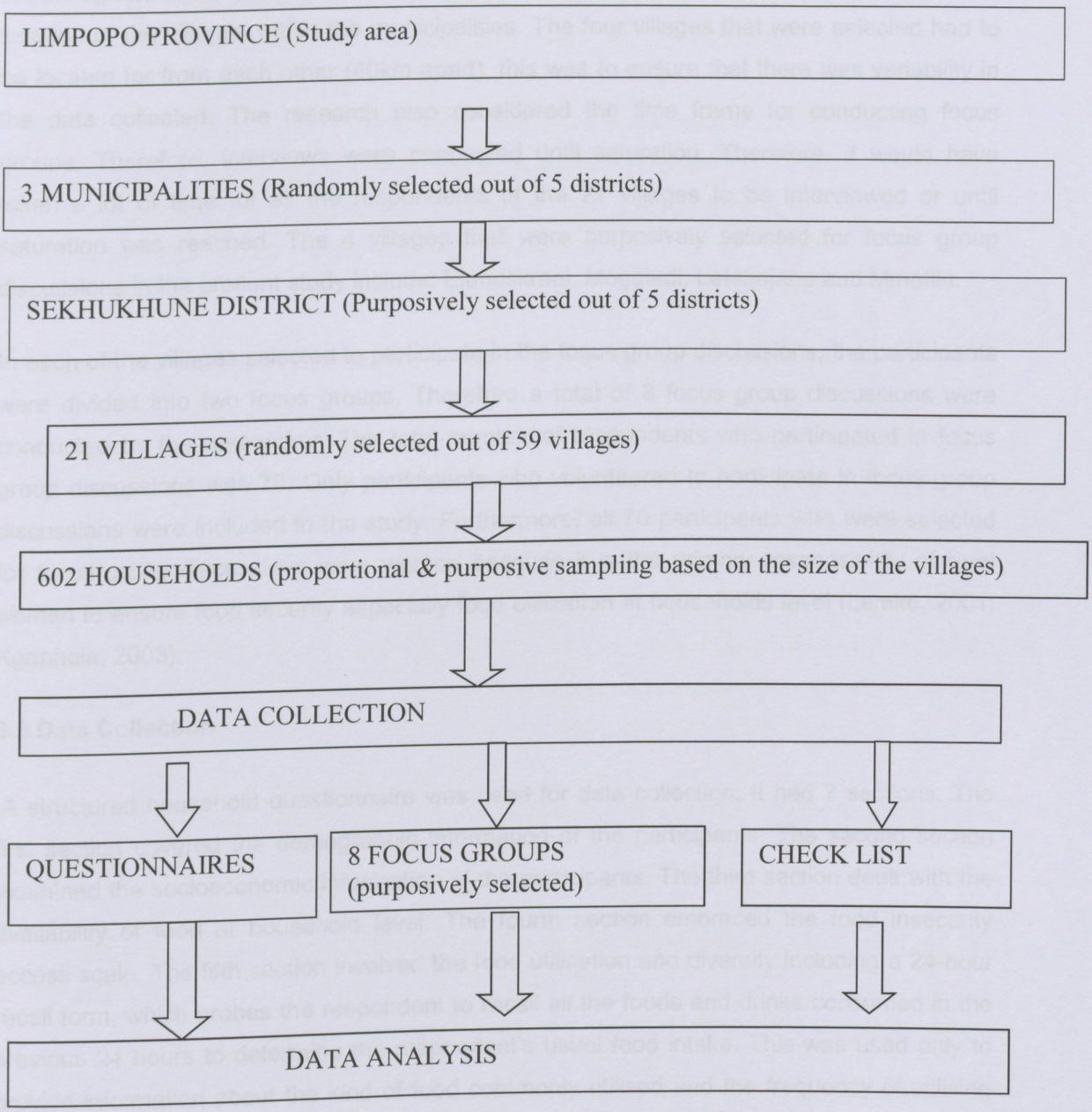


Figure 3.2 The schematic flow of sampling, data collection and data analysis.

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Determining participants for the focus groups

Out of 21 villages randomly selected, only four villages were finally selected for the purpose of conducting focus groups discussions. Selection of these four villages was based on the assessment of their different external environmental factors (natural and physical, technological, socio-cultural, economic and educational), the sizes of the villages and the location of the villages within the municipalities. The four villages that were selected had to be located far from each other (40km apart), this was to ensure that there was variability in the data collected. The research also considered the time frame for conducting focus groups. Therefore, interviews were conducted until saturation. Therefore, it would have taken a lot of time for all the respondents of the 21 villages to be interviewed or until saturation was reached. The 4 villages that were purposively selected for focus group discussions in the present study include: Elandskraal, Mogaladi, Letebejane and Mmatilu.

In each of the villages selected to participate in the focus group discussions, the participants were divided into two focus groups. Therefore a total of 8 focus group discussions were conducted by the researcher. The total number of respondents who participated in focus group discussions was 70. Only participants who volunteered to participate in focus group discussions were included in the study. Furthermore, all 70 participants who were selected for focus group discussions were women because it is the primary responsibility of rural women to ensure food security especially food utilization at households level (Lemke, 2001; Kgaphola, 2003).

3.5 Data Collection

A structured household questionnaire was used for data collection. It had 7 sections. The first section covered the demographic information of the participants. The second section examined the socioeconomic information of the participants. The third section dealt with the availability of food at household level. The fourth section embraced the food insecurity access scale. The fifth section involved the food utilisation and diversity including a 24-hour recall form, which probes the respondent to recall all the foods and drinks consumed in the previous 24 hours to determine the respondent's usual food intake. This was used only to provide information about the kind of food commonly utilised and the frequency of utilising such foods in a day, and not for nutritional analysis of the diet. The sixth section contained household coping strategies (issues of stability) in instances of food insecurity while the last section consisted of questions regarding community projects.

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The researcher conducted eight focus group interviews to assess the internal factors such as ideological factors that included knowledge, beliefs, attitudes and values about food, which contribute to food accessibility and utilisation patterns. The data were combined with data from structured household questionnaires to analyse the factors that affect the patterns of household level availability, accessibility and utilisation of food in the households. By using different methods, the researcher aimed at triangulating the data. Triangulation refers to the use of multiple methods of data collection (Frank, 2009; Fouché and De Vos, 2001).

The collection of data using structured household questionnaire was conducted by: the researcher and the two research assistants. In each household the adult member of the household was interviewed. Only one respondent was selected from each household. Only one questionnaire was administered at each household.

3.6 Training of Research Assistants

Two research assistants were trained before the data collection. The research assistants were trained by the researcher on survey technique and survey instruments. Training lasted four days. The research assistants were briefed on the content and meaning of the various questions. They were also trained on the ethics of conducting research and the importance of establishing rapport with the respondents. Although the original questionnaire was written in English, in consultation with a Northern Sotho lecturer at UNISA, it was translated into Northern Sotho (Sepedi) to facilitate the data collection process (see Appendix A). This was done to help obtain the right equivalents of the food security terms in Northern Sotho.

The questionnaire was discussed before the pilot study. The purpose of these discussions was to help:

- eliminate ambiguity,
- the research assistants to understand the questions in the same way the researcher did; and
- the research assistants to collect valid and reliable information intended by the content of the interview schedule.

3.7 Permission to Conduct Research

A written permission in the form of an approval letter was obtained from the Provincial Department of Agriculture in Polokwane. Further permission was obtained from the

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municipal managers and heads of extension services of Marble Hall, Groblersdal and Makhuduthamaga municipalities (in Greater Sekhukhune district). In addition, the researcher sought permission from extension workers who became informants and entry points to the study. The researcher also sought permission from tribal authorities such as that of Chief Matlala in Mohlalaotwane village, the headmen of Letebejane village and leaders of different projects which formed the participants of the research. In all instances the researcher had to first give an explanation of the research and inform all the authorities about the purpose of the research. Ethical clearance for this research was granted by the Ethics Committee of the University of Venda, project number SHS/11/PH/006. The rationale of the research was explained to the respondents and their verbal consent was therefore sought before they were interviewed.

Standard ethics procedures and guidelines were followed during data collection and analysis. The rationale of the survey was explained to the respondents and their verbal consent was therefore sought before they were interviewed. Full explanations were provided to each of the 602 respondents who took part in the quantitative aspect of the study. The same was done for the 70 women who took part in qualitative discussions and in-depth interviews. All respondents took part in the study voluntarily. Answers gathered from respondents were made anonymous and kept confidential. Respondents who took part in the study were exposed to minimal risk. Local extension workers helped the researcher by asking permission from either the chief and/or the local leaders ahead of each meeting and by being entry points and informants in all the villages.

3.8 Pilot Study

. According to Dawson and Trapp (2004), Bless and Higson-Smith (2000) a pilot study is a small study conducted prior to a large piece of research to determine whether the methodology, sampling, instruments and analysis are adequate and appropriate. A pilot study was conducted with a group of 20 households at Mphaane village in Sekhukhune district. According to Frank (2009), Babbie (1995), Babbie and Mouton (2001) and De Vos, (2001) content validity refers to the degree to which a measure covers the range of meanings included in the concept. Participants in the pilot study were used to test the interview schedule for its content validity. The research assistants were observers and were given the opportunity to interview two respondents each during the pilot process.

The findings of the pilot study were that the questionnaire was too long and took too much time to complete. It was also found that some questions were repeated, even though the

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wording was different. Therefore, some questions were eliminated to shorten the questionnaire and to reduce the time needed to complete it. According to Frank (2009), a questionnaire with so many questions could be counterproductive. This is because too many questions could have respondents exhausted and disinterested.

3.9 Interviewing Participants

From May to September 2012 (5 months), 602 participants from different households were interviewed. Appointments were made with extension workers and community workers to accompany the researcher and the research assistants to visit different villages. Although most targeted household members participated in the study, some refused to participate. Due to the relatively low level of literacy of the participants in the villages, individual face-to-face interviews were conducted. This helped the researcher to obtain information directly from the individual respondents. Although individual face-to face interviews were time-consuming where each interview lasted 50 to 60 minutes, they were important in that they enabled the researcher to have reliable and valid information. They also gave the researcher an opportunity to probe for answers, where necessary.

Eight focus group discussions were conducted in the following villages: Elandskraal, Mmatilu, Mogaladi and Letebejane. In each village the participants were divided into two groups. Therefore, each village had two focus groups. A check list was used to probe the participants on external and internal factors which affect their food accessibility, utilisation patterns and food consumption decisions until saturation. The villages were chosen because they were willing to participate in focus group discussions, and also based on the cost and location of the villages. The four villages were far apart from each other. The villages were also diverse in terms of their external and internal environmental factors.

In total, 70 participants participated in focus group discussions. Northern Sotho (Sepedi) was used as a medium of communication. The researcher's initial plan was to use a video camera to capture the proceedings. However, the participants were not comfortable to discuss their food insecurity issues on camera. This was because the participants thought the visuals would be shown on live television screens.

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3.10 Data gathering and analysis

3.10.1 Data gathering

The sample size and statistical power of study were determined in accordance with standard sampling techniques that are recommended for descriptive, cross-sectional surveys. For a descriptive, cross-sectional study of this type, a sample of size n=602 and a power of 99% were considered to be suitable (Dawson and Trapp, 2004).

The methods of data gathering and analysis adopted in this study were predominantly quantitative due to the nature of variables of study and the research questions that needed to be answered as part of the study. The response obtained from each questionnaire of study was verified, and the data was validated prior to data analysis and the interpretation of results.

The list of households in Sekhukhune district was obtained from Statistics South Africa. The list was used as a sampling frame. Every k^{th} household on the list was selected where K denotes the sampling interval. K is given by:

$$K = \frac{N}{n} = \frac{250,000}{602} = 415 \text{ = Sampling interval.}$$

Hence, every 415th household in the list was selected for the study. The process of selection continued until all 602 eligible households were selected. In cases where the head of a household could not take part in the study, the next household on the list was selected for the study. From then on, every 415th household was selected as usual.

A total of 602 eligible respondents (men and women) who met the criteria of inclusion were selected for the quantitative aspect of study. An additional 70 women were selected for the qualitative aspect of the study.

3.10.2 Analysis of quantitative data

Data entry and analysis were done in the statistical package STATA version 13 (STATA Corporation, 2013). The choice of statistical methods of data analysis was informed by the research questions that needed to be answered, and the nature of variables of study on which data was collected.

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The definition used for creating the dependent variable of this study was based on the composite index proposed by Norhasmah et al. (2010) for a similar study in which the degree of food insecurity was quantified by using a composite index. Similar composite indices have been used by food security specialists such as Sanjur (1982), Sims (1978, 1982), Parraga (1990), Paolucci et al. (1977), Ruel (2002) and Quandt, Arcury, Early, Tapia and Davis (2004).

The variables used in this study involve nominal variables such as gender (male, female) as well as ordinal variables (in which order matters). The key ordinal variable in the study is the dependent variable of study (Y), and this was food security at household level. The dependent variable of study (food insecurity at the household level) was defined based on a 5-point ordinal scale.

The five values of the dependent variable of study (Y) adopted in the present study included the following:

Y: Degree of food insecurity at the household level

1. Never
2. Sometimes
3. Half the time
4. Often
5. Always

As the values of variable Y vary from 1 (lowest level of food insecurity) to 5 (highest level of food insecurity), the degree of food insecurity increases. For the purpose of performing multivariate data analysis, it was necessary to compute an index of food security based on the responses from a number of indicators of food security taken from section C of the questionnaire (see appendix B: V19-V33). This was a total of 15 indicators with a scoring ranging from 1-15 with 1 indicating food security and 5 indicating a severe case of food insecurity. The food security index was thus computed as follows: A households scores for V 19 to V33 were added up with a household being able to achieve a minimum score of 15 i.e. never experiencing any of the indicators of food insecurity, hence food secure, up to a maximum score of 75 indicating the household always experienced all the indicators of food insecurity which would be the most severe case of food insecurity. Household scores could lie within the 15-75 continuum with a score below 38 (the midway) being considered food secure and above being considered food insecure. The key statistical method of data analysis in this study was binary logistic regression analysis. As such, the values of variable Y were reduced from 5 to 2 as follows:

Y: Degree of food insecurity experienced at the household level

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1. Inadequate if food shortage is experienced at the household level always, often, or half the time

2. Adequate if food shortage is never experienced at the household level, or is experienced only sometimes

Independent variables of the study were factors that affect the extent to which households in Sekhukhune district experienced food insecurity in each of the 602 households selected for the study. For each household, data was gathered on the following variables of study by using a structured questionnaire: family size, position of respondent in the household, gender, age, level of education, occupation e.g. farming, frequency of visiting the farming area, ownership of a vegetable garden, type of vegetable planted in garden, monthly income, amount of monthly remittance received, child support grant, employment status, other sources of income, experience of food insecurity (food running out), not knowing where the next day's food would come from, inability to purchase enough food, experiencing hunger often, having to eat less, shortage of money needed for buying food, inability to afford food needed for feeding children at home, children not getting enough food to eat, children going to bed feeling hungry, not having enough food to last, not knowing where tomorrow's food was going to come from, inability to afford to eat enough every day, having enough money needed for food, having to go to bed feeling hungry, having food in the house the day before someone gets paid, worrying about food, frequency of worrying about food, inability to eat preferred food due to shortage of food, frequency of inability to eat preferred food, having to eat limited variety of food, having to eat smaller portions of food due to shortage of food, having to eat fewer meals, going to sleep hungry due to shortage of food, types of cereals consumed, type of vitamin A rich vegetables consumed, white tubers and roots consumed normally, types of green vegetables consumed, types of fruits and vegetables consumed normally, type of organ meat, flesh-meat, fish, milk, oil, fat, sweets, spices and eggs normally consumed, borrowing money for buying food, buying food on credit, relying on donation from friends and family, reducing the number of meals taken, and having to skip meals due to shortage of food at home.

The following statistical methods of data analysis were used to analyse the data:

- Frequency tables and bar charts for each discrete variable of study.
- Summary statistics for each continuous variable of study
- Pearson's chi-square test of association was used to evaluate the strength of association between variables.

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- Binary logistic regression analysis (Hosmer & Lemeshow, 2004) was performed in order to identify key factors which affect food security. Unadjusted and adjusted odds ratios were obtained for influential predictor variables.

Sensitivity and specificity tests were also performed in order to assess the reliability of the fitted logistic regression model (See chapter 8).

3.10.3 Analysis of qualitative data

. Qualitative interviews were conducted by using a tape recorder. The interviews were transcribed later. Tallying, coding, text analysis, content analysis, thematic analysis and triangulation were used for performing qualitative data analysis.

3.11 Validity and Reliability of Measurements

Validity tests had to be done in order to ensure that the questionnaire measured what it was supposed to measure. Reliability tests had to be done in order to ensure internal consistency and reliability. As a means of ensuring validity, face validity was used by administering the questionnaire of study to a random sample of 20 respondents at the site of study. As a means of ensuring reliability, the Cronbach Alpha test (Frank, 2009) was used. The test gave a coefficient of 82% which shows that the tools used for measurement were fairly reliable and consistent. Nominal and ordinal scales were used to measure the variables. Variables with possible values of Yes and No were measured based on nominal scales in which order did not matter. However, variables with possible values of 1, 2, 3, 4 and 5 were measured based on ordinal scales in which categories 1 and 5 denoted the lowest and highest possible levels respectively.

3.16 Chapter Summary

This chapter presented the methods and material used in the study. The study design, the sample size of study, and the quantitative and qualitative methods used in the study have been explained. The dependent and independent variables of study were explained in the chapter. Measurement issues such as validity and reliability were discussed in the chapter. A combination of quantitative and qualitative research methods were used to collect and analyse data. The chapter also explained the ethical procedures and guidelines that were followed in the study. Ethical considerations and expected outcomes were outlined.

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CHAPTER 4: DEMOGRAPHIC PROFILES OF RESPONDENTS

4.1 Introduction

The chapter presents the results and discussions of the socio demographic profiles of the respondents and the relationship between the socio demographic profiles and food security of the respondents.

4.2 Socio Demographic Profiles of the Respondents

Table 4.1 below shows the 21villages that were selected and the total number of respondents in each village. A total of 602 respondents agreed to be interviewed.

Table 4.1: List of villages selected for the study and total number of respondents

Villages	Number of respondents	Percentage
Mohlalaotwane	27	4.5
Mmakgatle	25	4.2
Tšatane	22	3.7
Letebejane	35	5.8
Mogaladi	32	5.3
Moomane	26	4.3
Mmatilu	41	6.8
Mphaane	26	4.3
Elandskraal	88	14.6
Phokwane	25	4.2
Di Plotong – Herford	12	2.0
Mogalatšane	35	5.8
Thabaleboto	29	4.8
Makgopheng	24	4.0
Motsephiri/ Gemskopsruit	19	3.2
Tafelkop ga Matsepe	22	3.7
Wonderboom	23	3.8
Mamaneng	31	5.1
Mabitsi	38	6.3
Ngwalemong	12	2.0
Leeufontein	10	1.7
Total	**602**	**100**

4.2.1 Household size of the respondents

Out of a sample of 602 respondents, 254 (42.19%) were living in a household of less than 5 individuals while 348 (57.81%) lived in a household of more than 5 individuals. The results implied that in these villages they had a large number of family sizes. The larger the household size the higher the possibility of being food insecure. According to De Cock et al., (2013), households who were food insecure in Limpopo province had large family sizes. The

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results of this study reflect large family sizes. A larger household means there is more pressure on food requirements (Musemwa et al., 2015) leading to a large percentage of the households being food insecure. A larger family size is only financially better off if all its members earn some income.

4.2.2 Food security status of the respondents

Out of a sample of 602 respondents 104 (17.28%) of the respondents were adequately food secure, while 498 (82.72%) of the respondents were inadequately food insecure. Studies conducted in South Africa using different proxies (income measurements, anthropometric measurements of under-nutrition and experiences of hunger) suggest that between 41% (Stats SA, 2007) and 51.6% (Labadarios et al. 2009) of households are food insecure. The results of this study indicate that a higher percentage (82.72%) of the households in Sekhukhune district were food insecure.

4.2.3 Age distribution of the respondents

Table 4.2 represents the age distribution of respondents who took part in the study. The majority (25.1%) of the respondents who took part in the study were above 60 years. A study conducted by Musemwa et al. (2015), indicated that household heads aged 60 and above were the most prevalent, although their score for being severely food insecurity was equalled by households with head aged between 30 and 50. Table 4.2 indicate the age of household members.

Table 4.2: Age of household members

Age	Number of Households	Percentages
Below 20 years	9	1.5
20 – 29 years	73	12.1
30 – 39 years	117	19.4
40 – 49 years	131	21.8
50 – 59 years	121	20.1
Above 60 years	151	25.1
Total	**602**	**100**

4.2.4 Gender distribution of respondents

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The sample consists of both females (83.1%) and males (16.9 %). Various studies have shown that issues of household food security affect females more than males because they are the ones involved in ensuring that food is available; and also in issues of child care, food preparation, household food accessing and utilization patterns (Lemke, 2001; Kennedy and Peters, 2013; Kgaphola, 2003). During the research process, the majority of the participants were women (83.1%) while men (16.9%) were in a minority. A study conducted by Lemke (2001) indicated that black women in pre-capitalist farming society of Southern Africa worked the land and were responsible for child care, domestic work, food availability and accessing strategies and food preparation while men migrated to the urban areas. Female-headed households constituted a significant number of the economically active population in Sekhukhune District as most of the males were migrant workers (Stats SA 2013; Maponya and Moja, 2012). This became prevalent during the research process because the majority (83.1%) of the respondents were women. The results of this study showed that females had a strong relationship with food security. There is substantial evidence that women play an important role in improving household access to food in Africa (Jacobs, 2009).

4.2.5 Education status of the respondents

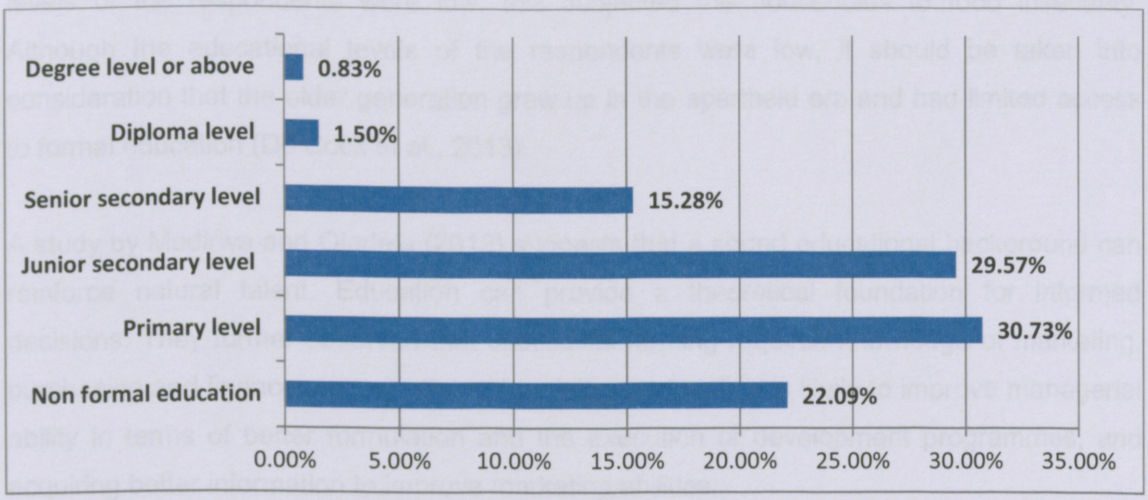


Figure 4.1: Educational status of respondents in study

The educational status of the respondents in the study area is indicated in Figure 4.1. In the study area, 22.09 % of the respondents had no formal education, 30.73% had only primary education while 29.57% had secondary education. Fifteen point twenty eight percent of the respondents had a high school grade while 1.50% had diplomas and 0.83% had tertiary education. Demographic factors also played a decisive role in households` food security status. For example, households whose heads or breadwinners are educated are often more

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likely to be food secure (Bartfeld and Dunifon, 2006; Kidane, Alemu and Khundhlande, 2005; Shiferaw Kilmer and Gladwin, 2005; Abebwa and Ayalneh, 2007; Alemu, 2010). The results indicate a low level of education in the study area. This could be worrying since an education level has strongly been linked to improving household food security as well as poverty reduction (Sakyi, 2012). Most (52.8%) of the respondents interviewed had none formal and primary education.

Information on education and literacy in developing countries reflects the level of human resource development and the potential for economic growth and development (Lemke, 2001). Education can also indicate socio-economic wellbeing and is therefore a reflection of living standards (Lemke, 2001). According to Lemke (2001) education is associated with higher earnings, lower fertility, better nutrition, better health care and better living standards of children, it is often perceived to have a greater potential to solve poverty than it in fact possesses. Research conducted by Maponya and Moja (2012) in Sekhukhune District at Mamone Village, concluded that lack of education has been found to correlate strongly with hunger and food insecurity. Education has been found to be a key to poverty reduction; increased education has been found to improve the livelihoods of the poor and reduce the likelihood of becoming poor (Maponya and Moja, 2012). Therefore, because the educational levels of the respondents were low, this subjected the households to food insecurity. Although the educational levels of the respondents were low, it should be taken into consideration that the older generation grew up in the apartheid era and had limited access to formal education (De Cock et al., 2013).

A study by Modirwa and Oladele (2012) suggests that a sound educational background can reinforce natural talent. Education can provide a theoretical foundation for informed decisions. They further observed that successful farming requires knowledge of marketing, purchasing and finance, among others. In addition, education is likely to improve managerial ability in terms of better formulation and the execution of development programmes, and acquiring better information to improve marketing abilities.

The findings of a research study conducted by Quandt et al. (2004) suggest that educational opportunities for females do translate in some way into greater food security for their families. An example is when women attend an adult nutrition education programme they tend to get exposure to matters related to food accessibility and better ways to choose and use food. Investing in women's education increases women's capabilities, expands opportunities available to them and empowers them to exercise choices (Green, 2004). Empowering women is a key issue in achieving household food security and increasing

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women's education is the key ingredient for women empowerment (Green, 2004). According to Ndhleve et al. (2012), the level of education is positively related to food access though its effects will be seen if one is employed.

According to Sakyi (2012), there is a strong correlation between education, empowerment and food security. FAO (2009) emphasized that education in different forms such as formal or non–formal, as well as skills training, is very useful as it tends to develop the capacity of people to enhance food security. Sakyi (2012) argues that the level of education enhances food security and reduces poverty since it opens up opportunities to improve livelihood strategies. A study by Bashir, Schilizzi and Pandit (2012 cited by Sakyi, 2012) of rural households in Pakistan found that households headed by people with education of up to intermediate level (10 to 12 years of schooling) were more likely to be food secure. This confirms the positive impact that the education system has on household food security. The results of this study concluded that 83% of the households was less educated, thus affecting their levels of food accessibility and resulting in food insecurity. Even those who went to school up to high school level and tertiary level (17%) were unemployed leading to food insecurity.

4.2.6 Livelihood activities of the respondents

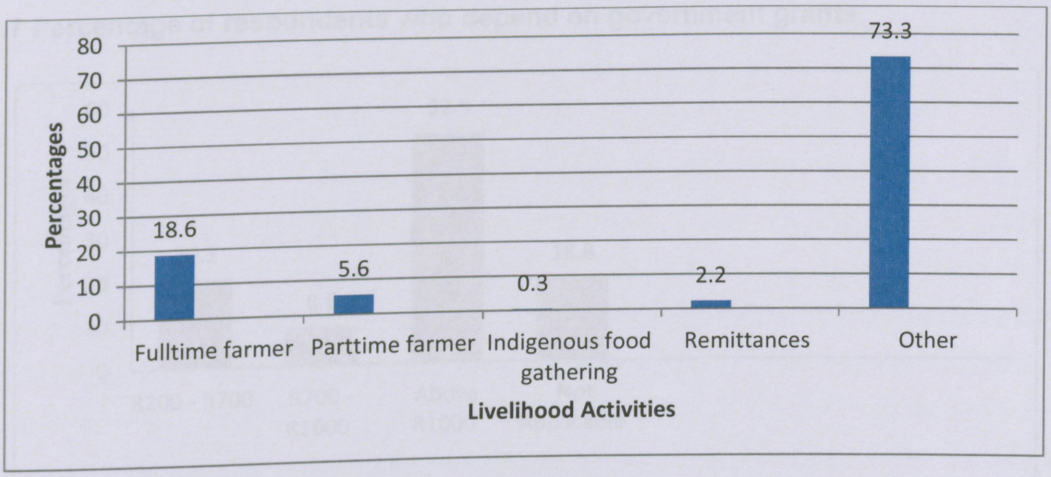


Figure4. 2: Livelihood activities of the respondents

Figure 4.2 represents the livelihood activities of the households. Out of a total sample of 602 respondents, 24.2% participated in farming activities to make food available to the members of their households. The results of Figure 4.2 reveal that a smaller percentage (24.4%) could only access their food from their farming units. In this study farming implies activities such as livestock production, poultry, vegetable and crop production. Part of the explanation for this

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is that agricultural production at the local level has been marginalised and that the rural poor are decreasingly engaging in agricultural production (Drimie *et al.*, 2009). Reasons for this include poor access to agricultural land and inputs, including labour, and biophysical factors, decrease in agricultural knowledge, inappropriate extension services, poor credit facilities, HIV and AIDS, climate change and increasing water pressures have exacerbated the situation (Drimie *et al.* 2009). According to Drimie *et al.* (2009), perceptions about the value of engaging in agricultural production have also shifted with the changes in culture and livelihoods of the rural households. A study conducted by Ndhleve et al. (2013), in the Eastern Cape Province of South Africa concluded that farmers are only able to grow 30% of the crop that they will require annually. This implies that even the 24.2% who reported that they are producing food would have to purchase food from the market to augment food shortages because their production is not enough to cover all their food needs.

Lack of land and climate change also affected the patterns of food gathering which resulted in only 0.3% gathering indigenous foods. Although literature reviewed (Quin, 1959; Quin, 1964; Lemke, 2001) indicated that some households gathered food from the veldt, the result of the selected sample indicated that only 0.3% could gather wild foods. The higher percentages (73.3%) of the respondents depend on other activities such as full time and part time employment, remittances and social grants for their livelihoods.

4.2.7 Percentage of respondents who depend on government grants

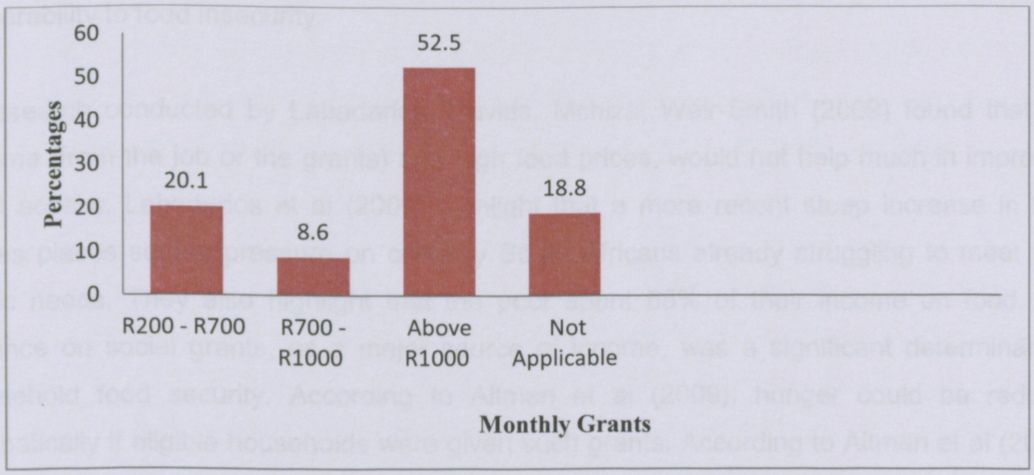


Figure 4.3: Monthly Grants of Households (from the government)

Figure 4.3 represents monthly grants offered by government. The government of the Republic of South Africa (RSA) provides some financial assistance to ensure economic food access in the form of social assistance (Ballantine *et al.*, 2008). This social assistance, colloquially known as a grant, is provided for the elderly, war veterans, the disabled and

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those having to care for disabled children, foster children, and children younger than 18 who qualify for the grant (Ballantine et al., 2008; Rule, 2005). This grant may improve food availability and economic access to food in some instances. Figure 4.3 above represents the monthly grants which were received by some of the respondents. Out of a total of 602 respondents, 81.2% received monthly grants. Only a smaller percentage of the households (18.8%) did not receive any form of grants. Therefore, the results indicate that government played a major role in ensuring food availability and accessibility by providing some of the rural households with grants.

The grant offered by the government contributes to household food security and improves economic availability of food in most rural households. Therefore, there is a statistical correlation between the grants and food access of the households. According to Ballantine et al (2008), food insecurity levels change with income level. The lesser you earn, the more frequently the household will experience conditions associated with food insecurity. Figure 4.3 indicates that there is a link between monthly grants and food access. The results also show that 20.10% of the respondents received less than R700.00 per month which indicates that with the lower grants the household would be food insecure compared to those who receive more than R1000.00. "One challenge for households mainly depending on government social grants as a strategy for ensuring food security is that they are already low and do not increase proportionally with inflation" (Musemwa et al., 2015). Furthermore, larger households put more strain on the already constrained grant and hence increase vulnerability to food insecurity.

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A research conducted by Labadarios, Davids, Mchiza, Weir-Smith (2009) found that low income (from the job or the grants) and high food prices, would not help much in improving food access. Labadarios et al (2009) highlight that a more recent steep increase in food prices places severe pressure on ordinary South Africans already struggling to meet their basic needs. They also highlight that the poor spent 65% of their income on food. The reliance on social grants, as a major source of income, was a significant determinant of household food security. According to Altman et al (2009), hunger could be reduced dramatically if eligible households were given such grants. According to Altman et al (2009), their General Household Survey indicates that more than 58% of the households in Sekhukhune district depended on grants as their major source of income, while the results of this study indicated that a higher percentage (81.2%) depended on grants as a means of accessing food.

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4.2.8 Employment status of the respondents

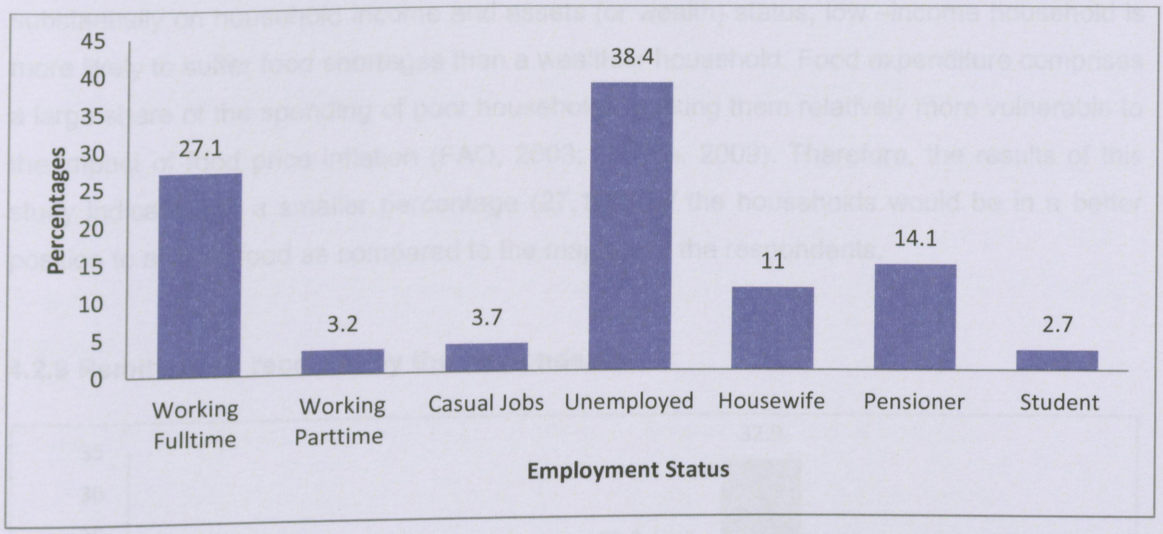


Figure 4.4: Employment Status of the respondents

Figure 4.4 represents the employment status of the respondents where 27.1% are working full-time, 3.2% are working part time while 3.7% are doing casual jobs. Thirty-eight point four percent of the respondents were at the time of the research unemployed, 11% were housewives, 14.1% were pensioners and 2.7% were students. The research results indicated that only a smaller percentage (34%) of the households was employed while a larger percentage (49.4%) was unemployed. This is supported by research conducted by Lemke (2001) in the North West Province of South Africa, which concluded that employment opportunities in the rural areas are very limited or non-existent. Those who were employed had advantages of ensuring that food is available as compared to those who are unemployed.

The employment status of the parents or of a member of the household normally determines whether sufficient economic resources will be available at household level, including cash to purchase food (Matla, 2008). The level of income will determine the quantity and quality of food available to purchase food for one's household. While housewives (11%) are said not to be working, according to Matla (2008) they still contribute to food availability as some gather fire wood, collect water and gather indigenous vegetables during summer. They are responsible for the availability of food in terms of purchasing when given money to do so for example when remittances are sent home or when offered grants by the government.

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Households with members working full time would be able to accumulate assets which might be used as a buffer in times of food insecurity. While household food security depends substantially on household income and assets (or wealth) status, low –income household is more likely to suffer food shortages than a wealthier household. Food expenditure comprises a large share of the spending of poor households, making them relatively more vulnerable to the impact of food price inflation (FAO, 2003; Jacobs, 2009). Therefore, the results of this study indicate that a smaller percentage (27.10%) of the households would be in a better position to access food as compared to the majority of the respondents.

4.2.9 Remittances received by the respondents

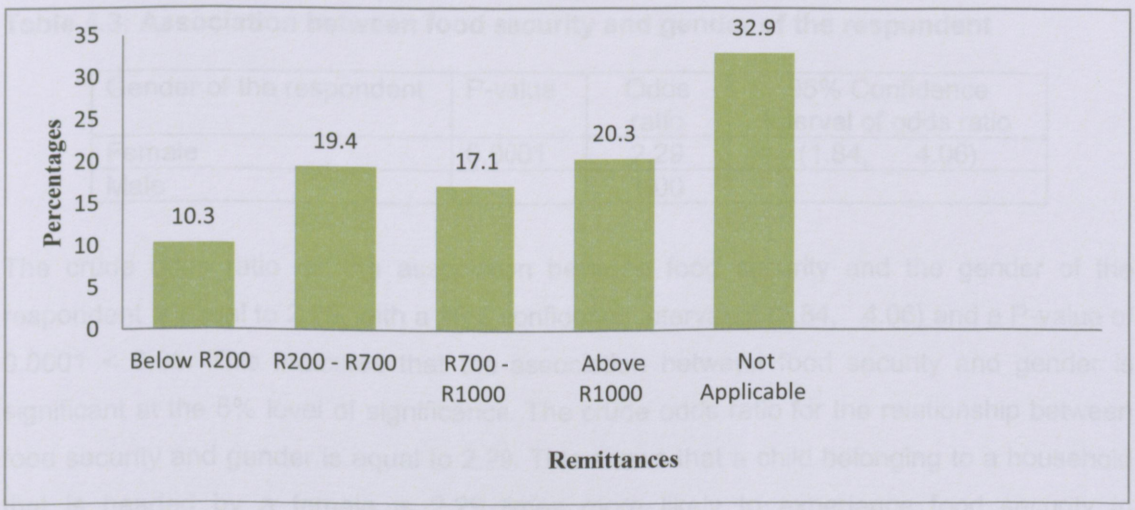


Figure 4.5: Remittances received by the respondents

Figure 4.5 represent remittances received by the respondents. Remittances are money sent to the rural villagers by migrant household members. Sometimes migrant workers leave children and/or wives behind, thus using the remittance system to contribute to their livelihood. A study conducted by Lemke (2001) outlined different types of migrant labour systems which used the remittance methods. A total of 67.1% of the respondents depended on remittances for their livelihoods. These remittances helped household members to acquire basic needs such as food, fuel, clothing, school fees, uniforms and burial societies. Although the remittances received per household per month differed, but the system helped the poor to survive. This concurs with earlier research conducted by Ngqangweni, Kristen and Delgado (2001), Drimie et al. (2009). Maponya and Moja (2012) concluded that "the majority of income of the rural households is accrued in the form of employment, remittances from migrant workers and from welfare payments". A total of 32.9% of the respondents did

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not depend on remittances for their livelihoods. Therefore, this study concluded that 67.1% of the households depended on remittances for survival.

4.3 The Association between Gender of the Respondent and Food Security

The results indicated that out of the 602 respondents 83.10% were female while the percentage of male respondents was only 16.90%.

Table 4.3 below shows the association between food security and the gender of the respondent.

Table 4.3: Association between food security and gender of the respondent

Gender of the respondent	P-value	Odds ratio	95% Confidence interval of odds ratio
Female	0.0001	2.29	(1.84, 4.06)
Male		1.00	

The crude odds ratio for the association between food security and the gender of the respondent is equal to 2.29, with a 95% confidence interval of (1.84, 4.06) and a P-value of 0.0001 < 0.05. This indicates that the association between food security and gender is significant at the 5% level of significance. The crude odds ratio for the relationship between food security and gender is equal to 2.29. This shows that a child belonging to a household that is headed by a female is 2.29 times more likely to experience food security in comparison with another child who lives in a household that is headed by a male.

4.4 Age Distribution of the Respondents and its Association with Food Security

Table 4.4 below shows the association between food security and the age categories of the respondents.

Table 4.4: Association between food security and age category

Age category of the respondents	P-value	Odds ratio	95% Confidence interval of odds ratio
40 years or older	0.0209	1.66	(0.84, 1.91)
Younger than 40 years		1.00	

The crude odds ratio for the association between food security and age category is equal to 1.66, with a 95% confidence interval of (0.84, 1.91) and a P-value of 0.0209 < 0.05. This indicates that the association between food security and age category is significant at the

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5% level of significance. The crude odds ratio for the relationship between the two variables is equal to 1.66. This shows that a child who lives in a household in which the head of household is 40 years or older is 1.66 times more likely to experience food insecurity in comparison with another child who lives in a household in which the head of household is younger than 40 years.

4.5 Levels of Education of the Respondents and its Association with Food Security

Table 4.5 is the association between the level of education and food security.

Table 4.5: Association between food security and level of education

Level of formal education of respondents	P-value	Odds ratio	95% Confidence interval of odds ratio
No formal education	0.0002	2.99	(1.59, 4.66)
Formal education		1.00	

The crude odds ratio for the association between food security and the level of formal education of heads of households is equal to 2.99, with a 95% confidence interval of (1.59, 4.66) and a P-value of 0.0002 < 0.05. This indicates that the association between food security and level of education of heads of households is highly significant at the 5% level of significance. The crude odds ratio for the relationship between the two variables is equal to 2.99. Table 4.4 indicates that a household in which the head of the household has no formal education is 2.99 times more likely to experience food insecurity compared to another household in which the head of household has formal education.

4.6 Association between Food Security and Monthly Grants

Table 4.6 is the Association between Food Security and Monthly Grants

Table 4.6: Association between food security and monthly grants

Monthly grants	P-value	Odds ratio	95% Confidence interval of odds ratio
No grants received	0.0203	1.78	(0.89, 3.02)
Grants received		1.00	

The crude odds ratio for the association between food security and monthly grants is equal to 1.78, with a 95% confidence interval of (0.89, 3.02) and a P-value of 0.0203 < 0.05. This indicates that the association between the two variables is significant at the 5% level of significance. The crude odds ratio for monthly grants is equal to 1.78. This shows that a child who belongs to a household that does not receive monthly grants is 1.78 times more likely to

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experience food insecurity in comparison with another child who belongs to a household that receives monthly grants. Table 4.6 above indicated that there is a statistically significant association between access to grants and food security.

4.7 Association between Food Security and Working Full Time

Table 4.7 shows an association between food security and working full time.

Table 4.7: Association between food security and working full time

Working full time	P-value	Odds ratio	95% Confidence interval of odds ratio
Not working full time	0.0001	2.01	(0.94, 3.31)
Working full time		1.00	

The crude odds ratio for the association between food security and working full time is equal to 2.01, with a 95% confidence interval of (0.94, 3.31) and a P-value of 0.0001 < 0.05. This indicates that the association between the two variables is significant at the 5% level of significance. The crude odds ratio for working full time is 2.01. This shows that a child who belongs to a household in which the head of household does not work full time is 2.01 times more likely to experience food insecurity in comparison with another child who belongs to a household in which the head of household works full time. Table 4.7 above indicated that there is a statistically significant association between working full time and food security.

4.8 Distribution of the amount of Remittances received by some Respondents in the study and its Association with Food Security

Table 4.8 is the amount of remittances received and its association with food security.

Table 4.8: Association between food security and remittances

Dependence on monthly remittances	P-value	Odds ratio	95% Confidence interval of odds ratio
Yes	0.0007	1.89	(0.79, 1.97)
No		1.00	

The crude odds ratio for the association between food security and monthly remittances is equal to 1.89, with a 95% confidence interval of (0.79, 1.97) and a P-value of 0.0007 < 0.05. This indicates that the association between food security and remittances is significant at the 5% level of significance. The crude odds ratio for the relationship between the two

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variables is equal to 1.89. This shows that a child who belongs to a household that depends on monthly remittances is 1.89 times more likely to experience food security in comparison with another child who lives in a household that does not depend on monthly remittances. Table 4.8 above indicated that there is a statistically significant association between remittances and food security.

4.9 Results based on Food Expenditure per Month

Respondents were asked how much they spent on food per month. Table 4.9 below represents the results

Table 4.9: Amount spent on food per month and the total respondents

Amount spent on food per month in Rand	R250.00 and below	R251-R500.00	R501-R750.00	R751-R1000	R1001-R1250	R1251-R1500 and above
Total number of respondents and their percentages	n=25 4.1%	n=262 43.5%	n=154 25.5%	n=118 19.6%	n=8 1.3%	n=35 5.8%

Table 4.9 shows the amount of money spent on food per month and the total number of respondents per category. Of the respondents 4.1% reported that they spent between R10.00 and R250.00 per month on food. Out of a total of 602 respondents, 43.5% respondents reported that they spent between R250.00 and R500.00 on food, while 25.5% respondents spent between R501.00 and R750.00 on food. Altogether 19.6% respondents reported that they spent R751.00 to R1000.00 on food while 1.3% respondents reported that they spent between R1001.00 and R1250.00 on food per month. The remaining 5.8% respondents reported that they spent between R1251.00 up to above R1500.00 and more per month on food.

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The results from the focus groups discussions indicated that the purchasing of food was influenced by a household's financial resources, needs and the affordability of the food. The choice of food to be purchased also depends on the financial resources of the family and their food habits (Kgaphola, 2003). Such habits are influenced by cuisine, valued sensory perceptual experiences and attitudes held by members of the households. Apart from spending the allocated budget on food, the respondents through focus group discussions reported that the budget also included the following products: water, electricity, washing powdered soaps, bath soaps, Vaseline, Colgate, dawn, glycerine and those without electricity purchased coal or paraffin, candles and matches. According to Lemke (2001) items such as washing powder and soap are normally also bought on a monthly basis and are therefore part of the amount for monthly groceries (they form part of the food basket). Burial societies, for example, play an important role in monthly expenditure, even if the amounts are mostly not high but they consume part of the monthly budget, which could be allocated to food. The respondents indicated that if money was available they would consume foods such as rice, pumpkins and beetroot, meat and fruits. The budget utilised by some of the household members which varied between R10.00 to R500.00 per month was too little to cover basic foodstuff and groceries which had become part and parcel of their daily living.

Households living on a budget of below R250.00 per month (4.1%) were living in absolute poverty and had little or no means of income, and could therefore not afford to buy essential food, not even basics such as maize meal to ensure a continuous supply of maize meal for a period of one month for the household. Households identified as being able to cope, had some means of income to cover basic needs such as maize meal and basic relishes. These households' incomes were in the range of R501.00 to R1000.00 (48.1%). Households who were a little better off were able to budget above R1001.00 up to R1250.00 (1.3%). Better-off households (5.8%) were identified as those that could afford a wide range of foodstuff and they could budget more than R1500.00 per month for food. Thus households who were better off could plan their purchases to fit their resources.

Affordability and prices of food are important considerations. They do not only influence the kind of food purchased but also where it should be purchased. Households compare prices and buy food that is cheaper and where it is the cheapest. The current rocketing price of maize meal was reported to be rendering maize meal unaffordable to most households. Cost effectiveness was an additional consideration related to the total cost involved in purchasing. Households with limited financial resources could only afford to buy a few items such as maize meal, salt and cooking oil; they will also buy locally, because transport costs to town

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were too high in relation to the money spent on the items bought. Those that could afford to buy more items, preferred to buy at Marble Hall, Groblersdal or Jane Furse Plaza, because the transport costs could even out the greater volume of products bought and the cheaper prices in supermarkets. These households only bought odds and ends in their local shops.

4.10 Conclusions

There is an association between socio-demographic characteristics of the respondents and food security. The results show that 104 of the 602 respondents (17.28%) who took part in the study had adequate food security at the household level. The results also show that 498 of the 602 respondents who took part in the study (82.73%) did not have adequate food security at the household level. Furthermore, the results shows that 42.19% has a family size of less than 5 while 57.81% has a family size of more than 5. The implication is that the larger the family size with less economic resources the higher the levels of food insecurity.

The result also shows that there is a great association between food security and the type of the relationships within the households where children are more likely to experience food insecurity in comparison with other members of the household. There is also a great association between food security and gender of head of household. It was also found that children belonging to households that are headed by females are more likely to experience food security in comparison with other children living in households headed by males.

There is an association between food security and age category of the respondents. It was concluded that a child who lives in a household in which the head of the household is older than 40 is likely to experience food insecurity in comparison with another child who lives in a household in which the head of the household is younger than 40 years. There is also an association between food security and the level of education. In households which the head of the household had no formal education, the households are more likely to experience food insecurity as compared to households in which the head of the household had formal education.

There is an association between monthly grants and food security. The household that does not receive monthly grants is likely to experience food insecurity. The household that does not receive grants is more exposed to food insecurity as compared to the household that receives monthly grants. There is an association between food security and working full time. This shows that a child who belongs to a household in which the head of the household does not work full times is more likely to experience food insecurity in comparison with

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another child who belongs to a household in which the head of the household works full time.

There is an association between food security and remittances. The result of this study shows that a child who belongs to the household that depends on monthly remittances is more likely to experience food security in comparison with another child who lives in a household that does not depend on monthly remittances. The results and discussions based on food expenditure per month conclude that a higher per cent (94.2%) of the respondents spent between R10 to R1250. 00 per month on their food basket. The results from this study conclude that households in the low income classes (94.2%) spend a large proportion of their expenditure on food while those in higher income classes (5.8%) spend lesser proportions of their expenditure total on food. Finally, with reference to the results from the food expenditure per month it was concluded that the amount allocated to the food basket also included non- food items such as paying school fees, burial societies, electricity, water and toiletries.

4.11 Recommendations

It is recommended that any measures to improve the food insecurity of the households care should be taken to consider the demographic profiles of the households such as their food security status, family size, gender, age category, level of education, occupation, ownership of a vegetable garden and farming activities together with non- farming activities which helps the household to secure food. Issues of remittances, grants received and any employment opportunities should be taken into consideration. Any intervention by government and non-governmental organisations to assist the households to secure food, should take into consideration the demographic profiles and the level of food insecurity of the targeted households. The food expenditure patterns of the households should guide the intervention strategies to be applied. The findings highlight and reinforce the importance of government social grants, employment opportunities such as farm and non- farm activities. Agricultural activities (vegetable garden (32.89%), part time and full time farming (24.3%)) which were found to be practiced at a lower rate need to be promoted through the extension service by government and the non- governmental organisations.

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CHAPTER 5: MEASUREMENT OF HOUSEHOLD FOOD AVAILABILITY

5.1 Introduction

This chapter presents the results and discussions of measurement of household food availability using a five point ordinal scale that measured food availability and its causes. Focus group discussions were used to discuss external environmental factors that affect food availability at village and household level.

5.2 The Impact of Lack of Money on the Availability of Food at Household Level

Figure 5.1 below shows the frequency of running out of food at household level, due to lack of money. It was reported that just over half 66.30% of respondents indicated that they ran out of food due to shortage of money while 33.70% indicated that they had money to buy food. The majority (66.30%) of the respondents lack resources such as money to ensure food availability at household level. When there is lack of food at household level the vulnerable groups such as children will suffer most (Lemke, 2001). Lack of money to afford food at household level will lead to food insecurity. The results indicate that a higher percent of the households lack money to make food available resulting in food insecurity.

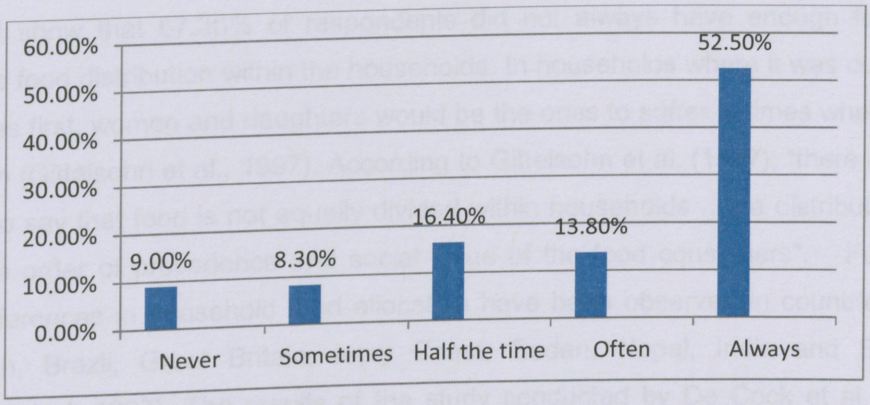


Figure 5.1: Frequency of running out of food due to lack of money

5.3 Frequency of not Knowing where the Next Day`s Food will come from

This study revealed that 66.30% of the households did not know where their next day food would come from due to lack of food availability at household level (Figure 5.2). This showed

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that the households were vulnerable to food insecurity. Of the respondents who answered the question on not knowing where the next meal would come from, 33.70% indicated that they were never worried about where the next day's food would come from meaning they had the means to access food, where people do not know where the next day`s food will come from leads to vulnerability within the households (Lemke, 2001).

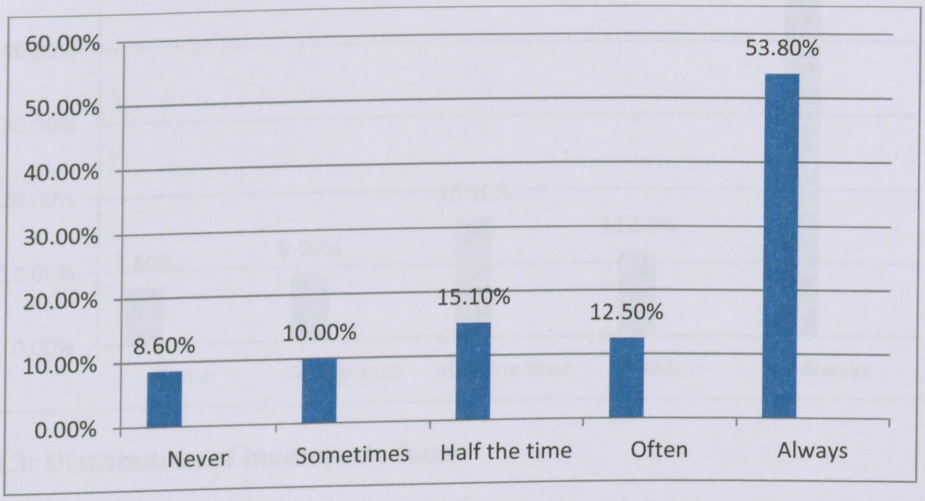


Figure 5.2: Frequency of not knowing where the next day's food will come from

5.4 Lack of Food Availability at Household Level due to Inadequate Food Distribution

Figure 5.3 show that 67.30% of respondents did not always have enough food due to inadequate food distribution within the households. In households where it was customary to serve males first, women and daughters would be the ones to suffer in times when food was not enough (Gittelsohn et al., 1997). According to Gittelsohn et al. (1997), "there is sufficient evidence to say that food is not equally divided within households …the distribution of food reflects the order of precedence and social value of the food consumers". Furthermore, gender differences in household food allocation have been observed in countries such as Bangladesh, Brazil, Great Britain, Ivory Coast, Sedan, Nepal, India and South Asia (Gittelsohn et al. 1997). The results of the study conducted by De Cock et al. (2013), in Limpopo province of South Africa, 48% of the respondents indicated that female adults (18 years and above) would be the ones eating less when confronted with food shortage, which makes them the most vulnerable group to food insecurity. Of the respondents who answered the question on inadequate food distribution at household level 32.70% indicated that they never had problems with food distribution, meaning they had a fair food distribution leading

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to food availability while the higher percent (67.30%) indicated that they had unfair distribution of food. This is because food was scares within their households.

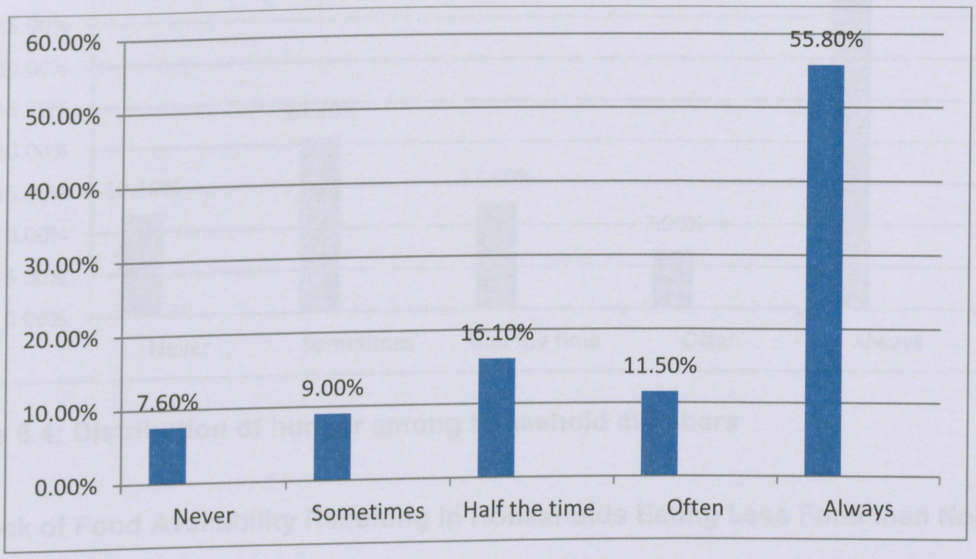


Figure 5.3: Distribution of inadequate food

5.5 Lack of Food Availability leading to Hunger among Household Members

Hunger among household members implies that food is not sufficient, regarding both quality and quantity. Figure 5.4 show that 54.5% of the households experiences regular, often continuous, food shortage. The food that is available is the most basic and often consists only of porridge and sometimes vegetables such as onions or potatoes. A variety in the diet which includes meat, vegetables and fruits seldom occur, sometimes only once a month or if someone brings food or money. Only a few households (45.5%) indicated that they had some variety of food and were free from hunger. According to Lemke (2001) 67% of the respondents were in a state of absolute poverty, "where income does not meet the level of basic needs". The results of this study indicate that majority (54.5%) were unable to meet their basic needs leading to hunger amongst household members.

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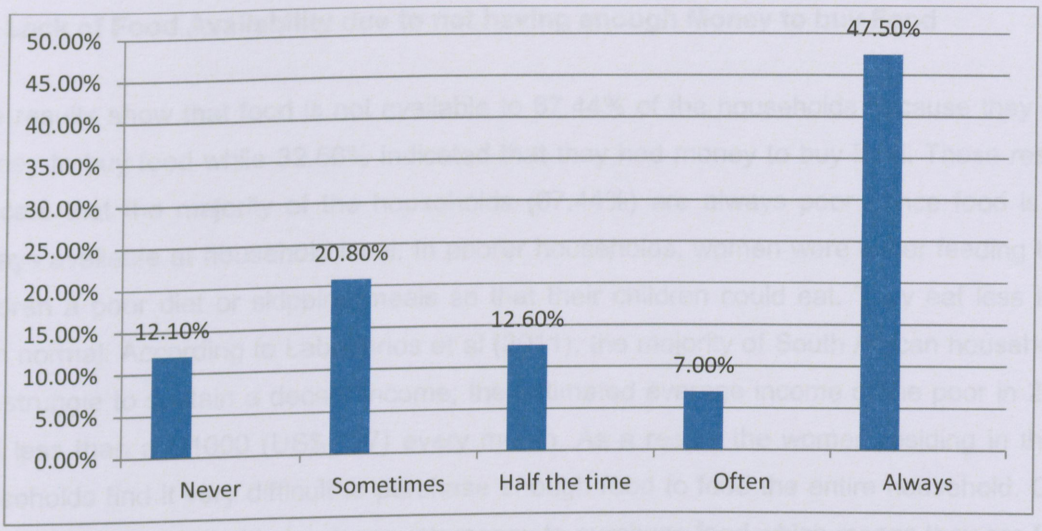


Figure 5.4: Distribution of hunger among household members

5.6 Lack of Food Availability Resulting in Households Eating Less Food than Normal

The study show that 54.48% of the respondents ate less food than they think they should due to lack of food availability at household level. Minority (45.52%) of the respondents reported that their eating patterns never changed. Eating less food could compromise the nutritional status of members of the household especially that of the vulnerable groups (children, the elderly and lactating mothers) (Lemke, 2001). According to Lemke (2001), the issue of lack of money was mentioned as the cause of eating less food than normal. Figure 5.5 show the frequency at which members have to eat less food than normal due to shortage of food.

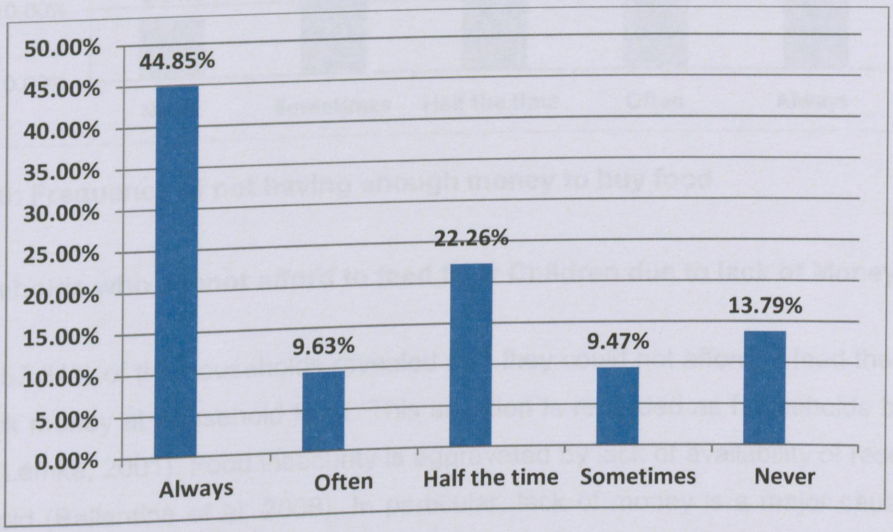


Figure 5.5: Distribution of households eating less food than normal

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5.7 Lack of Food Availability due to not having enough Money to buy Food

The results show that food is not available to 67.44% of the households because they lack money to buy food while 32.56% indicated that they had money to buy food. These results indicate that the majority of the households (67.44%) are always poor hence food is not always available at household level. In poorer households, women were either feeding their children a poor diet or skipping meals so that their children could eat. They eat less food than normal. According to Labadarios et al (2011), the majority of South African households still struggle to sustain a decent income; the estimated average income of the poor in 2011 was less than a R1000 (US$ 127) every month. As a result, the women residing in these households find it very difficult to purchase enough food to feed the entire household. Only 32.56% of the households have enough money to purchase food which means they are food secure.

Figure 5.6 shows a distribution for the frequency of not having enough money to buy food due to shortage of money.

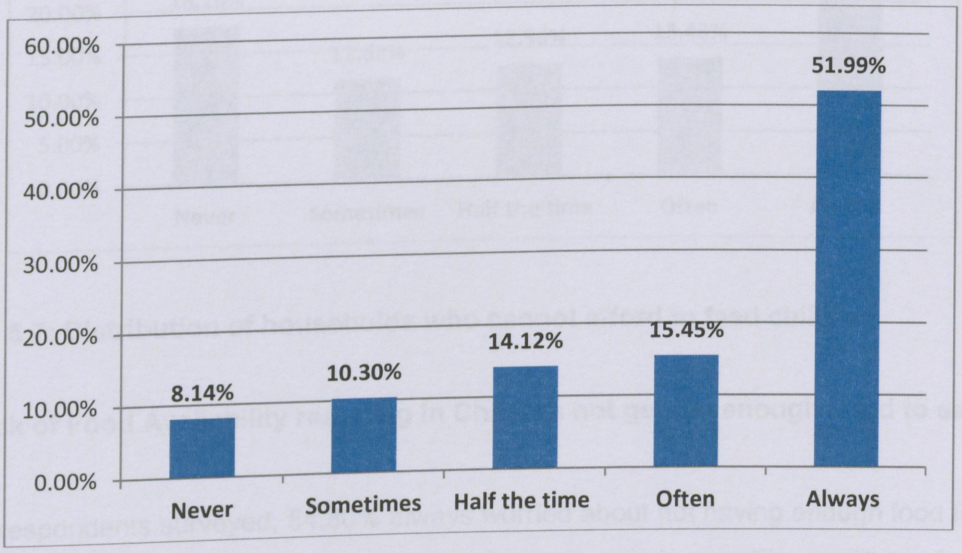


Figure 5.6: Frequency of not having enough money to buy food

5.8 Households who cannot afford to feed their Children due to lack of Money

A total of 57.31% of the households revealed that they could not afford to feed their children due to lack money at household level. This situation is regarded as households being food insecure (Lemke, 2001). Food insecurity is aggravated by lack of availability of resources for a household (Ballantine et al, 2008). In particular, lack of money is a major cause of food insecurity. Children who are not well fed may become malnourished due to limited quantity and poor quality of food (in terms of energy and nutrient density). Only 42.69% of the sample

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could afford to feed their children. According to Lemke (2001) the average per capita income of a food secure household in 2001 was R2 268 per month, consisting of a household size of 4.8 members. In this study respondents depend on grants which are far below R2 268 per month in comparison to the results of Lemke (2001) study, which was conducted in the rural areas on the North West Province. In this study majority (57.31%) of the households cannot afford to eat enough food every day because of lack of sufficient resources such as money.

Figure 5.7 shows a distribution of the frequency of not affording to feed children due to shortage of money.

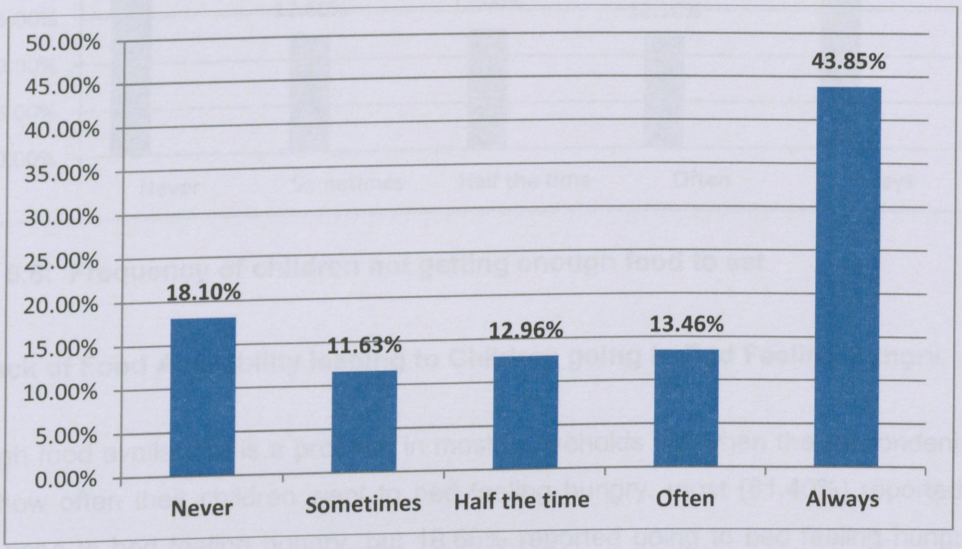


Figure 5.7: Distribution of households who cannot afford to feed children

5.9 Lack of Food Availability resulting in Children not getting enough Food to eat

Of the respondents surveyed, 54.80% always worried about not having enough food for their children. This implies that the children's meals were poor in quantity, quality and variety, while 29.73% of the respondents indicated that their children were getting enough food to eat. Children who do not get enough food (in terms of quality and quantity) might suffer from nutrition related diseases. Majority (54.80%) of the respondents indicated that their children were not getting enough food to eat. The HSRC (2004) reported that 14% of the South African population is estimated to be vulnerable to food insecurity, and 25% of the children under the age of six are reckoned to have had their development stunted by malnutrition because they were not getting enough food to eat. Therefore, if children are not getting enough food they will end up being malnourished. Figure 5.8 show a distribution of the

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frequency of children not getting enough food to eat because food is not available at household level, only 45.20% reported that their children were getting enough food to eat.

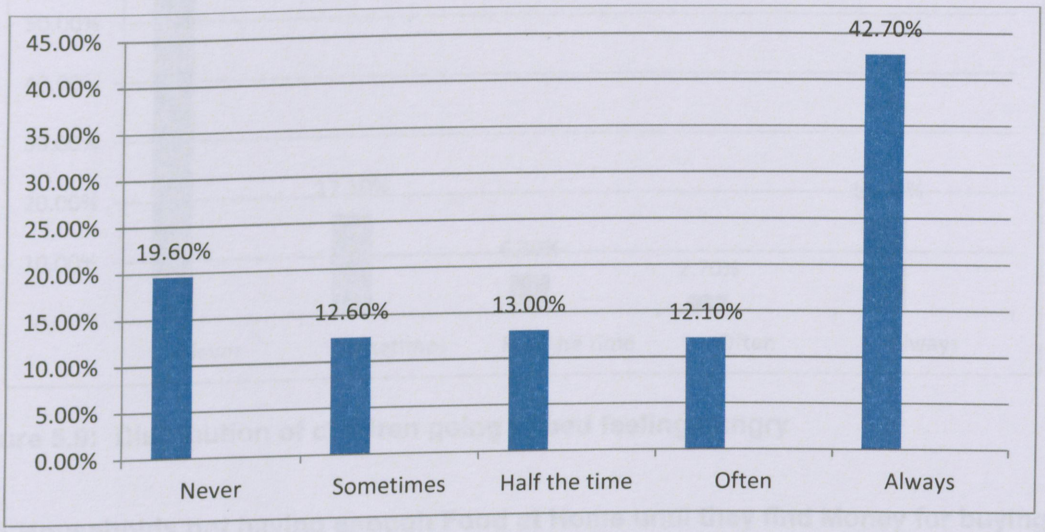


Figure 5.8: Frequency of children not getting enough food to eat

5.10 Lack of Food Availability leading to Children going to Bed Feeling Hungry

Although food availability is a problem in most households but when the respondents were asked how often their children went to bed feeling hungry, most (81.40%) reported never having gone to bed feeling hungry, but 18.60% reported going to bed feeling hungry. The results from a study conducted by Olderwage-Theron, Dicks and Napier (2006) on poverty, household food insecurity and nutrition, concluded that 78.4% of the children in the households (n=190) experienced hunger when going to sleep at night during the preceding 30 days and 73.7% during the last five days. The results of this study indicated that a lower percentage (18.60%) of the children always go to bed feeling hungry. Even though the percentage is low (18.60%), households in this category have reached an absolute poverty stage because of lack of food availability. According to Ward, Verity, Cater, Tsourtos, Coveney and Chui Wong (2013), household members might go to bed feeling hungry because food is becoming increasingly expensive, and households on low incomes face a difficult financial struggle to afford food. When food costs are considered, households on low incomes often or always face circumstances of poverty and food insecurity and they end up going to bed feeling hungry. In this study minority (18.60%) of the respondents indicated that if the household do not have any food available and children go to bed feeling hungry because of lack of food availability at household level. Figure 5.9 shows the distribution of children going to sleep hungry due to shortage of food to eat.

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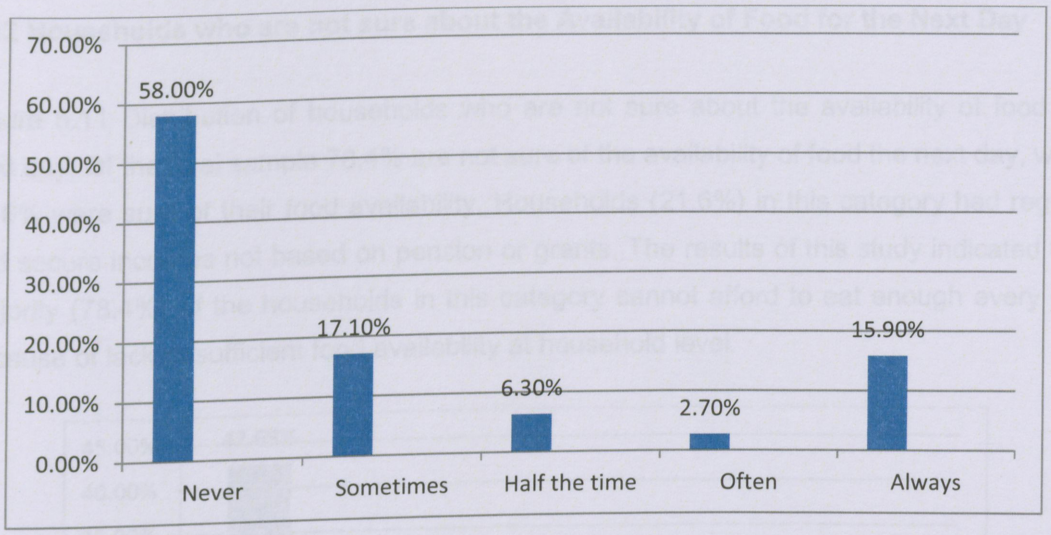


Figure 5.9: Distribution of children going to bed feeling hungry

5.11 Households not having enough Food at Home until they find Money for buying more Food.

Figure 5.10 shows the distribution of the frequency of households not having enough food at home until they find money for buying more food. Altogether 39.03% of the households were sure of the availability of food for the next day -meaning that they were food secure. The majority (60.96%) of the respondents were not sure of their next day meal, which means they were food insecure. This is supported by Du Toit (2011) in his study which confirms that food insecurity is more persuasive in rural areas. According to the report, the majority of the poor people who are not sure of their next meal are found in rural areas with roughly 75% of them chronically poor (Du Toit, 2011). The result of this study indicated that majority do not have enough food at their homes therefore, they lack food availability.

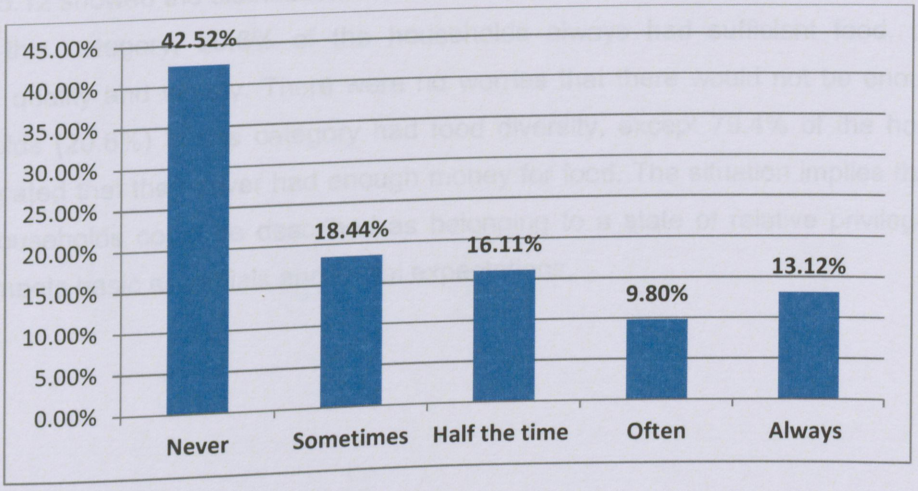


Figure 5.10: Distribution of households not having enough food until money is found

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5.12 Households who are not sure about the Availability of Food for the Next Day

Figure 5.11 Distribution of households who are not sure about the availability of food the next day. Of the total sample 78,4% are not sure of the availability of food the next day, while 21.6% were sure of their food availability. Households (21.6%) in this category had regular and secure incomes not based on pension or grants. The results of this study indicated that majority (78.4%) of the households in this category cannot afford to eat enough every day because of lack of sufficient food availability at household level.

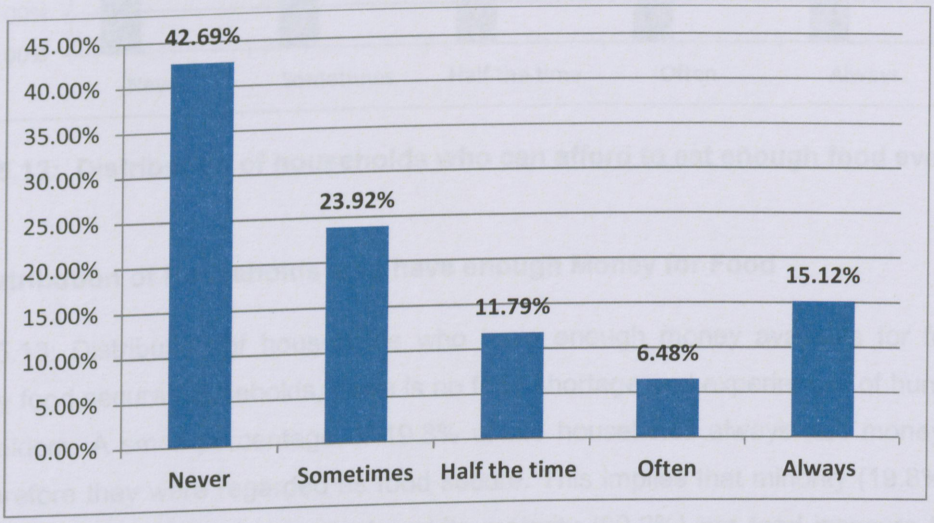


Figure 5.11: Distribution of households who are unsure of the next day's availability of food

5.13 Households who cannot afford to eat enough Food Every Day

Figures 5.12 showed the distribution of households who can afford to eat enough food every day. In this category, 20.6% of the households always had sufficient food, regarding quantity, quality and variety. There were no worries that there would not be enough food. Households (20.6%) in this category had food diversity, except 79.4% of the households who indicated that they never had enough money for food. The situation implies that 20.6% of the households could be described as belonging to a state of relative privilege, where income meets basic essentials and social expectations.

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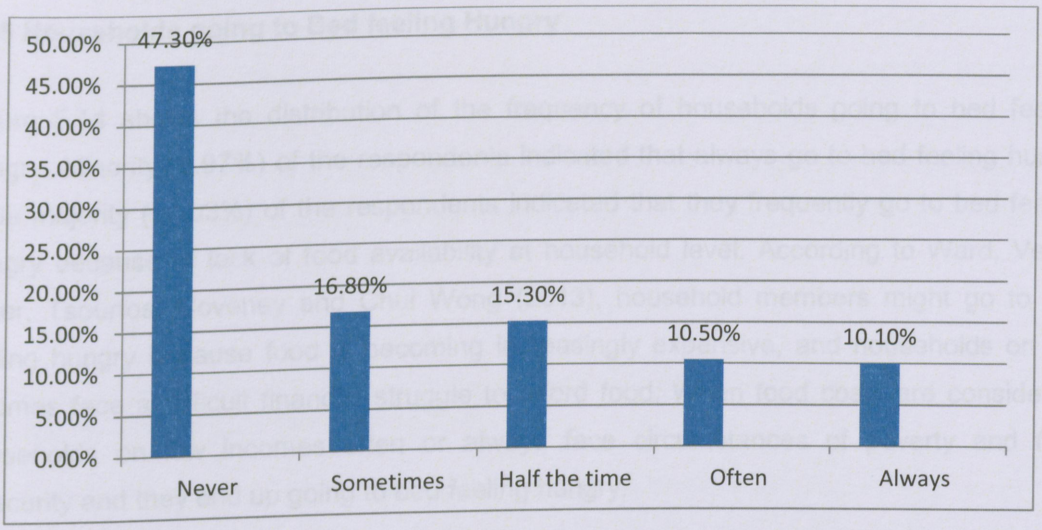


Figure 5.12: Distribution of households who can afford to eat enough food every day

5.14 Distribution of Households who have enough Money for Food

Figure 5.13: Distribution of households who have enough money available for food. In relatively food secure households, there is no food shortage and experiences of hunger only occur seldom. A small percentage of 19.8% of the households always had money to buy food therefore they were regarded as food secure. This implies that minority (19.8%) of the households can fulfil their basic needs, while majority (80.2%) are food insecure because they lack money to make food available.

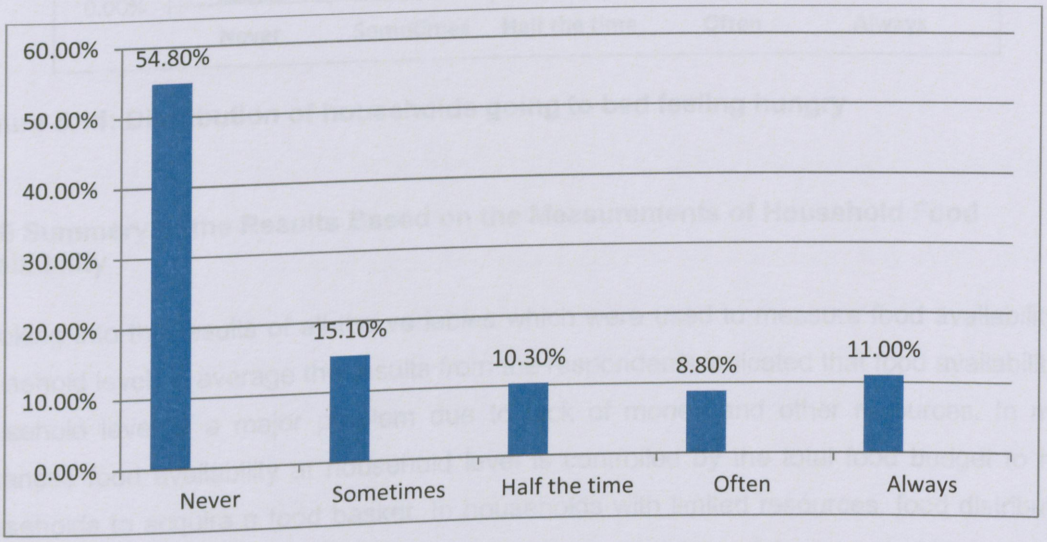


Figure 5.13: Distribution of households who have enough money available for food

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5.15 Households going to Bed feeling Hungry

Figure 5.14 shows the distribution of the frequency of households going to bed feeling hungry. Minority (8.97%) of the respondents indicated that always go to bed feeling hungry while majority (91.03%) of the respondents indicated that they frequently go to bed feeling hungry because of lack of food availability at household level. According to Ward, Verity, Cater, Tsourtos, Coveney and Chui Wong (2013), household members might go to bed feeling hungry because food is becoming increasingly expensive, and households on low incomes face a difficult financial struggle to afford food. When food costs are considered, households on low incomes often or always face circumstances of poverty and food insecurity and they end up going to bed feeling hungry.

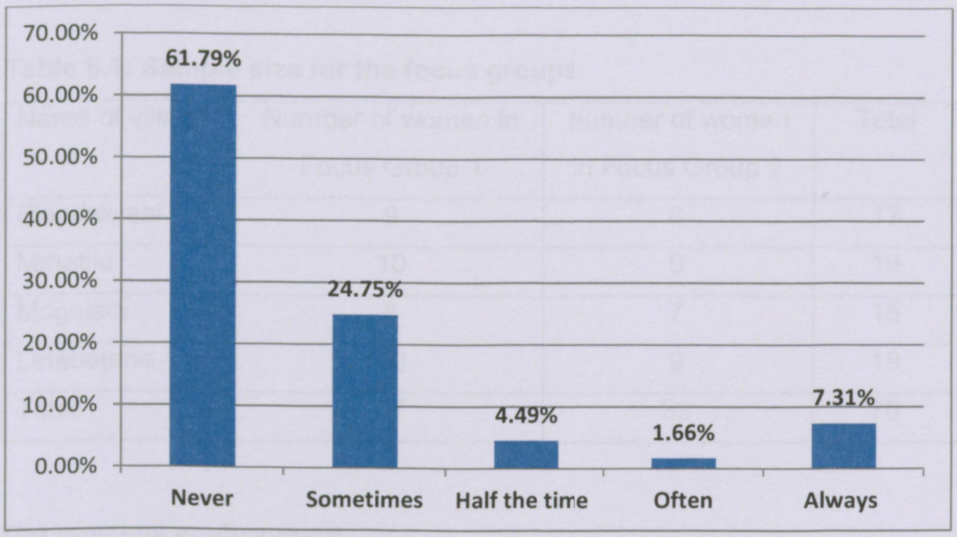


Figure 5.14: Distribution of households going to bed feeling hungry

5.16 Summary of the Results Based on the Measurements of Household Food Availability

Looking into the results of all the variables which were used to measure food availability at household level, in average the results from the respondents indicated that food availability at household level is a major problem due to lack of money and other resources. In most instances food availability at household level is controlled by the total food budget to help households to acquire a food basket. In households with limited resources, food distribution could be a problem where food is channelled to some members of the household living others with inadequate food supply. Food availability was also measured looking into the eating patterns of the household/ family i.e. whether the food was enough or there was food

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shortage; whether the household was sure of their next day`s food or the household eat less food than normal; whether children were getting enough food to eat and the frequency of children going to bed feeling hungry. The overall findings are that there was a negative shift in terms of the eating patterns of the households. The findings highlight lack of food availability in most of the households. Lack food availability at household level resulted in food insecurity in most households.

5.17 Factors that affect Food Availability at Village/Community level and their impact on Food Availability at Household Level

Focus group discussions were held in four villages to discuss the factors that affect food availability at village level and how these factors affect food availability at household level. Table 5.1 shows the total number of women who took part in the focus groups discussions.

Table 5.1: Sample size for the focus groups

Name of village	Number of women in Focus Group 1	Number of women in Focus Group 2	Total
Elandskraal	9	8	17
Mmatilu	10	9	19
Mogaladi	8	7	15
Letebejane	10	9	19
Total	37	33	70

5.17.1 The physical environment

Focus group discussions were conducted to discuss the factors that affected food availability at the village/ community and household level. The results from the focus groups indicated that there is a huge imbalance regarding the supply of food between the towns and the villages. Because their villages (Mogaladi, Mmatilu and Letebejane) were more rural, there is still lack of infrastructure to provide a variety and good quality food compared to the towns and the bigger village such as Elandskraal. Therefore, the availability of food in shops, vendors and other sources as well as the type of food available in local towns were said to be important indicators of food security at community/ village level.

The respondents indicated that the trips to the larger supermarkets are undertaken once or a few times a month because the cost of transport to the town is high. People who live further

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away from the towns such as the rural villagers in Sekhukhune will pay more for transport than those who live closer to the towns. This means that money for food must also be spent on transport to reach food-retail outlets in towns. For a number of people, this means that they have to stretch their available groceries through the month, especially those who spend almost all their income or grants on food.

5.17.2 Lack of money to buy food

Food insecurity is aggravated by a lack of available resources such as money and transport for a household to buy food (Ballantine et al., 2008). Often there is sufficient food available in the district but it is unobtainable because of resource-related behavioural constraints, which affect food availability at household level (Ballantine et al., 2008). Lack of money to buy food was a common problem which was raised in all the focus group discussions. In situations where food is not available, it was revealed through focus group discussions that some households might borrow money or borrow food from the nearest shops. Borrowing food or money is regarded as an erosive coping strategy. It was also revealed that some households create social clubs which are known as **"lebili" or "a wheel**" which is a method used to buy food in groups. The "wheel" method is also regarded as a coping strategy.

Creating a "wheel" is a method similar to a burial society where money is contributed and released during the death of a member or that of a person listed on the list. In terms of "a wheel", money is contributed and food is purchased depending on the occasion such as a wedding, confirmation and initiation ceremonies. The system makes food available at household level. Rather than contributing huge sum money for a special occasion, member of the "wheel" will each buy food and take it to the target family. The "wheel" method is also used to buy groceries during the festive seasons. It is also common within the villages who know each other over a period of time and it operate on trust rather than legal procedures.

5.17.3 Food availability in the local shops

Food availability in the local shops determines what the villagers will buy in instances where they have money to purchase food. According to the focus group discussions some households purchase food in the villages while others travel to the nearest towns such as Marblehall, Groblersdal and Janefurse Plaza to purchase food in larger supermarkets such as Checkers, Spar and Pick n Pay. Food is generally cheaper at supermarkets, "with a 10%

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discrepancy in prices between supermarkets and small retail outlets" (Ballantine et al., 2008).

The respondents indicated that the cost of food is high in the rural villages. The problem of high food prices is further aggravated by increased electricity supply and the increase in petrol and oil prices. The respondents indicated that the increase in electricity, petrol and oil affect food availability at the village and household level. The findings of this study are supported by Musemwa et al., (2015) where the authors mentioned that "the price of electricity raised by at least 100% between 2008 and 2011 while the price of fuel rose by nearly 20% from January to April 2013". The higher the energy costs the higher the food costs thus leading to households failing to ensure food availability. According to Evans (2009) in Musemwa et al., (2015), food prices will always increase gradually over the next decade, worsening household food security, even if there are some fluctuations and the occasional drops in prices.

Through focus group discussions, the most important foods which were available in the local shops and general dealers (in the villages) were listed and recorded on flip charts. Table 5.2 is a summary of food commonly found in rural shops. The list of food commonly found include the following: grain and grain products, such as maize meal and bread were the most common foods in the rural general dealers and shops. Vegetables were found in areas were commercial farmers produced them. While fresh meat (chicken heads and feet's) and meat products were purchased in local shops in areas where there was electricity such as Elandskraal. Tinned stuffs (tinned fish, baked beans etc.) were common in most general dealers as their life span is longer.

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Table 5.2 is a summary of the food available in different shops within the 4 villages.

TYPE OF FOOD AVAILABLE	EXAMPLES OF FOOD LISTED BY FOCUS GROUPS
Grains and grain products	Maize meal, rice, flour and yeast, bread (brown and white) Sorghum, Samp
Milk and milk products	Long-life milk, fresh full cream milk, Nespray, condensed milk
Meat and meat substitutes	Chicken heads and feet, necks, gizzards, chicken potions, tinned fish, fresh fish, baked beans, beans, eggs, peanuts, peanut butter
Fruits	Oranges, apples, avocados, bananas
Vegetables	Cabbage, tomatoes, potatoes, sweet potatoes, onions, butter nuts and pumpkins
Fats & oil	Sunflower oil, margarine
Sugar	White sugar, brown sugar
Tea	Rooibos tea, five roses,
Powder soup	Knorrox, Imana
Archar	
Twiggles cheese snacks	
Salt, curry	
Cold drinks	Coca cola, Fanta
Mayonnaise, tomato sauce	
Jam	

Table 5.2 above indicated that the food is available at the village level however major problems were lack of food availability at household level. One respondent from Mogaladi village indicated that "re a katana" meaning they always make a plan to ensure that there is food on the table. Therefore, food might be available at the national and local level (within the villages) but without money the household will fail to make food available at household level. Issue of lack of money to purchase food was a common factor, which was discussed in all the focus groups. Food availability differs from one village to the other depending on the infrastructure of the villages and the availability of land and water to cultivate vegetables and crops.

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5.17.4 Food availability which is facilitated by agricultural projects in the villages

According to the focus group discussions, apart from food sold in the local shops villages such as Elandskraal had poultry projects which were sell chickens and eggs; dairy project selling milk and communal vegetable gardens. Community projects are seen as a source of making food available and also a source of food security to the members of the projects and also to the non- members. In Elandskraal some of the households had vegetable gardens which supplement their source of food thus ensuring household food security. Villages in Mogaladi were without any source of water to practice any vegetable gardens. However, they had land where they were involved in dry land farming. According to Wolf (1986), at least 3000 million people living in sub-Saharan Africa are dependent on resource-poor agriculture for their livelihoods in other words their main source of survival. Despite their conditions and the inadequacy of the conventional agricultural development models, farmers living in these areas have managed to survive. According to Lemke (2001), multiple crop farming systems are important for food security of many poor households in rural areas. Furthermore, food availability is determined by the availability of land for crop and animal production.

5.17. 5 Issues of land which might impede food availability in the villages

Land ownership, land-use practices and possession of livestock are all indicators of food security (Lemke, 2001). The focus group discussions indicated that in rural areas within the Sekhukhune district, land belonged to the chiefs/tribal authorities (Di Kgoši) and was administered through the headmen (Mantona a mošate) for allocation to the households. When a family had been allocated a piece of land, the land could be transferred from one generation to another (i.e. through inheritance) without the chiefs' involvement. The chain of land inheritance could be broken or stopped depending on changing circumstances. The chief and the headmen can authorise the use of that particular land for any other purpose if the family has decided to stay in a different village under another leadership or has migrated to the urban areas. The land cannot be used as collateral since the households do not have any deed of grant.

In rural areas, land is allocated to the head of the household being a father. Land allocated for production differs from one household to the other in terms of size. Land for grazing is regarded as a communal land for all the farm households in a village. During winter, the fields which were used individually for crop production are then used communally as grazing

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area. Land sizes that are allocated to smallholder farmers could have sizes that are measured in yards, less than 1 hectare, between 1 and 2 hectares, between 2 and 3 hectares.

Food availability is determined by the available land for production. The fact that land distribution is unequal in rural areas of Sekhukhune has a huge impact on food availability. Through focus group discussions, it was revealed that that most of the households produced their crops in their yards/residential plots in villages such as Mmatilu, Elandskraal and Letebejane. The yards production is not enough to make food available for larger families and what is produces is only for supplementary purposes. The findings of this study are supported by the livelihood survey conducted as part of the FIVIMS pilot in 2006, which revealed that over 40% of the households in Sekhukhune grew their own crops, largely for supplementary purposes and by means of a vegetable garden or maize plot (Drimie et al., 2009). Out of the 4 villages which were selected for the purpose of conducting focus group discussion Mogaladi was the only village where the households had land for cultivate crops in the fields the other three villages cultivate within their yards. In general the provision of land to the villagers was a thorny issue, which the respondents indicated that the government should allocate more land to the households to support their food production activities thus ensuring food availability.

Furthermore, the respondents indicated that the government provide extension services which should help them to increase food production but without land and funding this effort failed to ensure food availability to the masses of the rural households. In some villages NGOs such as Rural Women Movement in conjunction with extension services from the government (Department of Agriculture and Social Development) provide empowerment, training and funding where food security projects are initiated and implemented. Although the projects provide food availability at village and household level, the projects do not provide food availability by covering a larger percentage of the rural villagers due to lack of land.

5.17.6 Crops which are commonly cultivated to create food availability

The focus groups were further asked to list the most common crops which the households produced in the villages. Table 5.3 below shows a summary of crops produced by small holder farmers using dry land farming methods.

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Table 5.3: Types of crops produced by small holder farmers

Food crops in Northern Sotho	Food crops in English	Scientific names
Mabele thoro	Sorghum	Andropogon sorghum Brot
Leotša	Millet	Pennisetum spicatum Koern and vars.
Lehea	Maize	Zea mays L.
Dinawa	Cowpeas	Vigna sinensis Endb
Phootla/ ditloo marapo	Bambarra ground nuts	Voandzeia subterraanea
Dihlodi	Mung beans	Phaseolus aureus L.
Magapu	Watermelons	Citrullus vulgaris Schrad vars.
Mafodi	Pumpkins	Cucurbita pepo L.
Maraka	Gourds	Lagenariavulgaris
Digo	Calabashes	*
Dintsho/ Nyoba	Sweet reeds	Sorgum vulgare Pers.
Diponkisana	Small white beans	*
Lerotse	Citron	Citrullus vulgaris sp.

* No scientific name

Table 5.3 indicates the production of both grain crops and indigenous vegetables. Vegetable crops listed through focus group discussions included the following: pumpkin leaves, cowpea leaves, watermelon and citron leave (motšhatšha). The cultural practice of eating indigenous leafy vegetables and legumes adds vital nutritional elements to the traditional African diet since good vegetables are a source of vitamin A and C with protein derived from the legumes such as bambarra ground nuts and cowpea (Franz, 1971; Leary, 1964; Quin, 1959; Quin, 1964, Khumbane, 2004). Furthermore, in villages such as Elandskraal the following exotic vegetables were cultivated (within the projects and at household level in their yards) namely: cabbage, spinach, beetroots, carrots, onions, Chinese spinach (tanapose), green beans, sweet potatoes, potatoes and peppers were cultivated. According to the focus group discussions, vegetables increased food availability at household level. According to Lemke (2001), vegetable gardens are considered as indicators of additional food source for improving food availability at household level.

5.17.7 Indigenous vegetables which were commonly gathered

Through focus group discussions the researcher gathered information about the collection and utilisation of indigenous vegetables. Table 5.4 outlined the most commonly types of indigenous vegetables which the villagers gathered in and around the villages.

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Table 5.4: Types of natural or indigenous vegetables

Northern Sotho names	English names	Scientific names
Leroto	Cleome, Cat`s whiskers, African spider flower	Gynadropsis pentaphilla D.C.
Lehlanye	Long legs	Vernonia fastigiata O&H
Letloane	*	*
Monyaku	Wild cucumber	Cucumis, Curcubita sp
Monyane	Black jack	Bidens bipinnata L.
Theepe	Pigweed	Aramanthus thubergii Moq
Tshehlo	*	Tribulus terrestris L.
Serepelele	*	Amaranthus spinosus L.

*No English or scientific names

Food gathering is one way of making food available to the household members. According to the respondents, indigenous vegetables are the most important foodstuff to provide food at household level but do to cultural and climate changes they are currently gathered and utilised at a minimal. Vegetables are typically consumed in conjunction with the common staples such as sorghum, millet or maize meal. According to Hart (2005), their importance is attributed to the following commonly held viewpoints:

- They grow easily.
- Most of them are wild species and they thrive easily after the first rain falls.
- They require less external inputs such as mechanisation and agro-chemicals.
- The cultivation practices of indigenous vegetables are adapted to locally available resources.
- They are possibly more nutritious (rich in vitamins and minerals) (Quin, 1959; Matla, 2008);
- They are cheaper to purchase as compared to exotic vegetables.
- Their current cultivation is in line with sustainable agriculture and is continually adapted to meet changing circumstances.

The respondents outlined indigenous vegetables found in and around rural villages (as in table 5.4) and they indicated that the shortcomings of these vegetables are that they are seasonal. Kgaphola and Viljoen (2000) conducted a similar study in Mpumalanga and concluded that food availability through the collection of wild fruits and vegetables was seasonal. This was also supported by the study conducted by Matla (2008).

Indigenous vegetables are gathered and collected from communal areas around their settlements, residential plots, with many found in arable or abandoned lands and in deserted animal kraals. Although no detailed research has been done on the wild fruits and vegetables in Sekhukhune district in recent years, several studies have been conducted

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elsewhere in central and southern Africa. Bukenya (1994), for example, reported on "*Solanum macrocarpon*", which is used as a vegetable in Uganda. Bandeira (1994) listed 45 wild vegetables species at Olnhaca Island in Mozambique while Mwanyanbo (1994 in Bandeira, 1994) listed 27 wild vegetable species in the lower Shongwe Valley of Malawi. The study conducted in 1995 by the Agricultural Research Council of South Africa showed the benefits of commercialization of Cleome gynandra (Leroto) and Amaranthus species (Theepe) (Van den Heever, 1995). In South Africa, Wehmeyer and Rose (1983) identified more than 100 different species of plants that were being used as leafy vegetables. Therefore, the results of this study indicated that indigenous vegetables does exist even though they are not popularly welcomed or promoted as food which can ensure food availability at household level. One of the respondents in Mogaladi indicated that "we do harvest and consume wild vegetables but we are not proud to announce that we consume these weeds" (women source Mogaladi village).

According to the focus group discussions, the availability of wild vegetables as a source of food provided some households with relish although in general the new generation do not consume wild vegetables. Contrary to these results, earlier research conducted by Quin (1959; 1964) in Sekhukhune concluded that the villagers consumed indigenous vegetables which were their source of minerals and vitamins. Respondents further indicated that in poor households wild vegetables are used as a relish and can play an important role in ensuring food availability at household level. The respondents indicated that indigenous vegetables are used to add variety to the diet especially in wealthier households. This is supported by the findings of van Rensburg et al, (2007) who concluded that "...poor households tend to use these types of leafy vegetables more than their wealthier counterparts, because they lack the financial means to purchase vegetables. Furthermore, the use of wild food forms part of the safety net that rural people use to cope with poverty, disaster and livelihood stress".

During the time of research, the researcher observed female street vendors in the town of Groblersdal, selling indigenous vegetables such as cleome, pigweed and dried cowpea leaves. They indicated that by selling indigenous vegetables they obtain money, which they use to make food available at household level. With the money the earned by selling indigenous vegetables they bought basic commercial foods such as sugar, cooking oil, salt and bread thus making other food available for their households.

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5.17.8 Making food available through animal production

During focus group discussions it became evident that apart from plant production, some of the villagers owned animals such as poultry, broilers, layers, free ranching chickens which were used for eggs and meat, goats, sheep, cattle used for milk and meat for special occasions and pigs. Cattle are available, although they are seldom used for household consumption. Focus groups indicated that cattle are regarded as wealth to be utilized in time of emergencies such as funerals and weddings. According to Lemke (2001) livestock is an asset that can be sold in times of shortage, an indicator for assets and personal insurance in instances of food insecurity. However in these villages livestock is governed by cultural norm and only men can take decisions of when to slaughter or sell it.

5.18 Conclusions

5.18.1 Conclusions based on quantitative results obtained from 602 respondents.

Food availability at household level is affected by resource availability within the household. In food insecure household food might not be available due to shortage of money to purchase food. Food availability is also affected by unfair food distribution within the household where some members are given smaller portions. This normally happens in households where gender and age biases are used in food distribution. A higher per-cent of the households indicated that food availability was a major problem which was assessed in terms of the eating patterns of household members and whether children were getting enough food to eat and the frequency of children going to bed feeling hungry. The overall results indicated that majority of the households lack food availability therefore they are food insecure.

5.18.2 Conclusions based on the qualitative results obtained from the 8 focus group discussions

Food is available in some of the local shops but because of different infrastructure and different services within the villages, some shops and food outlets have variety and good quality foods while others lack both variety and quality food.

The current prices of electricity and oil are worsening the actual food prices in the local shops leading to an increase in prices thus worsening household food insecurity and the

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failure of the household to ensure food availability at household level. High food prices have implication for food security because food price is also a function of food availability.

Village shops are more expensive as compared to buying food in town. However, transportation costs to and fro drain the scares resources from the households.

The availability of food in the local shops is an indicator of food security at village level. However, village food security cannot trickle down to the household without financial resources to purchase such food by members of the households.

Critical issue raised was lack of money to purchase food. It was further indicated that they have developed a **"wheel method"**, which is a strategy to buy food in bulk and share the food among the members of that "wheel" especially for special occasions.

According to the focus groups the only institutions which were willing to make food available to the households were local shops (by giving them food on credit and paying later when money is available).

Lack of land for crop production contributed to poor food availability in the villages. Food availability is determined by the available land for production. The fact that land distribution is unequal in rural areas of Sekhukhune has a huge impact on food availability. For those who can produce (either crops and or vegetables), the food produce contributed to households food and nutrition security.

Types of crops, indigenous and exotic vegetables were tabled and the advantages of having producing crops and vegetables were that food will be available in quantity and quality.

Through focus group discussions it was revealed that although indigenous vegetables are available seasonally, they are regarded as a poor man`s relish as such their consumption was not seen as contributing to food availability.

Through focus group discussions it was revealed that small stock and poultry were regarded as measures to ensure food availability. Although large stock was available in the villages it was never used to ensure household food availability due to cultural norms within the communities.

It was also revealed that there is extension support from the government and NGO`s. According to the focus group discussions such support could have yielded more seeds if land for production was available, infrastructural development and funding to support the training offered.

5.19 Recommendations

Gender and age biases in terms of food distribution within the households should be discouraged through extension and nutrition education programmes.

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It is recommended that local shops in the rural villages should be supported through improved infrastructural services. Example: provision of domestic electricity at affordable prices; provision of oil in the form of diesel and petrol which will need high level intervention from the government and the private sector.

Efforts that could boost households` income generation should be promoted such as the provision of village infrastructures for example, roads, water, electricity and increasing the possibility of off farm activities that could generate more income to the households.

The **"wheel" method** should be promoted and encouraged through extension and nutrition education programmes in the villages. Rather than it being a tool to make food available during special occasions, rural households should be encouraged to use the "wheel" method on a monthly basis which could help them to make food available on a regular basis or once per month. Therefore, the "wheel" method is a locally developed tool to ensure food availability at household level. Households should be encouraged to use the "wheel" method to buy nutritionally balanced food baskets on a monthly basis.

Land distribution issues should be addressed aggressively in order to pave way for the promotion of farming activities through the extension services. It is not just the provision of land only but government and private sector support is needed to improve the infrastructure, land, and the creation of other income earning opportunities so that the rural households could be in a better position to make food available at household level.

There is a need to discourage some of the cultural norms which govern resource allocation within the households where some resources (cattle) might not be utilised to make food available to the households even in time of food scarcity.

Nutrition education is needed to educate the villagers that indigenous vegetables are nutritious (rich in vitamins and minerals) and that they can as well contribute to food availability thus ensuring household food and nutrition security.

Indigenous vegetables both fresh or cooked and dried (mokhuša) can be sold at the local market and the money earned can contribute to the household`s food basket thus ensuring food availability.

Households in the villages who are mainly depending on government grants as a strategy to ensure food availability are at a risk and are therefore food insecure. The government social grants are low to can cover food baskets for all, and they do not increase proportionally with inflation. It is therefore, recommended that the grant system should be coupled with aggressive work programmes and employment creation policies which empowers the rural villagers with resources that enhance their livelihoods without or with minimum support from government.

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CHAPTER 6: HOUSEHOLD FOOD ACCESS AND COPING STRATEGIES

6.1 Introduction

This chapter presents the results and discussion of the measurement of household food access using the HFIAS (Household Food Insecurity Access Scale) that measured food access and its causes. Furthermore, the chapter present the results and discussions of the coping strategies employed by the rural households in instances of food insecurity. The results of the food accessing strategies from the focus groups discussions were also discussed.

6.2 Results and Discussions based on HFIAS

The HFIAS is premised on the notion that experience of the food insecurity by households tends to cause predictable reactions as well as responses that can be captured and quantified through a survey (Coates et al., 2007). According to Jacobs (2009), there are a number of indicators available to measure food insecurity. Some of the more widely used indicators are: household economy analysis, dietary energy consumption, child malnutrition, sustainability and livelihoods assessments, assessment based resilience and **Household Food Insecurity Access Scale** (HFIAS). For the purpose of this research HFIAS was used to measure food insecurity of rural households (n=602) in Sekhukhune district.

The HFIAS was developed because, formerly, information on household food insecurity was difficult and costly to collect and technically difficult owing to the use of econometric approaches (Swindale & Bilinsky, 2006; Ballantine et al 2008; Kennedy & Haddad., 2011). The advantage of using HFIAS is that, it tends to be cost effective, more sensitive to changes in household food insecurity and also user friendly (Sakyi, 2012). The HFIAS was based on the premise that food insecurity actually causes universal reactions and experiences. These can be measured, coded, and used to assess household food insecurity in an easy and straightforward manner. The measure can be used for assessing contemporary food insecurity situations as well as both cross-sectional and longitudinal studies (Ballantine et al., 2008).

The HFIAS was designed to assess the access component of household food insecurity. The measure is aimed at capturing the universal experience of access to food across cultures as well as countries (Ballantine et al., 2008). The wording developed is seen to be

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universally appropriate, with minor editing for local contexts. According to Swindale and Bilinsky (2006) and Sakyi (2012), the HFIAS covers the following experiences associated with food insecurity:

- anxiety and uncertainty about household food supply
- insufficient quality of food including variety, preferences and elements of social acceptability
- insufficient food intake and its physical consequences

The Food and Nutrition Technical Assistance (FANTA) project (Deitchler, Ballard, Swindale and Coates 2010) is a project in which the Household Food Insecurity Access Scale (HFIAS) was developed. The HFIAS is a **composite index** consisting of nine key indicators of food insecurity at household level (Sakyi, 2012). The HFIAS has been validated and standardized (Coates, Swindale and Bilinksy, 2006 and 2007; Fringilo and Namana, 2004; Sakyi, 2012). The scale assesses whether households have experienced a shortage of food in the past 30 days or four weeks. The respondents were expected to answer **"yes" or "no"** to an occurrence question, a frequency-of-occurrence question was asked to determine whether the condition happened rarely (once or twice), sometimes (three times to ten times) or often (more than ten times) in the past four weeks. The nine questions were then analysed using descriptive analysis to measure food access of the rural households.

6.2.1 Percentage distribution of household responses to the HFIAS

Table 6.1 below presents results from the household's responses to the HFIAS. The results indicated that more than 81% were not able to eat balanced meals and about 76% expressed worries of running out of food. A total of 84% of the respondents worried that their households did not have enough food while 85% ate non-preferred food. Fewer households reported severe forms of food access problems such as having no food at all in the household (60%) and having no ways of accessing food at least once. Some members went to bed hungry (33%) while others did not eat the whole day and night (24%). The results indicate that the majority (+80%) of the households in the rural areas of Sekhukhune district lacked food accessibility at household level, therefore they are food insecure. According to De Cock et al., (2013), the severely food insecure households had the highest HFIAS scores, which is similar to the results on Table 6.1 below.

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Table 6.1: Percentage distribution of household responses to HFIAS

Food Insecurity Questions	Percentage of Yes responses (n=602)	Percentage of No responses (n=602)
1. Worry that your household would not have enough food	76% (458)	24% (144)
2. Unable to eat balanced meal/ unable to eat the kind of food you prefer due to lack of resources to access food	81% (488)	19% (114)
3. Worried that the household would not have enough food/ have to eat a limited variety of food due to lack of resources to access food	84% (506)	16% (96)
4. Ate non-preferred food/ have to eat some food that really you did not want to eat because of lack of resources to obtain other types of food	85% (512)	15% (90)
5. Reduce size of meals/ have to eat smaller meal than you felt you needed because there were no enough food	82% (494)	18% (108)
6. Skipping some meals in a day/ have to eat fewer meals in a day because there was not enough food	81% (488)	19% (114)
7. No food at all in the household/ no food to eat of any kind in the household because of lack of resources to get food	60% (361)	40% (241)
8. Went to sleep hungry/ did you or any household member go to sleep at night hungry because there was not enough food	33% (199)	67% (403)
9. Did not eat for the whole day and night/ did you or any household member spent the whole day and night without eating anything because there was not enough food	24% (145)	76% (457)

6.2.2 Discussions of the results based on HFIAS using yes and no responses.

Question 1: Having to worry about not having enough food due to lack of resources

- In the past four weeks, did you worry that your household would not have enough food?

This question is about anxiety and uncertainty about the household's food access (Swindale & Bilinsky 2006; Ballantine et al, 2008). Of the respondents surveyed, 76% worried about not having enough food for themselves and their families which implied that they lack food

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access and are said to be food insecure while 24% never worried about food access. The study revealed that a higher percentage (76%) of respondents have poor food access. A study conducted by Balantine et al. (2008), elsewhere in South Africa, concluded that out of a sample of 459 respondents, 90% often worried about not having enough food for themselves and their families. Another study conducted by De Cock et al., (2013) concluded that out of 599 households surveyed in Limpopo Province, 53.1% of the households were severely food insecure. The food insecure households were living below the poverty line of R502.00 per person per month (De Cock et al., 2013). The results of this study indicate that a high per cent (76%) of the respondents always lack food access.

Question 2: Inability to eat preferred food due to lack of resources

- In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of lack of resources to access them?

Insufficient quality of food includes the variety and preferences of the type of food and aspects of social acceptability (Swindale and Bilinsky 2006; Ballantine et al., 2008). The reasons for not accessing enough food is lack of resources such as money to purchase food. This was because the households could not afford to buy preffered foods thus resorting to monotonous diets because that was all they could afford. Eighty –one percent (81%) of the respondents indicated that they lack resources for accessing food, while 19% had access to food. This is supported by a survey in Sekhukhune (Rule et al., 2005) which confirmed that most of the households experienced a lack of food or money, and the situation is worse during January and February. This is because of household budget deficit caused by higher spending patterns over festive season; a lack of income during the festive season due to vacation leave and funds be allocated to other cost items such as school fees and uniforms. According to De Cock et al. (2013), households spent most of their money on maize products such as maize meal which cost the household R205.50 per month in 2011. Therefore, with a minimum budget households are forced by lack of finances to eat unpreffered food as the bigger share of the budget is spent on maize meal.

Question 3: Having to eat a limited variety of food due to shortage of resources

- In the past four weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?

Eighty-four percent (84%) of the respondents indicated that they ate a limited variety of foods due to a lack of resources to access a variety of food while only 16% of the

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respondents had access to food. Lack of resources in a rural setting implies lack of land for production, lack of assets to rely on as coping mechanisms and lack of money to buy foods. According to a survey conducted by De Cock et al. (2013), in Limpopo Province, 48% of the respondents indicated that female adults (18 years and above) would be the ones eating less or limited variety of food when confronted with a food shortage, which makes them the most vulnerable group to food insecurity. According to De Cock et al. (2013), most adults ate two or three times a day, with 54.6% of the households having two meals per day while 35.4% having 3 meals per day. The results of this study indicate that majority (84%) eat limited variety of food.

Question 4: Having to eat food that is not preferred due to shortage of resources

- In the past four weeks, did you or any household member have to eat food that you really did not want to eat because of a lack of resources to obtain the type of food you needed?

When respondents were asked how often this happened, 85% indicated that they were eating food that they really did not like because they lack resources to access and acquire what they needed while only 15% were able to consume preffered food. A study conducted by Lemke (2001) in the North West Province of South Africa, revealed that " sometimes there is hardly any food in the house, only maize meal and vegetables such as potatoes and onions". Foods which they consumed but did not want to consume on a daily basis included, for instance, maizemeal porridge served with potatoes. This observation by Lemke (2001) is confirmed by household food inventories done within the National Food Consumption Survey, where it was found that " ... in many households there was nothing to eat" (Wentzel 1999 in Lemke, 2001). Therefore, because of lack of resources household members buy what they can afford, and what is cheaper and can last longer hence they resort to maize meal, sugar, onions and potatoes.

Question 5: Households having to eat smaller meals than they felt they needed

- 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 in the household?

This question is about insufficient food intake and its physical consequences to food access (Swindale and Bilinsky 2006; Ballantine et al., 2008). A total of 82% of the respondents indicated that they were forced to eat smaller meals because there was not enough food due

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to lack of food access at household level, while 18% of the respondents could eat their normal meals. Respondents indicated that their household members were subjected to insufficient food intake because they could not access sufficient food.

Question 6: Households having to eat fewer meals in a day due to shortage of resources

- 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?

The majority (81%) of the respondents reported that they or their household members ate a few meals in a day (once a day) that required, owing to lack food while 19% ate their normal meals. The respondents (81%) ate fewer meals a day because there was not enough food in their households, implying that they lacked food access. Eating few meals a day is a coping strategy to save meals for the next day. Nutritionally, an adult person should at least eat three meals a day. However, due to lack of food access, households ate limited amounts of food but they could not satisfy hunger. Sometimes the adults members of the household ate few meals to save the food for siblings and/ or their children. The findings of this study correlate with the results of a study conducted by De Cock et al. (2013) who concluded that female adults (18 years and above) eat less when confronted with food shortages. This makes them the most vulnerable group to food insecurity. According to De Cock et al. (2013), children under 5 years were the most likely to have adequate food to eat, followed by older children (5 to 18 years). Households ate fewer meals in a day because there was no food in the household, which is a sign of food insecurity.

Question 7: Households having no food to eat

- In the past four weeks, was there ever no food of any kind to eat in your household because of lack of resources to get it?

Sixty per cent (60%) of the respondents indicated that in the past four weeks, they lack resources resulting in lack of food at household level while 40% had food. The results indicated that majority (60%) of the households lack food security. Out of 60% of the respondents who lack food, most of them ate once or twice a day to save food for the next day. Eating once or twice a day correlated with a study conducted by De Cock et al. (2013), who concluded that most adults ate, on average, two or three times a day, with 54.6% of the

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household having two meals a day and 35.4% having 3 meals per day. Having no food to eat is a sign of poverty and food insecurity.

Question 8: Household members having to go to sleep at night hungry

- In the past four weeks, did you or any household members go to sleep at night hungry because there was not enough food?

Altogether 33% of the households went to sleep hungry due to lack of food access while 67% did not go to sleep hungry. Therefore, 33% of the respondents indicated that they lack any means to access food thus living in a state of absolute poverty.

Question 9: Households spend the whole day and night without eating food

- In the past four weeks, did you or any household member spend the whole day and night without eating anything because there was not enough food?

When asked whether respondents and their household members went the whole day and night without eating, 76% of them reported that this had never happened to them, while 24% indicated that this often happened to them. Therefore, only 24% were severely food insecure, meaning that they were poor and suffered absolute poverty.

6.2.3 Frequency and status of food insecurity experienced by the households

Table 6.1 above indicated that majority of the rural households in Sekhukhune district could not access food (using yes and no responses towards the HFIAS). Table 6.2 below is the results of the frequency of occurrences which was used to determine whether the condition happened rarely (once or twice), sometimes (three times to ten times) or often (more than ten times) in the past four weeks. The nine questions were then analysed using descriptive analysis to measure food access in selected rural households.

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Table 6.2 Frequency and status of food insecurity experienced by the households (n=602)

Food Insecurity Questions	Rarely	Sometimes	Often
1. Worry that your household would not have enough food	23.9%	24.9%	51.2%
2. Unable to eat balanced meal/ unable to eat the kind of food you prefer due to lack of resources to access food	18.90%	22.60%	58.50%
3. Worried that the household would not have enough food/ have to eat a limited variety of food due to lack of resources to access food	16.40%	25.20%	58.30%
4. Ate non-preferred food/ have to eat some food that really you did not want to eat because of lack of resources to obtain other types of food	15.30%	24.40%	60.30%
5. Reduce size of meals/ have to eat smaller meal than you felt you needed because there were no enough food	12.40%	24.40%	58.10%
6. Skipping some meals in a day/ have to eat fewer meals in a day because there was not enough food	19.10%	22.60%	53.30%
7. No food at all in the household/ no food to eat of any kind in the household because of lack of resources to get food	39.70%	42.40%	19.90%
8. Went to sleep hungry/ did you or any household member go to sleep at night hungry because there was not enough food	65.60%	8.30%	26.10%
9. Did not eat for the whole day and night/ did you or any household member spent the whole day and night without eating anything because there was not enough food	75.70%	6.50%	17.80%

Based on the responses in Table 6.1 to the questions to assess the experiences food insecurity among the rural households, Table 6.2 above shows that the number reporting food insecurity, majority (50%) indicated that they had the experience often and sometimes in the last one month, while few of them indicated that they rarely had the experience. These

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findings are in line with views of Coates et al. (2007) that a severely food insecure household graduates to cutting back on meal size or number of meals often, and /or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating), even as infrequently as rarely.

6.3 Results based on Coping Strategies

The Coping Strategies Index (CSI) was used to measure food insecurity of the respondents. CSI is a tool that was developed in Uganda and Ghana but has been used for early warning and food security assessment in several African countries, including Kenya, Ethiopia, Eritrea, Zimbabwe, Zambia, Malawi and Burundi (Maxwell et al., 2003). CSI is a simple tool to use, straightforward to understand, and correlates well with more complex measures of food security. It uses a series of questions about how households manage to cope with a shortfall in food for consumption results in simple numeric score (Maxwell et al., 2003). For the purpose of this study 8 questions were asked and analysed and discussed to outline the coping strategies of the respondents.

The results from the HFIAS above indicated that majority of the respondents lack food access thus being food insecure. In order for the households to satisfy their food needs they relied on some of the coping strategies available within their areas and beyond it. The Coping Strategy Index (CSI) was used in measuring the coping strategies of the respondents (CARE/WFP, 2003). Most importantly was the fact that these strategies were not mutually exclusive meaning that most could take place at the same time. This study revealed that households employed coping strategies to mitigate food shortages which resulted from lack of resources to access food. Table 6.3 below presents the percentage distribution of the households' responses to coping strategies.

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Table 6.3: Distribution of household responses to coping strategies (n=602)

Coping strategy	Yes %	No%
1. Relying on less preferred and less expensive foods	91.7% (552)	8.3% (50)
2. Depending on government grant for purchasing food	81% (488)	19% (114)
3. Borrowing money to buy food or borrow food	56.6% (341)	43.4% (261)
4. Purchasing food on credit	57.3% (345)	42.7% (257)
5. Relying on help from relatives and friends outside the household	46.2% (278)	53.8% (324)
6. Limiting your own intake to ensure that children get enough	50.2% (302)	49.8% (300)
7. Reducing the number of meals eaten in a day	79.1% (476)	20.9% (126)
8. Limiting portion sizes on meals	55.3% (333)	44.7% (269)
9. Skipping meals the whole day	28.4% (171)	71.6% (431)

Some of the respondents indicated that food shortage was huge, especially towards the end of the month or before they could get grants or money to purchase food. Some respondents indicated that they relied on less preferred food such as drinking tea with left over porridge, using lemons or oranges, sugar and animal fat as a relish. The above strategies are similar to the results of the research conducted by Mjonono et al. (2009) in Umbumbulu, KwaZulu-Natal when they concluded that the households in Umbumbulu employed some of the above six different coping strategies to mitigate food shortages known as consumption coping strategies. The results from Ziervogel et al. (2006) concluded that rural households in Limpopo Province Sekhukhune District relied on seven coping strategies. Below are the results and the discussion of each coping strategy.

6.3.1 Households relying on less preferred and less expensive food

Out of a total sample of 602 participants, 91.9% indicated that their major coping strategy in instances of food insecurity was to rely on less preferred and less expensive foods. An example of less preferred food was when they consumed porridge with potatoes or cabbage as a relish, or continued to consume porridge and dried indigenous vegetables for breakfast and dinner without anything to eat during the day. To some, less preferred food is when they consumed porridge served with sugar or tea because they lacked nutritionally acceptable relishes. A decrease in the quantity and quality of food intake was expressed more directly

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than a decrease in the frequency of food consumption, although both were noted to be occurring.

Households relying on less preferred and less expensive foods may be consuming foods that are inadequate for living healthy and active lives (Mjonono, 2008). These compromises were expressed as being divergent from the cultural norms and expectations for the typical diet. This implied that household members ate a monotonous diet without changing it due to lack of resources. Participants generally indicated that the notion of a balanced diet seemed to be a wasteful practice in their case. They could not afford to prepare and eat more than one source of relish at a time, such as meat and two vegetables; instead they used one source at a time.

6.3.2 Depending on government grants for purchasing food

Out of a total sample of 602 respondents, 81% indicated that they rely on government grants as a coping strategy. Studies conducted by Maponya and Moja (2012); Sakyi (2012); Ndhleve et al. (2012), all mentioned that social grants are used by both rural and urban households as a coping strategy to make food available. The respondents indicated that social grants helped them to survive. Government grants were fully discussed in Chapter 4.

6.3. 3 Households borrowing food or money to buy food

Out of a total sample of 602 respondents, 56.6% indicated that they would rather borrow food or money to buy food as their coping strategy in instances of food insecurity. They indicated that they sometimes borrowed food such as maize meal from their next door neighbours and returned the same amount of maize meal when they purchased it. This normally happened towards the end of the month before pay days or before they could get government grants. Money or food was either borrowed from the friends, neighbours or relatives. Borrowing foods or relying on help from friends or relatives is indicative of strong social networks among rural households (Majake, 2005; Monde, 2003; Mjonono, 2008). According to Mjonono (2008), borrowing money from relatives to buy food is regarded as an erosive coping strategy. This strategy is supported by Ziervogel et al. (2006), when they concluded that borrowing food is one of the coping strategies among the rural households in Sekhukhune district of Limpopo province in South Africa.

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Results from the focus group discussions revealed that the elderly getting a pension grant are often borrowing money from money lenders to purchase food and use the social grant card as a security that they will pay when they get the grant. The system is known as "riding a camel`s back" ("go namela kamela"). This form of credit is risk taking, because some of the money lenders charge a high interest rate resulting in the pensioner not being able to get out of debt (Musemwa et al., 2015). Borrowing cash may be a coping strategy but may have negative effects in the future to the extent of threatening future food security status. Furthermore, borrowing may even result in household being in debt for life thereby affecting life time food security (Musemwa et al., 2015).

6.3.4 Purchasing food on credit

Out of a total sample of 602 respondents, 57.3% reported that in instances of food shortages they would rather buy food on credit in the local shops. Therefore, buying on credit was one of their coping strategies. The local general dealers might upon request allow households to take food such as sugar, cooking oil, tea leaves, maize meal and salt or any other basic food on credit. Upon receiving money, household members would then pay back what they owed. Not all households were, however, given credit. It depended on the trust between the seller and the buyer. Poor households might not qualify for any credit because they would not be in a position to repay back what they owed.

According to Ndhleve et al (2012) "borrowing food from the nearest shops emerged as the only institution willing to extend food credit when a household is stranded and among the coping mechanisms examined for dealing with inadequate access to food, it was mentioned most often". Ziervogel et al. (2006) also supported the findings that households do purchase food on credit as one of their coping strategies. Three of the respondents indicated that they had access to credit cards offered by the banks, and if they ran short of basic needs during the month, they normally used the credit cards in larger supermarkets in town to purchase food. Purchasing food on credit is a short-term coping strategy with the potential of putting a household in a more vulnerable position in the long-term (Majake, 2005; Maxwell et al 2003; Mjonono, 2008).

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6.3.5 Households relying on help from relatives and friends outside the household

A total of 46, 2% of the respondents reported that they relied on help from relatives and friends, kinship ties outside the household as one of their coping strategies in instances of lack of food security. Households tended to borrow from those that also borrowed from them. Therefore, the lending of food to the other households was taken as an investment of resources that could be drawn on in future. The type of help needed was to borrow food such as maize meal and to return it when they had money to purchase it.

Households use this strategy to complete or supplement their household food supply of basic foods until the household can procure their own food. Food loans generally involve basic foods like maize meal and sugar. The loans are rarely spent on foods that are seen as luxury foods such as meat and rice. This food procurement strategy is mostly carried out by women. Children are also involved because they are often sent to borrow a bucket of maize meal or a cup of tea leaves or sugar.

6.3.6 Adult household members limiting their own intake to ensure that children get enough food

The continuum of coping strategies begins with a household head experiencing anxiety about food insufficiency, leading to decisions to reduce the household's food budget by altering the quantity or variety of food consumed by the members of the household (Maxwell et al., 2003; Mjonono, 2008). As the situation worsens, adults in the household begin to experience hunger due to reduced food intake to protect children and in most severe circumstances, both children and adults experience hunger (Mjonono, 2008). These strategies are typically adopted in a sequence beginning with those that cause the least discomfort, followed by progressive drastic measures. Maternal buffering is one of the coping strategies used by the adult members of the households with the aim of ensuring that children get enough food. Maternal buffering is the practice of a mother deliberately limiting her own intake in order to ensure that children, usually recently weaned toddlers get enough to eat (Maxwell, 1996) and 50,2% used maternal buffering as a coping strategy.

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6.3.7 Household members reducing the number of meals eaten in a day

Eating only one meal or sometimes two meals per day was commonly practised, particularly by the lower-income groups (Maxwell, 1996). Altogether 79,1% of the respondents reported that they would reduce the number of meals eaten in a day to ensure that the remaining food would last longer or until they got money to buy more. Some of the respondents indicated that in instances of maize meal shortages, they would cook soft porridge instead of porridge so that the maize meal could last for a few more days. Instead of having three meals per day, poor households might have one meal per day. This is supported by a research conducted by Ndhleve et al., (2012); Ziervogel et al., (2006) which revealed that the most commonly used strategy is to reducing the number of meals per day.

6.3.8 Limiting portion sizes at meal times

The respondents revealed that they would rather limit the portion sizes served during meal time. All together 55.3% of the respondents indicated that they would rather limit the portion sizes to ensure that food is share equally. This is supported by a research conducted by Ndhleve et al. (2012); Ziervogel et al. (2006), which revealed that the most commonly used strategy is to reducing the number of meals per day and the portion sizes at meal time.

6.3.9 Households who go without food the whole day

The more severe measure of dealing with food insufficiency, namely going without eating anything the whole day, was found to be practised mainly by the lowest income groups, and mostly at certain times of the year (Maxwell, 1996). This was a less preferred coping strategy where only 28.4% of respondents reported that they used this strategy. Going for an entire day without eating might affect the health of household members negatively therefore these strategy is regarded as a risk taking. These is supported by Ngidi and Hendriks (2014), when the reiterated that "skipping the entire day without eating food might have a negative effect to health of households, particularly if the household member is on medication". According to Lemke (2001), coping with sudden or chronic food shortages regarding quantitative and qualitative dietary changes are eating less preferred foods as well as limiting food and skipping meals. The very food insecure often had no other choice except to skip meals (Lemke, 2001).

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6.3.10 Piece work as a coping strategy

According to the focus group discussions, piece work was one of the coping strategies. Respondents indicated that they sometimes do the cleaning and washing for other wealthy families in the village to augment the child support grants from the government. Commercial farmers sometimes need casual labourers and to them this served as an opportunity for a piece work. These findings are supported by Lemke (2001) "... when interviewing Mirriam in June 1988 on household food security, she indicated that she is unemployed but at the same time she was doing the washing for other people in the location". These indicate that to some people piece job is a coping strategy because it is not regarded as a proper job. A study conducted by Ziervogel et al. (2006), indicated that households in Sekhukhune District relied on piece work as one of the coping strategies.

6.3.11 Out migration of family members

Out migration was seen as a coping strategy by respondents through focus group discussions. According to Lemke (2001), some of the households receive remittances from migrant workers. However, small the contributions might be, these contributions are very important because in many households (especially in rural areas), they heavily depend on them and are sometimes the only source of survival or they form part of the multiple support system. Migration and remittances play a major role of ensuring household food security in Sekhukhune District (Maponya and Moja 2012). Out migration of family members is one of the maintaining strategy and a form of risk taking because the migrant worker will still need money to relocate, for food and other basic needs before he/she can settle in the new environment.

6.3.12 Relying on the "wheel method" as a coping strategy

Focus group discussions were help to probe any coping strategies used to make food available and accessible to the households. Respondents indicated that they normally join a social club known as "lebili" or "a wheel", which imply that they help each other by contributing money and buy groceries for members within their wheel structure. The wheel operates like a burial society but rather than contributing food or money during the funeral, a wheel contributes food for special occasions such as weddings, confirmations, initiations or Christmas. Some members of the wheel buy bulk groceries and share them during the festive season i.e. for Christmas. The advantage of the wheel method as a coping strategy

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is that it minimize risk of being without food during special occasions such as Christmas time when all members of the household are together (even the migrants are back home). Therefore, a wheel is a village support network which can be categorized as one of the livelihood diversification strategies/ regenerative strategies.

6.3.13 Eat elsewhere or sending the kids to eat elsewhere as a coping strategy

Through focus group discussions it was mentioned that sometimes household members might reduce the number of people they have to feed by sending some of them elsewhere for example sending their children to the neighbour's house when these neighbours are eating. These results are similar to the study conducted by Ziervogel et al. (2006); Ngidi and Hendricks (2014), when they mentioned that sending kids to the neighbour`s house is a coping strategy. In some circumstances the respondents acknowledged that the situation of hunger forced them to look forward to social gatherings (weddings, funerals etc.) where they could eat to sustain themselves. The respondents indicated that apart from sending children to eat elsewhere, they could send children to live with relatives elsewhere.

6.3.14Resillience in survival/ resorting to small business operations as a coping strategy

Respondents were also asked how they survived especially when one did not get money either from grants, remittances, wages and or any help from the extended members. In this regard the women responded that they would mostly resort to small businesses operations as a means of survival or on casual labour. Small businesses they were engaged with are for example: selling vegetables and fruits, peanuts, sweets, fat cakes, food at the local taxi ranks and local schools etc.

During the time of research, the researcher observed female street vendors in the town of Groblersdal, selling indigenous vegetables such as cleome, pigweed and dried cowpea leaves. They indicated that by selling indigenous vegetables they obtain money, which they use to make food available at household level. With the money the earned by selling indigenous vegetables they bought basic commercial foods such as sugar, cooking oil, salt and bread thus making other food available for their households

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6.3.15 Backyard farming and gathering wild food

The results from the focus group discussions were that in rainy seasons they cultivate crops and vegetables in their yards. Cultivated crops and vegetables serve as one of their coping strategies. In villages with water sources the respondents indicated that they plant vegetables which when harvested could be used as a source of relish. Gathering wild food seems to be the least coping strategy employed by the respondents as it brings shame to the household members. One of the respondents from Mogaladi village indicated that "we eat "morogo" because we cannot afford any source of relish". These results are similar to the research results of Lemke (2001) who concluded that indigenous food/ wild vegetable or "morogo" is less consumes by the respondents in the North West Province of South Africa.

6.4 Results and Discussions based on Food Accessing Strategies

Focus groups discussions were conducted in Elandskraal, Mogaladi, Letebejane and Mmatilu to discuss food accessing strategies of the rural households. Participants were asked to list the most commonly used food accessing strategies which they employed to access food in the rural households.

6.4.1 Cash as food accessing strategy

For the purpose of this chapter, cash is derived from sources such as remittances, earning from working full time or part time, petty trading money and any money from other social network. The results from the focus group discussions emphasized the importance of using cash to buy food in the markets. Cash plays an important role in the accessibility of food for most rural households in the study area. Cash income is seen as one of the most important determinants of food insecurity and hunger (Lemke, 2001). According to the focus groups, most of the rural households in Sekhukhune lacked cash as one of the food accessing strategies. According to McLachlan and Landman, (2013), "even in rural areas, most households were net deficit food producers, as their access to food was partially or wholly reliant on household income. As a result, food security was directly or indirectly linked to access to cash to purchase food". The respondents indicated that most of the rural households in Sekhukhune district lack cash as one of the food accessing strategies. This is because employment opportunities were very scarce in this district. According to Stats SA (Statistics South Africa, 2007), only 27% of the households in Sekhukhune district receive income from regular wage employment. This indicates that employment opportunities are

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very scarce in this district resulting in lack of cash to access food. Although government social grants are regarded as cash for the purpose of this study they were discussed as the second food accessing strategy.

6.4.2 Social grants as food accessing strategy

The second most important food accessing strategy is the provision of social grants by government. Respondents indicated that social grants made it possible for some members of the households in the villages to access food from the markets. The grants improved economic access to food for some households to be able to purchase food. Economic accessibility refers to the capacity of the household to purchase food for an adequate diet without compromising the satisfaction of other basic needs (Ballantine et al., 2008). Therefore, government grants remain the second main food accessing strategy. According to Labadarios et al. (2011), social grants have been shown to increase women's purchasing power as well as their access to food. While according to Lemke (2001) "... still today, government grants provide incentives for people to remain in the rural areas and provide a regular income to access food for a large section of the rural population".

The reliance on social grants as a major source of income was a significant determinant of household food security (Sakyi, 2012). The responderts indicated that not all households are given grants and not all households who are given grants were able to access enough food. The respondents indicated that the cost of food in the villages is high and the grants are too low to cover all their food needs. One of the respondents Mmatilu village said "in my household of thirteen members, we relied on grants for three small children and this grant is too little to can help us fully to access food" (Source: a woman from Mmatilu village). Some of the respondents indicated that although they are poor they are denied access to such grants. A general feeling from the focus group discussions was that the grants were too little to help them to access food. It was further mentioned that the distribution of grants do not cover all the poor households thus limiting many households to access food. According to Atman et al. (2009), hunger could be reduced dramatically if eligible households are given such grants.

Ndhleve et al. (2012) also indicated that households with social grants as the main source of income, were at the lower risk of inadequate access to food, and this indicates the effectiveness of social grants. A study conducted by De Cock et al. (2013) in Limpopo Province of South Africa, concluded that, out of a sample of 599 respondents, 75% indicated

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weaker access to external income are not able to compensate by producing food for subsistence purposes" (De Cock et al. 2013). These results are similar to the findings of Ndhleve et al. (2012) who concluded that agriculture is failing to sustain households` food requirements and that majority of rural households purchase a higher proportion of their food. There was mixed feeling among the respondents whether they could conclude by saying food production is an accessing strategy because in some of the villages they no longer produce food.

Observations made by the researcher through transact walks in villages such as Herford and Elandskraal were that rural households who own land and have water sources are better enabled to grow garden vegetables in comparison with rural households who do not own land. Household who owned land in villages such as Mogaladi and Mamaneng were unable to cultivate vegetable gardens because of lack of water. Furthermore, households who do not own their own land are prompted to purchase food rather than grow their own food. This explains why rural households who do not own land are often exposed to food shortage, and why they need to have cash to supplement what they have in the household to eat. Du Toit (2001) argued that the problem is that there is no credible long term national data that has established the contribution of the subsistence/ small holder agricultural sector to food security. Therefore, the results of this research indicate that food production is becoming less and less of an accessing strategy for most rural households.

6.4.4 Food aid as an accessing strategy (the use of the national feeding scheme)

The results from the focus group discussion were that some members of the households accessed food through food aid. In the villages food aid is only in the form of school feeding programme where school going children are offered food. This is known as physical accessibility which implies that food must be accessible to the vulnerable groups such as school going children. This form of accessing food is only possible for households with school going children and the meals are offered once a day at some of the schools during break time. Unfortunately, this strategy cannot cover all the needs of the household members.

Although the government in partnership with the private sector has introduced the **Food Banks** as strategies to access food, at the time of data collection **Food Banks** were unknown to the villagers.

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6.4.5 Food gathering as an accessing strategy

Another strategy to access food is to gather food from the veldt. Respondents indicated that few households access food from the veldt, food such as vegetables and fruits or by fishing in the local dams and rivers. Research conducted by Quin (1959; 1964) and Gobotswang (1998) indicated that food gathering is an accessing strategy for the rural households. This was also supported by the research conducted elsewhere in South Africa in the Oranje farm by Matla (2008) who concluded that food gathering is an accessing strategy. A study conducted by Ndhleve et al. (2012), in rural coastal area in South Africa concluded that 15.7% of the respondents resorted to the environment as a strategy to access food. While Da Costa et al. (2013) indicated that farmers and farm households in Timor-Leste harvest wild food such as yams, bitter beans and sago palms to cope with repeated periods of food insecurity. However, in this study the respondents indicated that because of climate change food gathering is becoming scares. Their food eating patterns has also changed because of acculturation leading to a decrease in the consumption of wild food. Therefore, currently food gathering is becoming less as one of the accessing strategy for the rural communities in Sekhukhune district.

6.4.6 Bartering and payment in kind as food accessing strategies

The last accessing strategy revealed by the respondents was bartering (exchange food such as sugar for maize meal) or exchanging food for labour/ payment in kind (piece jobs which when done one is offered food). Some respondents indicated that sometimes exchange food and return it when they have plenty. Therefore, bartering was used as a method to access food. This was also supported by the research conducted elsewhere in South Africa in the Oranje farm by Matla (2008) who concluded that bartering and payment in kind were some of the accessing strategies for the farm workers. This was also supported by a study conducted by Da Coasta et al. (2013) in Timor-Leste where the researchers concluded that social networks play a major role in helping households to access food. According to Da Coasta et al. (2013), there are numbers of levels of support ranging from lending, borrowing and bartering to outright gifting. The gifting of food between neighbours and members of the extended families may be characterized as “delaying reciprocity” whereby the gift is returned at a later stage when the household that has received the gift has surplus and/or its members are aware that the other household has a shortage (Da Coasta et al., 2013). In this study the food items that are subject to gifting are maize meal, sugar and vegetables, but they hardly include prestige food such as meat and rice. Therefore, bartering and payment in gifts and in kind are still used as food accessing strategies.

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6.5 Conclusion

The HFIAS was used to measure the food accessibility of the selected rural households (n=602) in Sekhukhune district. The results show that more than 81% were not able to eat balanced meals and about 76% expressed worried of running out of food. The results indicated that majority (+80%) of the selected households in the rural areas of Sekhukhune district lack food access at household level therefore, according to the HFIAS they were food insecure. Furthermore, the HFIAS was used to determine the frequencies (rarely, sometimes or often) of food insecurity over a period of one month. The findings highlighted that more than 50% of the respondents often experienced lack of food. It is concluded that households cut back on meal size or the number of meals and/ or experiences any of the three severe conditions (running out of food, going to bed hungry, or going the whole day and night without eating), even as frequently as rarely.

With the realization that majority of the respondents were food insecure and they lack food access, the researcher further used a Coping Strategy Index (CSI) to assess their coping strategies in instances of food insecurity. The CSI had 8 coping strategies in total. The most used strategies were relying on less preferred and less expensive foods; reducing the number of meals eaten in a day; purchasing food on credit; borrowing money to buy food or borrow food; limiting portion sizes on meals; limiting your own intake to ensure that children get enough; relying on help from relatives and friends outside the household and skipping meals the whole day in order of priority.

Apart from the 8 coping strategies which were investigated using CSI the results from the focus group discussions indicated that there were a further 6 coping strategies namely: piece work; out migration of family members; relying on a "wheel method"; eating elsewhere or sending the kids to eat elsewhere; resilience in survival such as resorting to small businesses operations and backyard farming and to a lesser extent gathering wild food.

The results from the focus group discussions indicated that there are six accessing strategies used by the rural households in Sekhukhune district namely: cash as a food accessing strategy (cash from remittances, working part time or full time, petty trading or money from social network); social grants as food accessing strategy; food production coupled with cash as accessing strategy; food aid as an accessing strategy (the use of national feeding scheme); Bartering and payment in kind as food accessing strategies and lastly food gathering as the least food accessing strategy.

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6.6 Recommendations

Households in Sekhukhune district lack food access therefore, majority are food insecure. It is recommended that some of the coping strategies being promoted example: relying on the "**wheel method**". The "wheel method" could be used as a strategy to encourage the rural households to come together and form food security social group. Rather than buying food for special occasions, members of the "wheel" should be encouraged to buy food in bulks and share it equally on weekly or monthly basis depending on their financial strength. The other strategy to promote is resorting to small business as a coping strategy. Both government and the private sector should assist rural households in the formation of small businesses and the creation of employment opportunities. The formation of small businesses in all sectors could help the rural households to have access to other basic services thus contributing to household food security. In areas where land and water is available there is a need to promote agricultural production. It is therefore, recommended that in rural areas where there is land for production, the rural households should be encouraged to go back to farming. Furthermore, the utilisation of indigenous foods should be promoted.

One of the food accessing strategies for the rural households is social grants. Although majority of the respondents indicated that they depend on social grants to access food, the grants offered were too little as compared to the cost of basic food. While government is urged to provide such grants to the vulnerable households, there is a need to promote other public works programme where the food insecure could be identified and given work which they could earn an income. Government should ensure that there are skill development and job creation in the rural villages allowing people to have an income which will enable them to buy food and to be less dependent on social grants.

Although food aid in the form of feeding schemes is there to provide meals to school going children, such meals cannot cover all the children in the villages and the meals are given to the children once a day which still cannot cover a recommended diet of three meals and snacks per day. Therefore it is recommended that **Food Banks** (as a strategy to access food) should be brought to the attention of the rural households, which if known and implemented could contribute to food security for the poorest of the poor.

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CHAPTER 7: THE EFFECTS OF EXTERNAL AND INTERNAL ENVINMENTAL FACTORS ON FOOD ACCESS AND UTILISATION

7.1 Introduction

One of the objectives of this study was to investigate the external and internal environmental factors which determine food availability, access and utilisation. This chapter provides the results and discussions of the effect of external and internal environmental factors on food availability, access and utilisation using focus group discussions. The food utilisation patterns of the respondents were investigated (using 24 hour recall and one month food recall). Furthermore, the results from the existing community projects were tabulated and discussed.

7.2 External Environment Factors

External environmental factors refer to the natural and physical, technological, sociocultural, economic and educational environments, which determine the availability, accessibility and utilisation of food. The external environment covered the following sub-themes: the natural and physical environments; technological and economic environment; sociocultural environment and the education system of the respondents. Figure 7.1 shows external environmental factors and the sub-themes of the study.

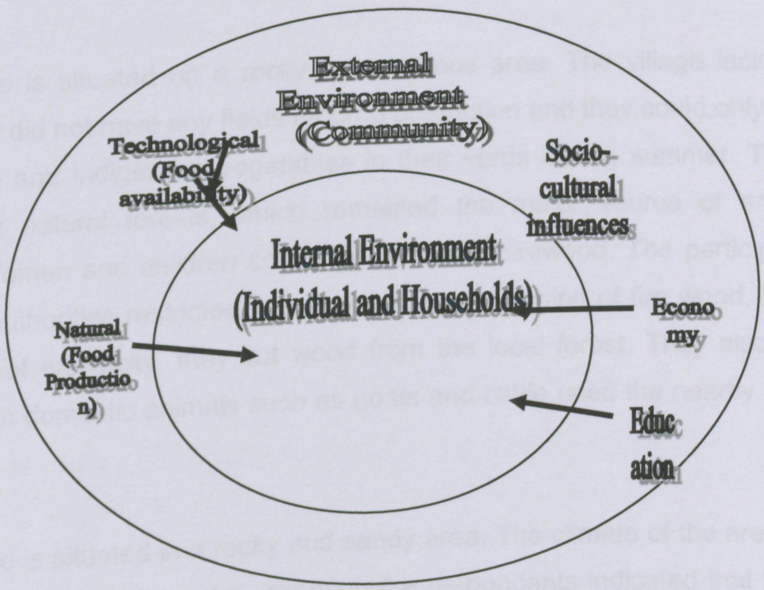


Figure 7.1: A model for the external environment (Kgaphola, 2003; Sakyi, 2012).

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The model displayed in Figure 7.1 shows factors that constitute the external environment. The model accounts for factors that affect the availability, access and utilisation of food. The model is adapted from the classic model developed by Sims (1982); Kgaphola, (2003) and Sakyi (2012). According to Sakyi (2012) the natural environment, policy environment and the natural environment, all contribute towards food availability and access.

7.2.1 The natural and physical environments of the villages

The natural and physical environments have a direct influence on food availability because their factors have a bearing on determining what foods are produced and or gathered in each village. They involve factors such as water, climate, geography, topography, soil structure or fertility, ecological factors and availability of land for production (Sims, 1982; Sakyi, 2012). According to the respondents from Elandskraal village, the village had fertile soil but lacked land for production because the plots were for residential purposes only. The respondents from Elandskraal indicated that even though they had water for production within their yards, it was too expensive for household consumption, let alone for food production. During the research process, the researcher observed vegetable gardens in some of the yards and within the two poultry projects in Elandskraal. The respondents participating in the projects indicated that they could produce exotic vegetables for household consumption. Furthermore, they could sell surplus vegetables, thus making money to access other foods.

Mmatilu village is situated on a rocky mountainous area. The village lacked water as a resource. They did not have any fields for crop production and they could only produce crops such as maize and indigenous vegetables in their yards during summer. The village was surrounded by natural forests, which remained the major source of energy for food preparation. Women and children collected water and firewood. The participants indicated that the local authorities restricted the cutting and/or chopping of fire wood, but because of the high price of electricity, they cut wood from the local forest. They also revealed that households with domestic animals such as goats and cattle used the nearby forests as land for pastures.

Mogaladi village is situated in a rocky and sandy area. The climate of the area is very warm in summer and very cold in winter. Although the respondents indicated that they had fields for crop production, their yields or food production was very poor due to the climatic conditions. The participants indicated that poor rainfall and ever-changing weather patterns

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resulted in poor yields. Mixed cropping was practised. The following crops were cultivated in their fields: maize, millet, sorghum, mung beans, njugo beans, bambarra ground nuts, cow pea, pumpkins, sweet reeds, stock melon or citron, watermelon, small white beans, calabash fruit and gourds. Some of the respondents pointed out that although they had produced crops, the crops needed to be supplemented with income such as remittances or pension grants to ensure food availability at household level. Some of the respondents mentioned that during summer months they could gather indigenous vegetables from their fields.

Letebejane village is situated closer to the Flack Boshielo Dam which supplies water to the commercial farmers in and around the town of Marble Hall; but the respondents pointed out that they lack water for food production. The village is situated closer to Tompi Seleka College of Agriculture with good cultivation soil, but without water the villagers were unable to produce any crops or vegetables. The participants also showed that they did not have access to any fields for crop production. Of the three villages, Mogaladi was the only village with land for farming. Communal land in and around the villages was used as grazing land for domestic animals. After harvest, the production field areas were also used for pasture.

7.2.2 Technological and economic environments

The technological environment is man-made and includes the distribution of food which involves the transportation system, community water supply and food markets. All these play a role to determine food availability at community level (Sims and Smicklas-Wright, 1978; Kgaphola, 2003). It refers to the knowledge and tools people use to manipulate their physical environment in order to achieve desired practical ends. Technology encompasses the tools and techniques used for food production and distribution including agricultural practices, food processing, transportation, community water supply (Jerome et al., 2012; Kgaphola, 2003).

(a) Food production

Respondents from Mogaladi village reported that some of them used tractors for ploughing while others used donkeys to plough or used a hand hoe to till the soil depending on the size of the land and resource availability. Harvesting and threshing are commonly done by hand. Mechanisation of food production involves the tasks that are predominantly done by men such as ploughing while weeding and harvesting are feminine tasks. Some respondents reported that they sometimes used fertilizers while others did not use them. Apart from plant

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production, the villagers kept domestic animals such as cattle, goats, poultry and donkeys. Donkey meat is not regarded as food, but play an important role in food procurement namely to draw ploughs, serve as transport for farm yields, wood and water.

(b)Transportation

Respondents from Mogaladi village pointed out that after harvest, maize was transported home from the field by animal-drawn cart-wagons, tractors, "bakkies"/trucks or in some households, where production was limited, by household members especially women and children. The respondents were asked about their transportation system, which affected their food availability at community and household levels. In all the villages, the foods were transported by the owners of the local general dealers into the shops in the villages. All the villages had electricity so the general dealers could even store perishable foods. Bakeries delivered bread from the local town on a daily basis. The respondents indicated that although food was available in the local shops and general dealers, the prices were higher compared to buying in town which is 50 to 70 kilometres further away from the villages. Therefore, if one had to buy food in town, one would have to carry the expensive costs of transportation by local taxis.

(c) Community water supply

Community water supply is part of the technological environment which was also a concern to the participants. According to the respondents water was available in all the villages but it differed with the frequency of offering it to the residents. In Mogaladi for instance, they purchased the water three times per week using tokens, which the respondents said they battled to afford. The water is collected at the corners of each street. In Elandskraal, they had water metres within their yards while in Mmatilu they collected water from street taps. Each village had water dynamics which affected any production of vegetables let alone food preparation. In Letebejane, they had water taps in their yards although the water was not always available. Through focus group discussions it was concluded that there is a need for proper water services in the villages. This could help in facilitating food access though vegetable gardens. Water is also a basic need for survival therefore, its provision will enable the households to be in a better position to utilise it in food production and food preparation as part of food utilisation.

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(d) Economic environment

The economic environment influences the income and net worth of the households and their ability to purchase food (Kgaphola and Boshoff, 2002). The economy of the villages was characterised by subsistence agriculture (i.e. in Mogaladi village), dependence on the informal sector of the economy, pension and child support grants and to a lesser extent on wage employment. The economic structures of the villages were not the same. The absence of factories and businesses for job creation and lack of road infrastructure for available markets were identified as the major courses of poverty and food insecurity in the villages. According to the respondents, the monthly pension pay points had become the new economic centres or markets for the villagers. This was where households bought households goods and fresh vegetables, fruits and live chickens. Therefore, pay points served as vehicles for the villagers to access food.

According to the respondents, Elandskraal had a better infrastructure compared to the other villages. It had supermarkets, general dealers and shops to give the respondents a variety of places to purchase food. The other three villages lacked a variety of different places to purchase food. Some of the respondents indicated that they bought food in town once or twice a month while others resorted to buying locally because they could not afford transportation costs. Local shops had advantages for some participants who indicated that they were sometimes allowed to buy on credit and pay the dealer once they had remittances or grants or money to pay.

The respondents indicated that their local shops did not have a massive variety of food to choose from. They sold basic foods such as maize-meal, flour, baking powder, yeast, sugar, tea leaves, cooking oil, salt, tinned foods such as baked beans, fish, chicken feet and heads, cold drinks, powdered and fresh long-life milk, packet soups, curry, concentrated juices, mayonnaise, achar, jam, margarine, peanut butter and rice.

Bread, although regarded as expensive, was the only food to be bought on a daily basis whereas vegetables such as potatoes, cabbage, onions and tomatoes were bought on a weekly basis. Some said they bought a bag of potatoes so that their supply could last longer. The respondents in Elandskraal indicated that there was a dairy, poultry and broiler projects where they could buy milk, eggs and chickens at reasonable prices. The other villages did not have such projects. Despite their limited financial resources, maize meal, sugar, tea, salt vegetables such as cabbage, onions, tomatoes and potatoes remained their basic food because they ensured food security for the households. In addition to food products,

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Vaseline, bath and washing powder (non- food basic needs) were all essential commodities, which according to the respondents provided food security.

Households in Mogaladi village indicated that their purchasing patterns differed depending on the seasons. During summer some of them could gather indigenous vegetables to supplement the purchased vegetables whereas in other villages they did not have any indigenous vegetables. When asked whether they could barter food the respondents responded by saying that they no longer bartered foods.

7.2.3 Sociocultural influences

The socio-cultural influences is the behavioural influences and includes religion; ethnicity and traditions which determine what specific foods will be chosen from the variety that is available because they are acceptable for consumption in the particular group to which the individual belongs (Sims & Simiciklas-Wright, 1978; Kgaphola, 2003). First, the focus groups were asked to list all the cultural feasts and ceremonies which they often celebrated and for which food was prepared, the kinds of food and drinks prepared for each feast or community gathering, how the food was served and eaten, and the ritual meaning of the food and drinks eaten at different cultural occasions. The objective of the exercise was to establish whether the food and drinks eaten and drunk at different feasts or occasions differed from those that were utilised on a daily basis.

According to the respondents, the following feasts or social events were celebrated as part of their sociocultural events:

- weddings (traditional and Western)
- parties to take the bride to the groom's family
- parties for paying bride wealth ("lobola" "dikemišo")
- funerals
- end of mourning period parties ("dihlobolo"/ "dikapolo")
- graduation parties
- unveiling of tombstones
- parties to celebrate moving into a new stance or house ("monyanya wa go kgola")
- baptism parties
- church gatherings ("diphuthego")
- initiation parties ("monyanya wa dialoga") from the initiation school or from a traditional healer's school

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- ancestral worship ("go phasa badimo")
- get-together for the clan to know each other ("a re tsebaneng")
- Cooperative work done by a group of women or men where food will be served to those who participated in, for example, "letšema" (currently done in special occasions where women will freely collect water and prepare food).

During special occasions, a variety of foods, which are not usually consumed in the daily diet are bought, prepared and consumed. The food includes traditional and Western foods. On all occasions, meat (beef, chicken or even goat) and porridge (maize-meal and/or sorghum) are consumed. Although there is a consumption of rice and macaroni, porridge remains the staple food in all the villages. Vegetables are increasingly consumed especially potatoes, pumpkins, cabbage, onions, tomatoes, beetroots, carrots and to a lesser extent lettuce, cucumber, green peppers and green beans. Even during funerals, cooked vegetables such as cabbage, potatoes, tomato and onion soup are served to accompany meat and porridge. The wealthier families prepare and serve cookies, cakes, juices, rice, macaroni, different types of vegetables, salads and different types of meat dishes during special occasions (excluding funerals).

Respondents indicated that during special occasion's food is cooked in large amounts and many people are involved in the preparation thereof, for example collecting firewood, water, pots and serving plates from neighbours or household members staying in the same block or from the members of one's burial society.

During weddings women prepare food such as soft porridge, tea served with cookies or bread, meat such as chicken and beef, porridge, cooked vegetables and salads and desserts such as jelly and custard while men prepare separate pots of meat and porridge for the men only. If men prefer to eat vegetables, desserts, cakes and cookies they will then request them from the women.

During special occasions different open fires are lit for food preparation; one for men and one for women. During a wedding, the third open fire is made in the "lapa" to prepare indigenous foods made by selected members of the bride's family. Food such as "tšhima" and part of the meat from the slaughtered cow or goat are cooked. The tšhima (a mixture of bambarra ground nuts, cow pea and semi grinded sorghum) is a special indigenous dish to accompany the bride to the groom's family. When the bride leaves her family that night after the wedding she is accompanied by a few elders carrying tšhima, a large dish of porridge, a

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piece of uncooked meat (if a goat or cow is slaughtered they will take the whole leg) and sorghum beer in a 20 litre air tight container and a new large clay pot, which they will use to transfer the beer and serve it. The purpose of selecting this food is to strengthen the relationship between the two families. Other respondents said that the food connected the ancestors of the two families (the bride's and the groom's family).

The respondents indicated that there was a vast difference between the types of food available as well as preparation methods used during weddings and funerals. For weddings a variety of foods is available using a variety of methods such as baking, frying, boiling, stewing, roasting and salad making. During funerals, a limited variety of food is used and the cooking method used is boiling of porridge and vegetables and stewing of meat. During special occasions food preparation depended on the type of food purchased and also what the household could afford. Individual plates are used to serve all the people. Respondents indicated that they either used their hands to eat the food or in case of rice they used spoons. Traditional beer is served in a common clay beer pot or a 20 litre plastic bucket or tin. The beer is given to the men and they use a common beer dipper to serve it.

7.2.4 The education system

All the villages had primary schools and a high school, but the respondents indicated that they were never taught any food preparation, serving and/or utilisation issues at any formal school. They learned how to cook and utilise food through the process of socialization at community and household levels. Therefore, for the purpose of this study, education implies non-formal schooling on issues related to food accessibility and utilisation at community and household level. Respondents in all villages were asked through focus groups to describe the nature of education which made it possible for them to access and prepare food. The respondents indicated that they learned this through socialization by observing their sisters, mothers and grandmothers. In this process they learned how to prepare both indigenous and Western foods. Two women from Elandskraal indicated that they were involved in school feeding programmes which improved their mass catering skills. Others learned by participating in mass food preparation at community level such as during funerals, weddings and other social gatherings.

Some of the respondents received food information from the local clinic sisters and from the radio. Others indicated that they learned about new foods and even how to prepare and serve them from their villages and also outside them. They also mentioned that the wealthy

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families in their villages introduced new foods to them and they termed these foods collectively as "mahenyahenya". "Mahenyahenya" is regarded as food that reflects a high social status. These newly introduced foods are becoming common at special occasions. They include items such as wedding cakes, cookies, different types of salads, different dishes of meat and different types of disserts, cold drinks and Western alcoholic beverages. Although the respondents indicated that they were never taught about food through formal education, they learned a lot through socialization at household and community levels.

7.3 Internal Environmental Factors

Food accessibility and utilisation patterns at household and individual levels are mostly influenced by internal environmental factors. These factors refer to unique characteristics of individuals that influence food habits and food preferences (Sims, 1982; Kgaphola, 2003). Internal environmental factors are used by individuals to choose food from what is physically, psychologically and culturally acceptable. These characteristics include ideological structures which consist of the following endogenous factors: knowledge, beliefs, attitudes and values (Sims, 1982; Kgaphola and Boshoff, 2002). According to Fieldhouse (1995); Kgaphola (2003) knowledge, beliefs, attitudes, customs, values and taboos are known as ideological factors which affect food accessibility and utilisation patterns.

7.3.1 Knowledge about food and food security

Knowledge implies a person's range of information gained by experience. It includes indigenous knowledge acquired through socialization and apprenticeship (Kgaphola and Boshoff, 2002). In other words, members of cultural group transfer information to children, and child learns which food to consume or to avoid as well as the specific attitudes towards foods. This information is integrated in a cognitive way to form a system by which the individual is able to distinguish between what is edible, acceptable and unacceptable. To assess their nutritional knowledge the researcher generally asked the meaning of the following nutritional concepts: food security, balanced diet, energy foods, body building foods, protective foods, essential foods and luxury foods.

The respondents did not know the meanings of scientific nutrition concepts, such as food security. The researcher has to explain the concept food security in terms of food availability, accessibility and utilisation. When the concept food security was explained the respondents were able to mention that food is available in the villages and in town. Furthermore, they

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indicated that they sometimes lack resources to access food from the shops because they could not afford it. Others mentioned the issue of taking credit as a means of accessing food. Although they did not have much knowledge of scientific concepts but they could mention some of the foods they thought were luxury items, such as sweets, cakes, alcohol, rice, mayonnaise, custard and jelly to mention just a few. Foods that gave the body energy were maize meal porridge, potherbs, potatoes, samp and beans, sorghum porridge and sugar. Some of the younger respondents could list protective foods such as fruits (apples, bananas, avocados, peaches and oranges) and vegetables (spinach, cabbage, tomatoes, onions, pumpkins, beetroots, green beans and carrots). Under the section on body building, some of the respondents indicated that milk and milk products together with meat and meat alternatives, beans and eggs aided individuals to build their bodies. In general, their scientific nutritional knowledge was not much but they had indigenous knowledge about what foods were edible and inedible in their environment. They also indicated that by attending nutrition education sessions at the clinics they learned more about food.

After realising that the respondents were not used to the scientific terms such as a balanced diet, the researchers asked them to list indigenous foods which they learned through socialization and how these foods were combined when serving them. The respondents through their discussions indicated that they had knowledge about what kinds of indigenous vegetables to collect to make a potherb which is served with porridge. They had knowledge of where and when to collect the indigenous vegetables and how to prepare them. To make dried vegetables more nutritious they mixed the vegetables with ground peanuts or with nuts of the marula fruit and served it with porridge. The indigenous knowledge that they had for brewing beer was a typical example of the existing food preparation and processing knowledge. In food preparation, they mentioned dishes such as porridge, indigenous vegetables such as pumpkin leaves, “tšhima” (a mixture of slightly crushed sorghum seeds, cow pea and bambarra ground nuts) and “dikgobe” (a mixture of samp, cow pea and bambarra ground nuts), and citron porridge (citron, sugar and maize meal). These dishes form part of a balanced diet when served with vegetables and or meat. They had learned how to prepare different kinds of dishes from their household members and from members of the community during special occasions. Therefore, the respondents had **indigenous knowledge** which guided them on how they prepared processed and utilised foods.

The researcher asked the respondents about where they got knowledge about food acquisition, production or purchasing, processing, preparation, utilisation and serving. The respondents indicated that they acquired the knowledge through socialization or experience, peer groups, social networks, from the sisters at the clinic, radio and some (those at

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Elandskraal) because of their involvement in development projects. All these were identified as sources of knowledge about food, the production or purchasing, processing, preparation and serving.

7.3.2 Traditional beliefs and practices in food

Traditional beliefs and current perceptions create certain realities for the household members on which they base their food utilisation decisions. Religious and traditional beliefs prohibit consumption of certain foods; hence even if the foods are available or easily accessible, they were not procured for household consumption. Beliefs about food are closely associated with ideas about health, sickness, age, sex, physiological state (e.g. pregnancy and lactation) social and emotional feelings (Kgaphola, 2003).

The participants were asked what foods they thought should or should not be eaten by certain people or at certain times, distinguishing between different age groups and different stages in the life cycle (children, women/pregnant women, men, old people, sick people).

a) Foods that should not be eaten at all by certain people/food avoidances

Respondents indicated that there was strong agreement that one was prohibited to eat an animal of one's totem. If the totem is a cow people are not allowed to eat beef and beef products. Bapedi, particularly those belonging to Bakone and Baroka clan, had another belief system. They put restrictions on pregnant women within their clan by not allowing them to drink water from a common source with other members of the household, let alone visitors.

A pregnant Bakone or Baroka mother to be, would cook her own porridge separately or cook two porridge pots one for herself and the other for the rest of the household members. She is not allowed to eat food at communal occasions such as weddings and funerals. If she is culturally bounded to attend such occasions, she would then have to carry her own water to that household and cook separate food for herself. The general belief among the Bakone and/or Baroka was that if such restrictions were violated, the mother to be would give birth to a physically weak baby or a crippled baby. This belief might not be scientifically tested yet, but it is adhered to by all the Bakone and Baroka pregnant women because of fear of harming the unborn child. This belief increases the workload of pregnant mothers but it is

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respected and carried over from one generation to another. The beliefs also control who should utilise which foods and why within a household.

Among the most frequently mentioned food that should not be eaten by all the children was kidneys, eggs and intestines. Other respondents indicated that if they were allowed to eat the kidneys, they would wet their beds. The other belief was that if women were allowed to eat kidneys, they would be prone to have a crippled child. Pork was indicated as being generally bad. Reasons given were that it could make the tonsils swell, could make one sick or could cause allergies, such as getting a rash. Some respondents indicated that they did not consume pork due to religious beliefs, for example those belonging to the Zion Christian Church (ZCC).

Alcohol was mentioned as not being good for pregnant and lactating mothers. Reasons given were, among others, that alcohol made one weak, caused aggression, that it would damage the lungs and cause a person to lose body weight. Several respondents indicated that alcohol caused trouble only if used by young people, and that therefore, only old people should be allowed to drink alcohol because they drink it in their houses and do not cause trouble to the community.

Table 7.1 shows a summary of results obtained from focus group discussions conducted as part of the study. The results are in relation to the belief that the food should be avoided and the reasons thereof.

Table 7.1: Types of food avoidance and reasons provided

Target group	Types of foods and drinks avoided	Reasons provided for food avoidance
Babies (0-4 months)	- Wild fruits and vegetables - Porridge and citron porridge	-They cannot chew -Porridge will cause constipation and it is too heavy for their tummies
Infants during winning (4 months – 3 years)	- Liver - Foods with pips -Sweet reed	- Disturbs a child' mind (a child cannot say when he/she wants to go to the toilet) difficulty in toilet training -They can swallow the pips - Can result in the peeling off of the child's skin (belief) -Causes constipation and they are not easy to be swallowed

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	- Hard foods such as samp and beans, citron meal, wild fruits	
Girls	- Chicken heads (from the chicken slaughtered at home) - Peanuts, eggs and kidneys - The first milk of a cow after parturition ("Kgatsele" or "Matšwagodimo")	-Tradition forbids them to eat chicken heads - These foods will make them to be sexually active and run after boys (belief) kidney will make them wet their beds. - Colostrum is only for herd boys
Boys	- Head of a cow, goat or sheep - Spleen ("lebete") - Eggs, peanuts and kidneys	-Tradition forbids them because if they are allowed to eat the heads they will disrespect the elderly -These foods will make them sexually active and they will run after girls; kidney will make them wet their beds
Men	-Tripe, rumen and colon ("Mala le mogodu") - Hoofs ("dihlako")	-Tradition forbids them Culturally these cuts of meat are allocated to the elderly women
Women	- Head of a cow, goat or sheep slaughtered at home - Kidneys - Dove ("leeba")	-Traditionally allocated to men as heads -Can make a woman not to bear children. Others believe that a woman will bear boys with genital abnormalities ("morotwana o tla boela morago")

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	- "Diretloa" (a mixture of small intestine, lungs, heart, liver and spleen) - The lower back part of a chicken ("Kgoto" or "nkhukhuthu" - If the meat is too small or there were any meat leftovers, it should be put aside for the husband or men in any household.	-A woman will bear a child who will always cry like a dove -This dish is traditionally allocated to men. If a woman eats it, is a sign of disrespect. -It will make the woman to disrespect her husband It is a custom and cultural norm to reserve any last portion of meat to men. Women are not allowed to disrespect this norm.
Women during pregnancy or lactation	- Eggs - Pregnant and lactating women are not even allowed to be closer to the beer processing environment - Mutton -Marula embryos ("mmoko wa dikoko") -Alcoholic beverages -Traditional beer	-A belief that the consumption of eggs will delay delivery; the baby will wake up very early in the morning or will be clever like a chicken. -The beer will no longer be strong or the beer fermentation will be disturbed drastically. -The baby's faeces will have blood. To avoid harming the baby, women are not allowed to eat mutton even from the butchery. -Pregnant mothers are not allowed to eat marula embryos because they will bear a child with too much mucus. -They will harm the child -If a lactating mother drinks or tastes the beer, the beer becomes weak ("bo a hlapologa or e ba potsa").
Women during monthly periods	Traditional beer processing	- Not allowed to process beer or to be closer to it, reason: they will disturb its fermentation process ("Bjala bo a ilelwa").
Elderly	-Hard foods, tough cuts of meat, Mopani worms; maize and sorghum corns ("makokoro le	-The elderly cannot chew hard foods.

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	mawa")	
Sick persons: -Children: if they are suffering from measles, small pox ("mmoko, maboro, mauwe, lethakgo") - Adults	-Salty foods and fermented cereal porridge; sour and acidic foods -Beer and cigarette/ tobacco	-The symptoms of the disease will not be visible and this will make the condition worse. -They worsen the conditions if taken when sick.

7.3.3 Attitudes towards food

Attitudes are defined as a more or less stable set or disposition of opinion, interest, or purpose, involving expectancy of a certain kind of experience, and readiness with an appropriate response emphasizes the fact that specific attitudes have a strong relationship with actions (Kgaphola & Boshoff, 2002). Attitudes towards food determine whether an individual will like or dislike a certain food, will favour or avoid certain foods and whether the food will be acceptable to the individual or not. Therefore, attitudes towards food can be positive or negative. The utilisation of food in households is also influenced by attitudes held by members of the household. Some of these attitudes pertaining to particular types of foods, dishes, food preparation methods, processing and preserving were identified. Table 7.2 represents some of the attitudes towards foods gained through the focus group discussions.

Table 7.2: Summary of attitudes relating to food

"I dislike cucumbers and lettuce because one cannot cook them and utilise them as a relish served with porridge".
"Free ranching chickens taste better than broilers."
"I do not prefer fish from the dam because it looks like a snake".
"Indigenous vegetables are regarded as of low status and for the poor".
"Indigenous fresh vegetables are testier than processed dried ones".
"Milk served with porridge is regarded as food for children".
"Meat dishes are regarded as good for men while women are to consume vegetables"
"Tomatoes do not agree with me they give me heartburn and ulcers".

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7.3.4 Values about food

A value is seen as something to which an individual is committed and which influences an individual's behaviour (Kgaphola & Boshoff, 2002). Values give direction in food choices. A value is a permanent belief that results in certain actions being preferred instead of others. The values of an individual or group of individuals will usually be part of the value system of the society in which they live, in other words the value system determines which foods are suitable for a particular group of individuals. According to the respondents some foods may have value because they offer security, prestige and hospitality, but this will differ from one culture to the other. Values associated with foods are in line with the categorization of foods using age, sex and stage in a family life cycle. The respondents indicated that if money was available they would always purchase food which the valued most. Table 7.3 shows some of the values associated with food.

Table 7.3: Values associated with food

"Old people say we should eat porridge daily because it is a traditional food".
"Porridge is valued because it gives us food security"
"We should eat vegetables and fruits because they protect the body against diseases".
"Babies should be fed with soft porridge and milk to give them energy".
"Men should get the best or biggest share of food especially meat"
"Cakes and cookies are mostly valued by women and children".
"Indigenous vegetables are regarded as a relish valued by women".
"Most of the men in our village value alcoholic beverages".
"If money were available, I would consume porridge, meat and vegetables daily".
"I value the consumption of meat because meat is a prestigious food"
" The consumption of tšhima is mostly valued by women"

7.3.5 Social norms regarding food

Social norms provide guidelines to the range of behaviour appropriate and applicable in particular social situations (Kgaphola, 2003). When food is consumed, social norms determine which foods are suitable for a particular social situation or condition, in other words which foods should be consumed during the morning, day and evening meals. Social norms also determine foods for children, men, women and those in a specific stage of the life cycle, for example pregnant women. Table 7.4 shows some of the social norms recorded through focus group discussions.

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Table 7.4: Social norms associated with food

If one hasn't cooked a pot of maize-meal but she wants to serve it, she must first pass greetings to the person who cooked the pot before serving. i.e. "Hunadi" or "Mologadi" before opening the pot.
For those who belong to the ZCC church it is a norm to forbid the consumption of pork, duck, Mopani worms, insects and meat from dead animals.
During funerals and weddings men cook their own pots and serve them in large enamel dishes separate from women and children's foods.
Leafy vegetables and legume dishes are regarded as female foods.
Pregnant Bakone or Baroka women are not allowed to drink water or eat porridge from a common source.
Surnames are normally linked to animals (totem animals) i.e. a cow. One with such a surname is forbidden by social norms to eat beef and beef products.
It is taboo to prepare sorghum beer during menstruation or while pregnant.
"Women are not allowed to cook when breastfeeding"

It is clear from Table 7.4 that social norms determine what the respondents and mostly their household members should or should not consume in a given time. Social norms also govern behavioural patterns of individual and how they should relate to food.

7.4 Food Utilisation and Consumption Decisions

Food is any substance in the form of a liquid or a solid taken in by mouth which maintains life and growth. Decision making is a process that underlies goal formation and resource management and involves selecting from different courses of action (Deacon & Firebaugh, 1988; Kgaphola, 2003). Food consumption decisions are decisions which are taken by individuals and household members in order to satisfy their food needs as individuals or as groups.

7.4.1 Food supply and acquisition decisions

According to the respondents, food was supplied by bread winners, which in most cases were the men or husbands. In some households which depended on government grants, grandmothers and grandfathers are the breadwinners as they are the ones who provide food for the household members. Each month the breadwinner would provide money which would help with the supply of food at household level. For a household to be food secure, household food providers were to provide resources such as money to ensure that the household was food secure. However, food security could not be met in all households.

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One respondent from Mmatilu village indicated that "she had limited food supply because her sole source of income was child support grants for two children that amounted to R500-00 and this had to provide for a family of eight people. The respondents from Mmatilu indicated that even though food was available in their local shops, they could not afford it. Other respondents indicated that their food supply consisted of a monotonous diet of maize meal, sugar, salt, potatoes, cooking oil and cabbage. Some of the respondents from Mogaladi village indicated that their food supply was better during summer months when they had plenty of indigenous vegetables to supplement what they bought. Their acquisition decisions depended mostly on the amount of money allocated to food at household level. Although most men or husbands provided the households with money to buy food, the respondents indicated that women had more power than men in making decisions on what to buy and when to buy when money was available. Some of the respondents indicated that the food budget offered by their breadwinners was too little to cover basic foods (maize meal, sugar, cooking oil, vegetables) for a period of one month.

7.4.2 Food storage and preservation decisions

(a) Cereals

Participants in three of the villages (Mmatilu, Elandskraal and Letebejane) indicated that they bought cereals such as maize meal and rice and stored them in small bags, metal bins, plastic and metal canisters or buckets and stored them in the kitchen cupboards. Plastic buckets in various sizes were commonly used as storage utensils for different kinds of food. Participants in Mogaladi village where maize was produced indicated that they harvested the crops and brought them home from the fields using donkey carts or tractor trailers. They first dried them in the "lapa" and when dried, they processed the maize by separating it from the cobs using their hands. The processed maize is taken to the milling company in Marblehall town for further processing.

The maize is then processed into maize meal. There are costs involved in production and processing in town and bringing back the maize meal from town. The final product is maize meal which is stored in bags. Respondents indicated that if production was high, they would store the maize at the cooperative in Marblehall and take one bag each month for consumption until their produce was finished. The best maize cobs were dried and kept for seeds.

(b) Vegetables

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Respondents from Mogaladi village pointed out that cultivated and wild vegetables such as pumpkin leaves and amaranths and others, were cut into small pieces and spread on a flat surface to dry in the sun. In the evenings and on windy days the vegetables were brought indoors until they were dry. Vegetables such as cow pea leaves and cleome were blanched before they were dried and this method caused the food to lose its original taste and colour. When the vegetables were dry they stored them in buckets in the kitchen. It was common practice to dry vegetables for use during lean months. Respondents with cooling facilities indicated that if they had plenty of vegetables, they blanched them and stored them in the freezers.

(c) Legumes

Respondents from Mogaladi village showed that peanuts, bambarra ground nuts, mung beans and jugo beans were harvested, sun dried, processed and stored in bags or plastic baskets in the food hut or kitchen. In villages where they did not produce food, such legumes were bought in smaller quantities and stored in buckets or bottles in the kitchen cupboards.

(d)Meat

Participants with cold storage facilities indicated that when they had an abundance of meat, they usually stored it in their cold storage. Some of the participants indicated that if they had an abundance of red meat they normally dried it while the majority of the participants indicated that they seldom had meat in abundance to preserve. Therefore, some of the households had cold storage to store perishable foods such as meat, milk, vegetables and margarine, while others did not have them. Those without cold storage facilities were forced to buy tinned foods, which they did not prefer.

7.5 Food Preparation Facilities, Utensils and Techniques used to prepare Food

Respondents were asked to describe the people involved in food preparation and their food preparation facilities, utensils and techniques used. According to the participants, all chores related to food preparation were allocated to the females, the girls, women and grandmothers (if they were still strong to perform such chores). Two of the respondents from Elandskraal reported that they had taught their boys to participate in food preparation but the rest of the respondents viewed food preparation as a female chore except during

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special occasions such as weddings, funerals or church gatherings when men cooked their own food.

Respondents from Elandskraal indicated that they prepared their food in the kitchen which was part of the house. All the food preparation utensils (such as pots, pens, plates and spoons) and food were stored in the kitchen. While respondents from the other villages shared the same view, there were those who indicated that they still used separate rooms to prepare and store food especially those who used open fires. Food was either cooked in the kitchen hut called "morala" or "mokutwaneng" or "ka ngwakwaneng wa sebešo" or outside if the weather permitted using wood. Food preparation was done either using open fires or paraffin primus stoves or electric hot plates and to a limited extent electric stoves. Gas stoves were not commonly used. Therefore, the location of food preparation and the type of fire used differed from one household to the other.

Technology available at household level also determined their food preparation methods. The respondents were asked to list the methods they normally used to prepare food. All the respondents indicated that they normally boiled their food, for example tea, porridge, vegetables such as potatoes, spinach and cabbage while onions were fried first then tomatoes were added to make gravy. Legumes were boiled, and cooking oil, onions, tomatoes and flavouring such as curry were added when the legumes were soft and tender. Beans were sometimes cooked with soup bones (shin). Eggs were commonly fried or sometimes boiled. During special occasions chicken was fried in deep fat. Boiling, stewing, roasting or frying was used as cooking methods for meat. Some respondents baked bread known as "sephaphatha". Therefore, different methods were used to prepare food although the most preferred method was boiling. Acculturation clearly introduced Westernised cooking methods.

7.6 Food Sharing

According to the focus group discussions food sharing differs from one household to the other. The elderly women indicated that it was their cultural norm to serve fathers and grandfathers first whereas the younger generation indicated that they served food equally at the same time. Traditionally, food was served to the males to show respect to the head of the household but currently this practice seemed to be fading away. Therefore, everyone got equal amounts of food and could ask for a second serving if not satisfied or full. Each person ate from his/her own plate. Even during special occasions people also ate from individual

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plates. Acculturation has occurred where new foods and new methods of sharing food became the norm. The basic meal structure of porridge and relish was still followed.

7.7 Food Intake Patterns Based on 24-Hour Recall

The 24-hour recall form, which asks each participant to mention everything he/she ate and drank the previous day, was used to find out about all the food and drinks the respondents ate and drank on the previous day. In this case, the respondents were asked to mention everything they ate and drank from the time they woke up till the time they went to sleep. The food that the respondents ate on the previous day was typical of their habitual food intake. Investigations into food availability and access of food showed that the majority of the households in this sample had a very limited dietary diversity and could not afford some types of food. Food consumption data from the 24-hour recall revealed that food such as meat and meat alternatives, vegetables, fruits, milk, eggs, beans and rice were often limited or missing in the diet. Maize meal was the stable food for the majority of households in the sample and its consumption was high. The food intake/utilisation pattern of the rural households in this study is shown below in Table 7.5.

Table 7.5: Food consumed at home over a period of 24 hours (n=602)

FOOD GROUPS AND TYPES OF FOOD	BREAKFAST	SNACK	LUNCH	DINNER
1. Grains and grain products				
Maize porridge	n=256*		n=284*	n=512*
Maize meal soft porridge	35*		2	4
Maize corn (Lekokoro)	1		3	
Brown bread	173*		69*	27*
White bread	12		4	6
Homemade bread/ sephaphatha/buns	27		7	5
Rice	3		12	9
Sorghum porridge	8		4	6
Sorghum meal soft porridge	23		1	
Oats	8			
Morvite	5			
Wheat Bix	1			
Samp	4		2	8
2. Meat and Meat Substitutes				
Chicken	14		29	65*
Chicken feet, intestines and necks	41*		51*	112*
Pork	3		2	5
Mutton	1		1	2
Beef/ cuts, / heels/ mince or wors or tripe	4		18	30
Fresh fish from the dam				3
Tinned fish	5		14	25
Beans/ soya/ sugar beans/ baked beans	12		13	24
Polony	1		2	1

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Peanuts		2		
Peanut butter	10		2	
Eggs	11		7	8
3. Fruit and Vegetables				
Banana	1	12		
Apple		21		
Pear		1		
Oranges		28		1
Guavas		1	1	
Grapes		1		
Lemons	2			
Naartjies			1	
Indigenous vegetables (morogo) dried	20		8	24*
Cabbage	51*		54*	93*
Onion	15		20	51*
Tomato	13		20	47*
Spinach/ Chinese spinach (tanapose)	46*		47*	63*
Pumpkin			1	1
Beetroot			2	4
Potatoes	21		29*	58*
Carrot			3	2
Green beans				2
Sweet potatoes	2		3	
Green pepper				1
Lettuce	1		1	1
4. Milk and milk products				
Fresh, full cream milk	19		18	10
Nespray/Klim	6		1	1
Sour milk (Inkomasi)	3		7	11
Cheese			2	
Butter	1		1	
5. Fats and Oils				
Sunflower cooking oil	87*		97*	194*
Margarine/ Rama	21		1	2
Non-dairy creamers (Cremora)	2		1	
6. Miscellaneous and others				
Chicken/beef spices/ Aromat	1		1	4
Tea (Rooibos)	47*		6	5
Five Roses tea/Joko	236*	4	69*	42*
Sugar	327*	4	77*	49*
Simba/ Cheese snacks/ popcorns		21		
Biscuits and cakes/ cookies	2	2		2
Water	1		3	2
Salt	176*		216*	384*
Juice/ orange etc	3		8	3
Packet soup (Royco /Minestrone/Knorrox/ Imana soup	8		15	26
Mayonnaise	1		1	
Greek salad dressing/French dressing			2	
Jam	2			
Achar	1		2	3
Tomato sauce			1	2
Vinegar	2			
Coffee	2			
Curry / Rajah			1	1
Cold drink such as Coke; Fanta	1		2	3

*** Most commonly consumed foods in each meal category**

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The 24-hour recall questionnaire was administered to determine the patterns of food utilisation as well as the type of food generally consumed by the rural households in Sekhukhune district. Most of the respondents consumed two meals per day. Their patterns of food utilisation were grouped according to six food groups, namely grain and grain products; meat and meat substitutes; fruits and vegetables; milk and milk products; fats and oils; miscellaneous and others.

The research results showed that under grain and grain products, maize meal and brown bread were highly in use for breakfast, lunch and dinner. Maize meal was regarded as a staple food in this district. The majority (n= 512) of the respondents consume maize, mostly for dinner. Maize meal was usually consumed with a relish of chicken or chicken feet, chicken intestines or with vegetables (such as cabbage, spinach, potatoes or indigenous vegetables). Some respondents reported that they used sugar, tea, oranges or lemons as a relish because they lacked money to buy vegetables and meat. They also used sorghum soft porridge (which was sometimes fermented) or maize meal soft porridge (sometimes vinegar added) served with sugar because they could not afford milk. There was a low consumption of other meat substitute such as eggs, beans and fish.

In the fruits and vegetables group, there was a very low consumption of fruits. The vegetables commonly utilised are potatoes, cabbage, spinach, tomatoes and onions which were all served as a relish with maize meal porridge. Tomatoes and onions were fried and served as a sauce with porridge. Although nutritionally maize meal and potatoes are grouped as starch/ carbohydrates, the respondents indicated that they relied on potatoes as a relish because potatoes lasted longer, and were cheaper during pension days in the villages. Potatoes and onions also lasted longer on the shelf as compared to other vegetables.

There was a low consumption of milk and milk products. Under fats and oils, there was a high consumption of sunflower cooking oil which was largely used to add taste to cabbage, potatoes and chicken feet or chicken intestines. Under miscellaneous, there was a high consumption of sugar because some respondents used it as a relish while others used it in tea and porridges such as sorghum, maize meal and to a lesser extent oats. Some respondents ate porridge with tea because they lacked money to buy bread or they did not have any other source of relish. Salt was also consumed at a higher rate because it was used in relishes which were served for breakfast, lunch and dinner. The 24 hour recall revealed that household food consumption patterns were influenced by lack of a variety of food items for consumption.

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7.8 Results Based on One Month Food Recall

The 24-hour recall questionnaire had some shortcomings in capturing the realities of the households over a short period of time. With this shortcoming in mind, a food diversity questionnaire was used to capture the food purchased and utilised over a period of one month. Respondents were given a list of food to select those ones they normally consumed during the month. The researcher and the research assistants read the food from each food group and the respondents were asked whether they consumed the listed foods. The foods consumed were circled and analysed statistically. The food diversity questionnaire was grouped into 16 food groups, namely cereals; vitamin A rich vegetables and tubers; white tubers and roots; dark green leafy vegetables; other vegetables; vitamin A rich fruits; other fruits; organ meat rich in iron; flesh-meats; eggs; fish; legumes, nuts and seeds; milk and milk products; oils and fats; sweets; spices, condiments and beverages.

The main source of nutrition was food rich in carbohydrates, such as maize meal porridge. Maize meal porridge was the only food item consumed at a higher rate than the other food products. Respondents indicated that they normally ran short of food towards the end of the month or before the next pay or grant. Therefore, maize meal would be the only food left for survival but for the poorest of the poor they even ran short of maize meal. Other foods which were consumed at a higher rate during the course of the month were potatoes, tomatoes and onions, cabbage, sugar, tea, salt and cooking oil. Below are the results and discussions of each food group.

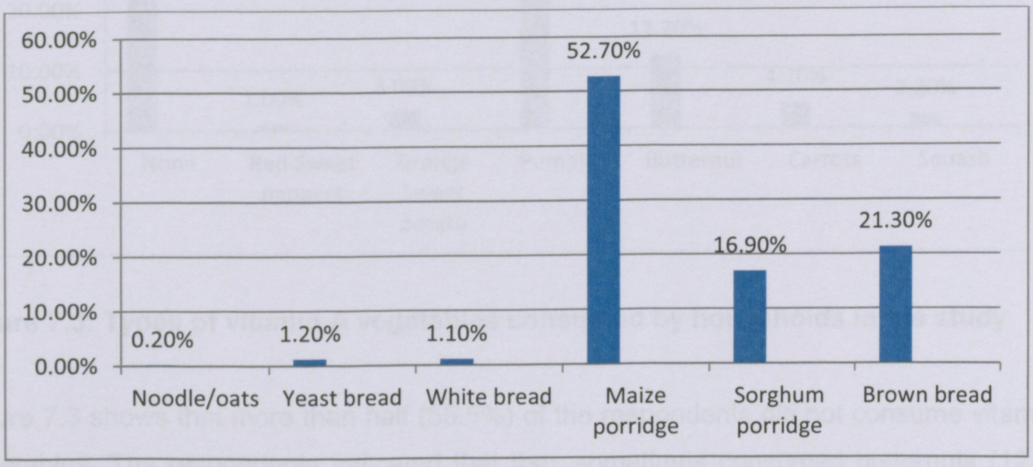


Figure 7.2: Types of cereals consumed by households in the study

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Figure 7.2 shows that the highest consumed cereal is maize porridge (52.7%). Maize meal is a staple food which is consumed in the form of soft porridge or stiff pap. The results are similar to that of Lemke (2001) who concluded that out of a sample of 158 respondents maize meal was the only staple food available over a period of one month, while other maize meal products are consumed far less frequently. Furthermore, a research conducted by Oldewage-Theron et al. (2006) in an informal settlement in the Vaal Triangle, South Africa concluded that maize meal porridge (stiff maize meal porridge) was the only food item consumed by 100% (n=357) of the respondents on a regular basis.

The second most consumed cereal is brown bread (21.3%) the results are similar to that of Lemke (2001) who concluded that brown bread was regularly available in 38% of the households, while 20% have it only occasionally. The respondents indicated that although they did consume bread this is only possible during the first weeks of the month when they still have money to purchase bread. For the rest of the month they rely on maize porridge or sorghum porridge. The households consumed fresh corn, rice, white bread, homemade bread, noodles and oats to a lesser extent. Some of the respondents indicated that this was the case because of their high prices at the market.

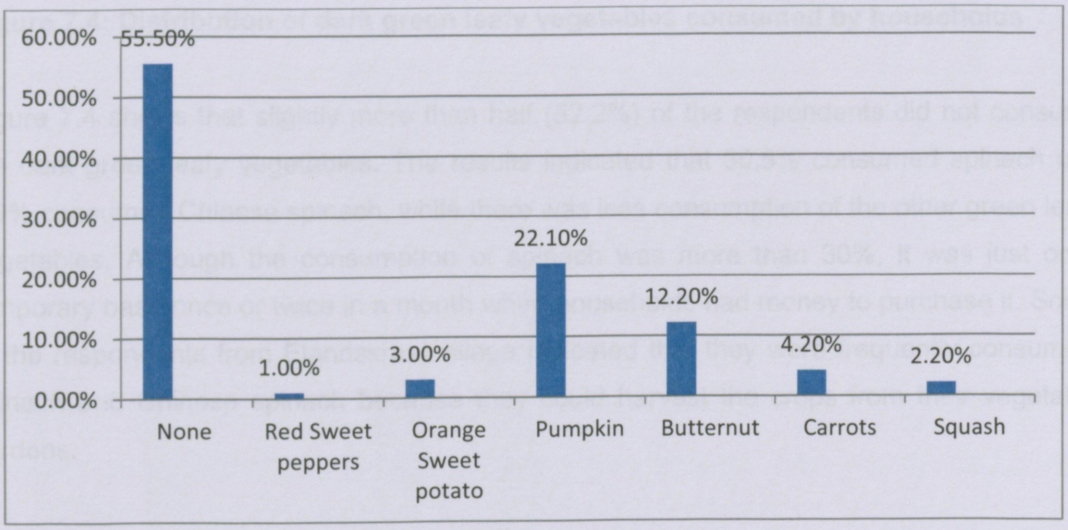


Figure 7.3: Types of vitamin A vegetables consumed by households in the study

Figure 7.3 shows that more than half (55.5%) of the respondents did not consume vitamin A vegetables. The respondents indicated that they sometimes consumed butternuts (12.1%) and/or pumpkins (22.1%) as compared to the rest of the vitamin A vegetables. However, they indicated that these vegetables were regarded as "visitors" to their diet as they could only consume them once or twice per month. Some of the respondents reported that they

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consumed them during special occasions such as weddings and funerals. These results are similar to that of Lemke (2001) who concluded that "most people consume these vegetables only on weekends or often even only once a month, when pension or income are received or when relatives bring or send money home".

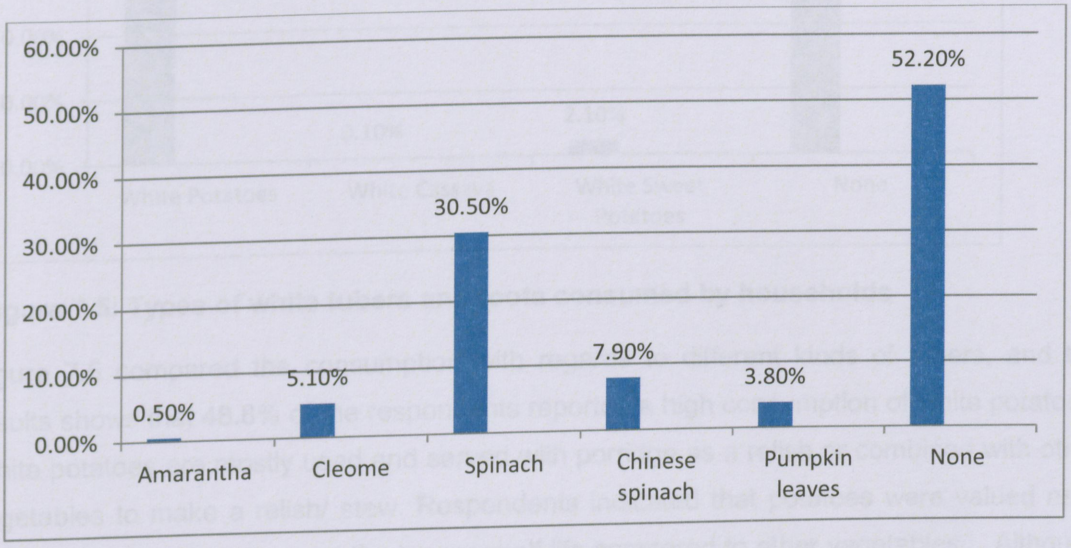


Figure 7.4: Distribution of dark green leafy vegetables consumed by households

Figure 7.4 shows that slightly more than half (52.2%) of the respondents did not consume the dark green leafy vegetables. The results indicated that 30.5% consumed spinach and 7.9% consumed Chinese spinach, while there was less consumption of the other green leafy vegetables. Although the consumption of spinach was more than 30%, it was just on a temporary base once or twice in a month when households had money to purchase it. Some of the respondents from Elandskraal village indicated that they were frequently consuming spinach and Chinese spinach because they could harvest the crops from their vegetable gardens.

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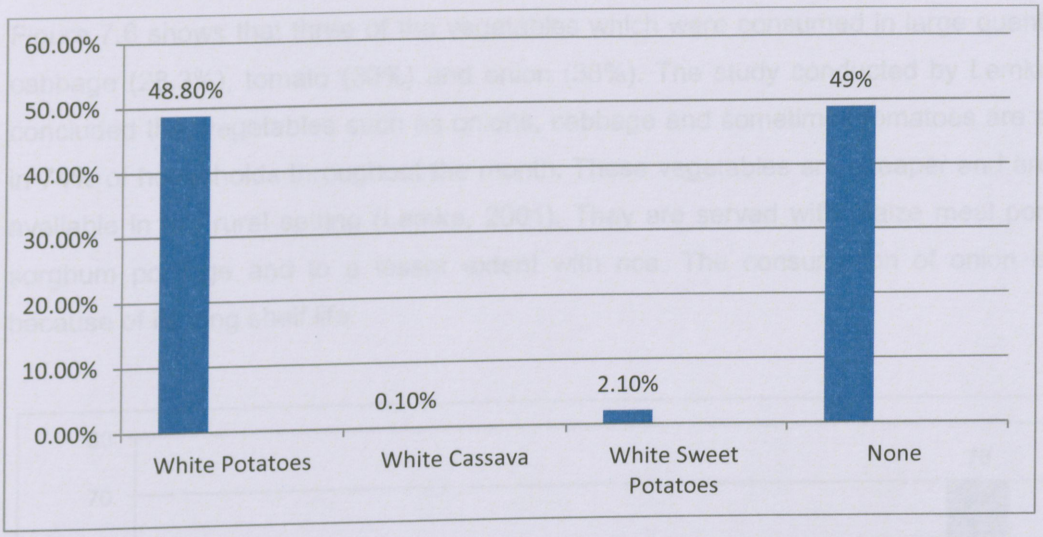


Figure 7.5: Types of white tubers and roots consumed by households

Figure 7.5 compared the consumption with regards to different kinds of tubers, and the results shows that 48.8% of the respondents reported a high consumption of white potatoes. White potatoes are mostly used and served with porridge as a relish or combined with other vegetables to make a relish/ stew. Respondents indicated that potatoes were valued as a relish because of its price and the longer shelf life compared to other vegetables. Although there was a high consumption of potatoes, 49% of the respondents did not utilise any tubers. The results of the study conducted by Lemke (2001) concluded that potatoes are regularly available in 57% of the households, 17% of households have them occasionally, while about one-quarter of households do not have them at all.

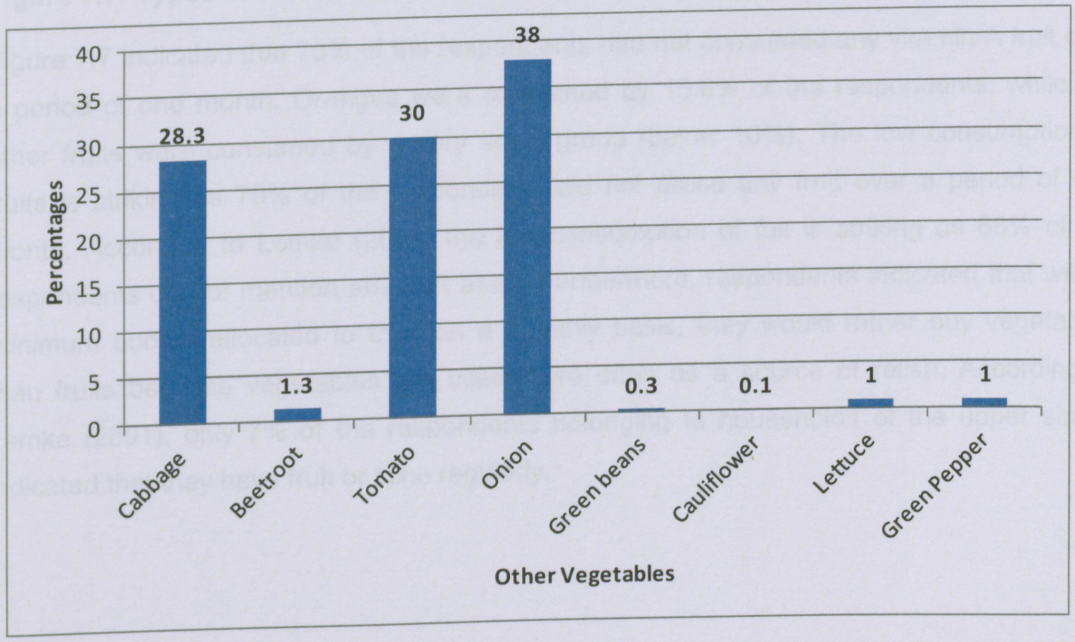


Figure 7.6: Types of other vegetables consumed by households

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Figure 7.6 shows that three of the vegetables which were consumed in large quantities are cabbage (28.3%), tomato (30%) and onion (38%). The study conducted by Lemke (2001) concluded that vegetables such as onions, cabbage and sometimes tomatoes are available in 74% of households throughout the month. These vegetables are cheaper and are readily available in the rural setting (Lemke, 2001). They are served with maize meal porridge or sorghum porridge and to a lesser extent with rice. The consumption of onion is higher because of its long shelf life.

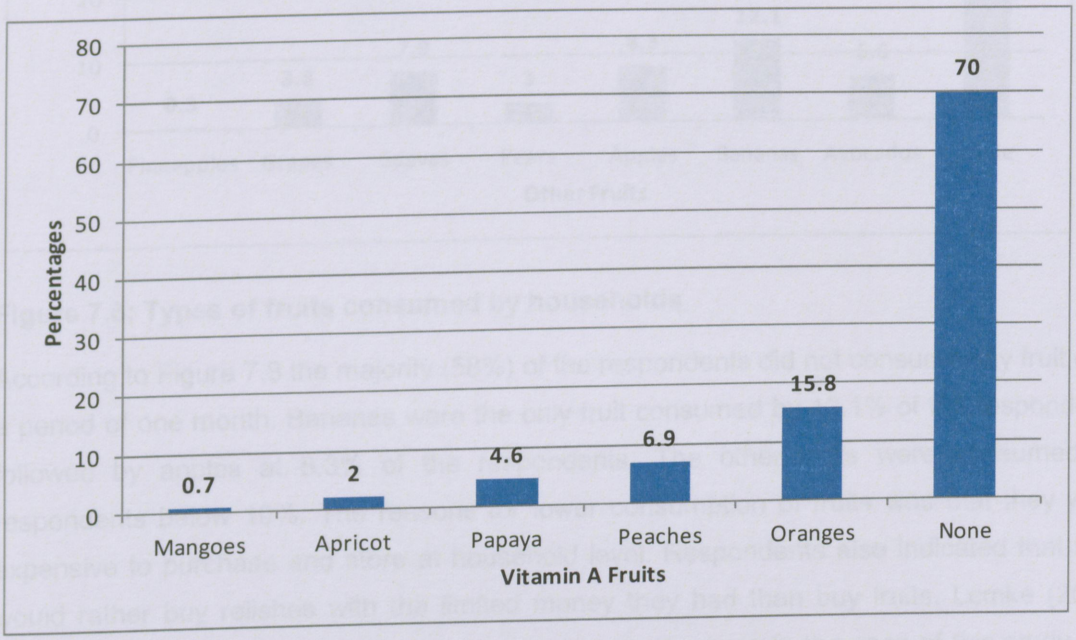


Figure 7.7: Types of vitamin A fruits consumed by households

Figure 7.7 indicated that 70% of the respondents had not consumed any vitamin A fruit over a period of one month. Oranges were consumed by 15.8% of the respondents, while the other fruits were consumed by a very small group (below 10%). The low consumption of fruits is striking as 70% of the respondents did not utilise any fruit over a period of one month. According to Lemke (2001) the low consumption of fuit is striking as 68% of the respondents do not mention any fruit at all. Furthermore, respondents indicated that with a minimum budget allocated to food on a monthly basis, they would rather buy vegetables than fruits because vegetables are used more often as a source of relish. According to Lemke (2001), only 7% of the respondents belonging to households of the upper strata, indicated that they have fruit or juice regularly.

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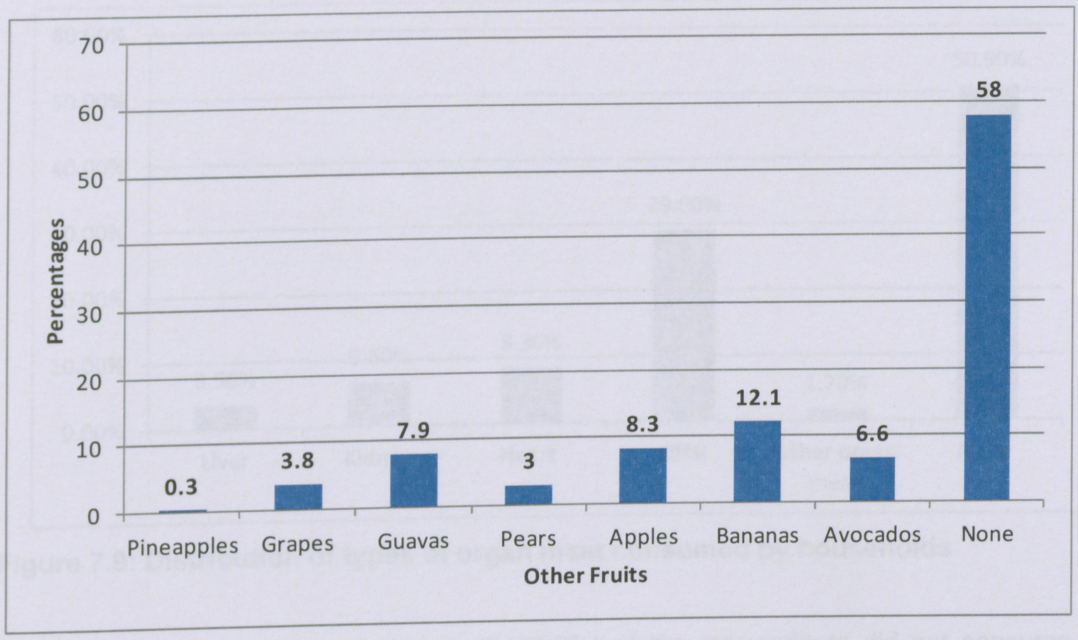


Figure 7.8: Types of fruits consumed by households

According to Figure 7.8 the majority (58%) of the respondents did not consume any fruit over a period of one month. Bananas were the only fruit consumed by 12.1% of the respondents followed by apples at 8.3% of the respondents. The other fruits were consumed by respondents below 10%. The reasons for lower consumption of fruits was that they were expensive to purchase and store at household level. Respondents also indicated that they would rather buy relishes with the limited money they had than buy fruits. Lemke (2001) reported that fruits were consumed by the upper strata where in the case of this study fruit consumption was very low.

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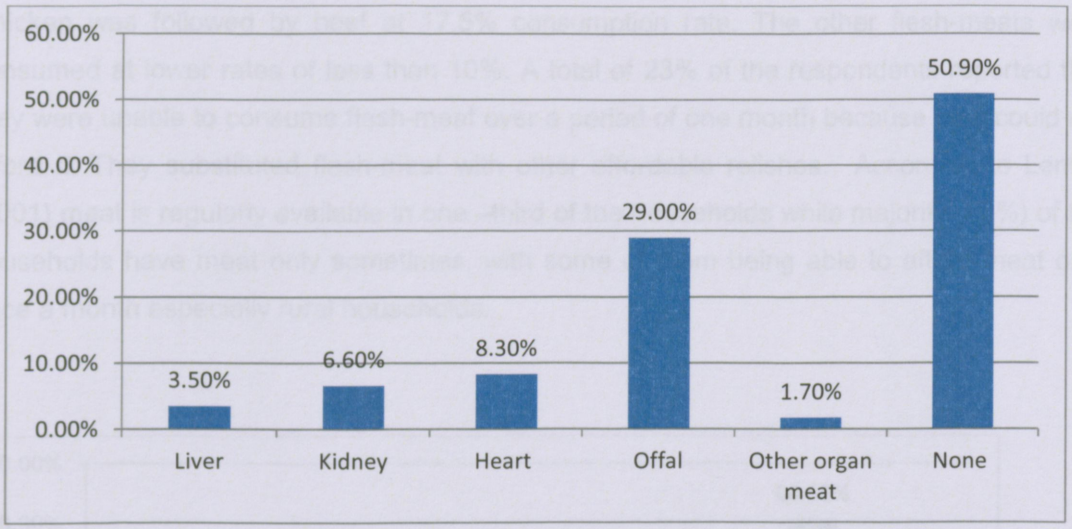


Figure 7.9: Distribution of types of organ meat consumed by households

According to Figure 7.9 more than half (50.9%) of the respondents did not consume any organ meat over a period of one month. However, 29% of the respondents reported that they consumed offal, while the other kinds of organ meat were consumed by fewer than 10% of the respondents. With reference to the 24-hour recall, the majority of the respondents consumed chicken intestines, which is similar to the consumption of offal. According to Lemke (2001) meat products are available occasionally for 17% of the households and for only 4% regularly while there were households (5%) that seem to have no meat at all.

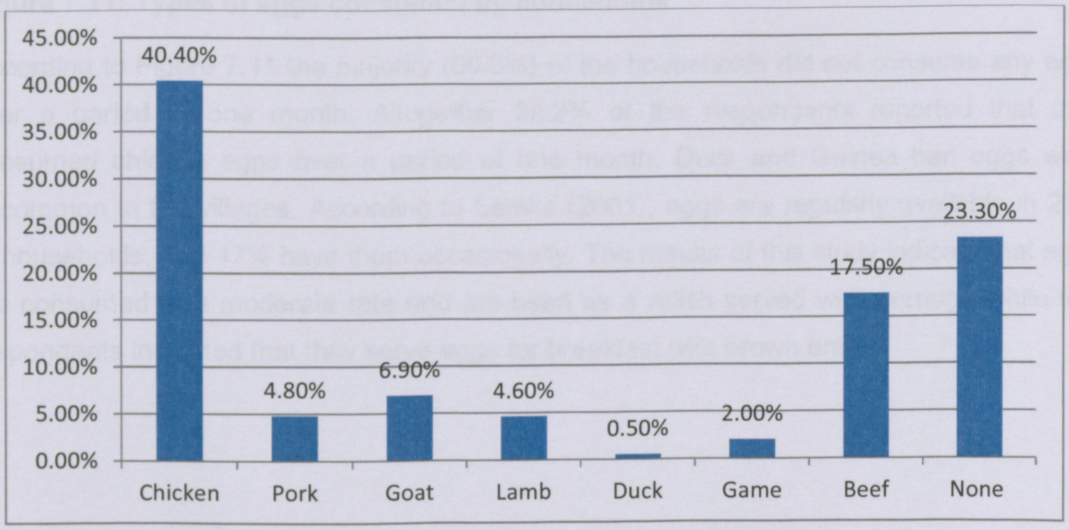


Figure 7.10: Distribution of flesh-meat consumed by households

The research result from Figure 7.10 above shows that there was an average of 40.4% of chicken consumption over a period of one month as compared to the other flesh-meat.

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Chicken was followed by beef at 17.5% consumption rate. The other flesh-meats were consumed at lower rates of less than 10%. A total of 23% of the respondents reported that they were unable to consume flesh-meat over a period of one month because they could not afford it. They substituted flesh-meat with other affordable relishes. According to Lemke (2001) meat is regularly available in one –third of the households while majority (63%) of the households have meat only sometimes, with some of them being able to afford meat only once a month especially rural households.

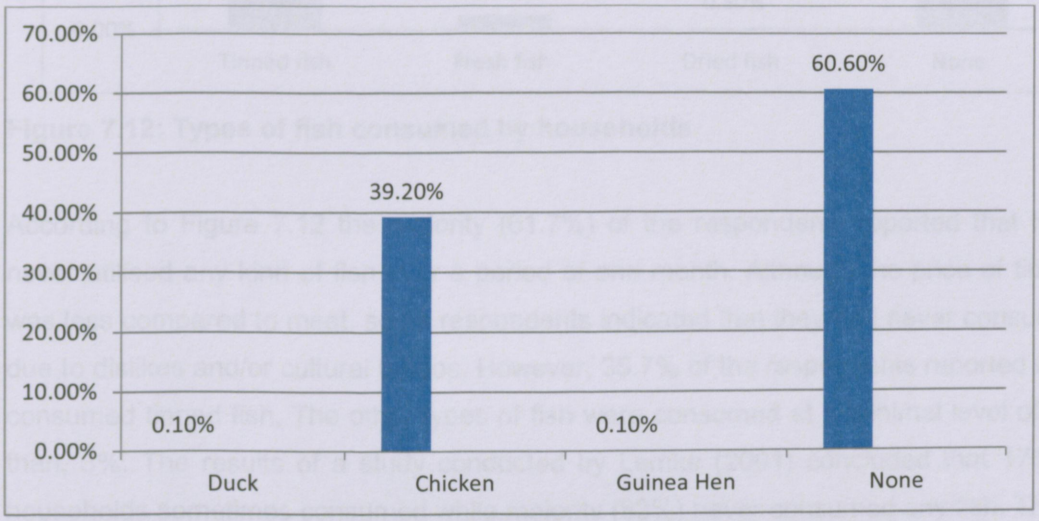


Figure 7.11: Types of eggs consumed by households

According to Figure 7.11 the majority (60.6%) of the households did not consume any eggs over a period of one month. Altogether 39.2% of the respondents reported that they consumed chicken eggs over a period of one month. Duck and Guinea hen eggs were uncommon in the villages. According to Lemke (2001), eggs are regularly available in 23% of households, and 17% have them occasionally. The results of this study indicate that eggs are consumed at a moderate rate and are used as a relish served with porridge while few respondents indicated that they serve eggs for breakfast with brown bread.

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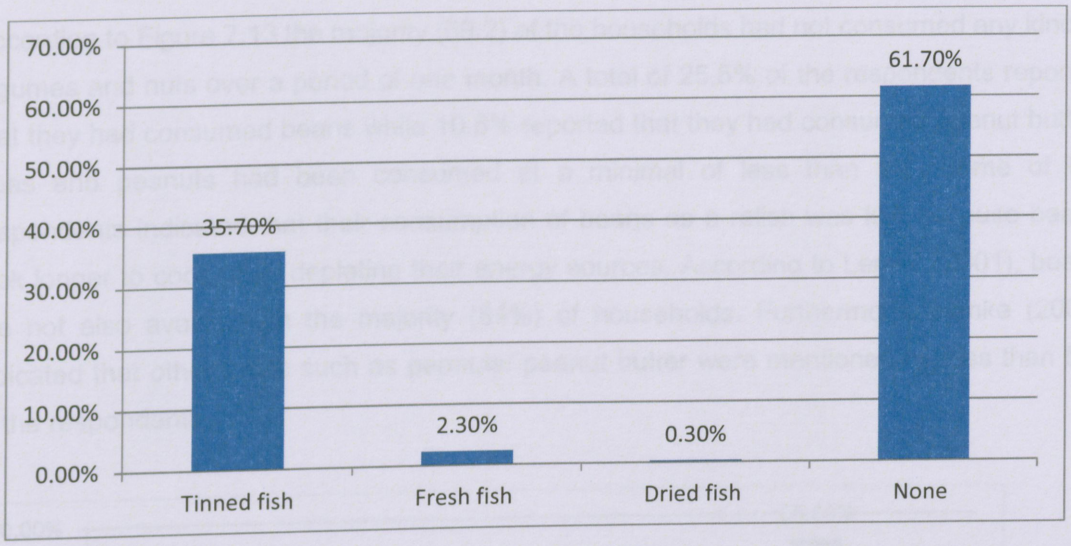


Figure 7.12: Types of fish consumed by households

According to Figure 7.12 the majority (61.7%) of the respondents reported that they had never utilised any kind of fish over a period of one month. Although the price of tinned fish was less compared to meat, some respondents indicated that they had never consumed fish due to dislikes and/or cultural taboos. However, 35.7% of the respondents reported that they consumed tinned fish. The other types of fish were consumed at a minimal level of, or less than, 3%. The results of a study conducted by Lemke (2001) concluded that 17% of the households sometimes consumed while majority (83%) never consumed any fish. Therefore, the results of this study are similar to that of Lemke.

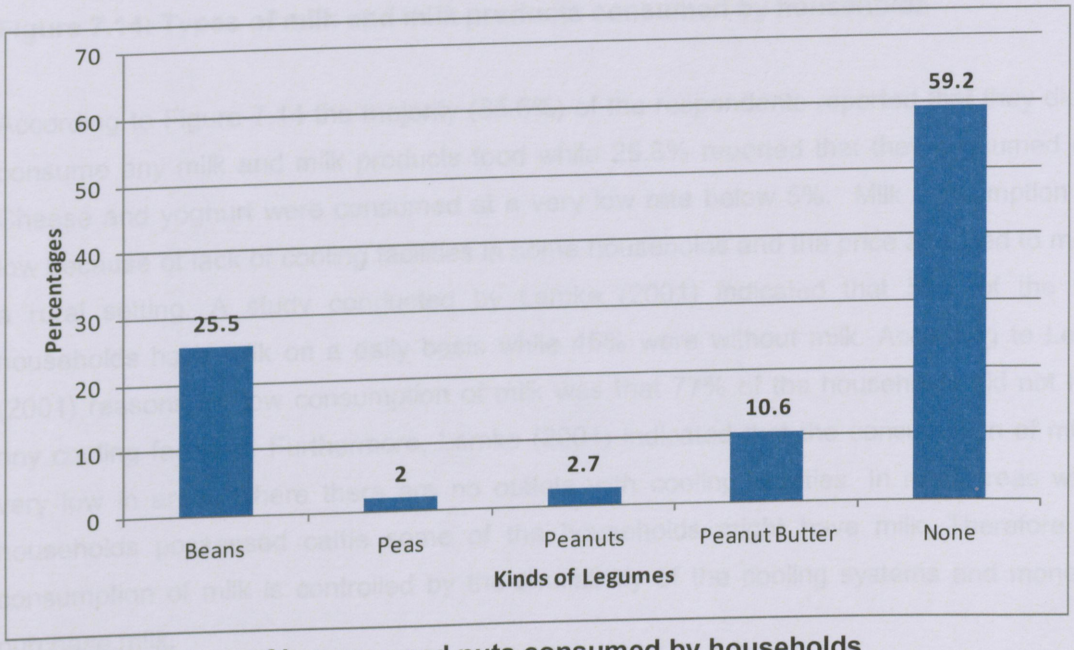


Figure 7.13: Types of legumes and nuts consumed by households

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According to Figure 7.13 the majority (59.2) of the households had not consumed any kind of legumes and nuts over a period of one month. A total of 25,5% of the respondents reported that they had consumed beans while 10.6% reported that they had consumed peanut butter. Peas and peanuts had been consumed at a minimal of less than 5%. Some of the respondents indicated that their consumption of beans as a relish was low because beans took longer to cook, thus depleting their energy sources. According to Lemke (2001), beans are not also available in the majority (84%) of households. Furthermore, Lemke (2001) indicated that other foods such as peanuts/ peanut butter were mentioned by less than 5% of the respondents.

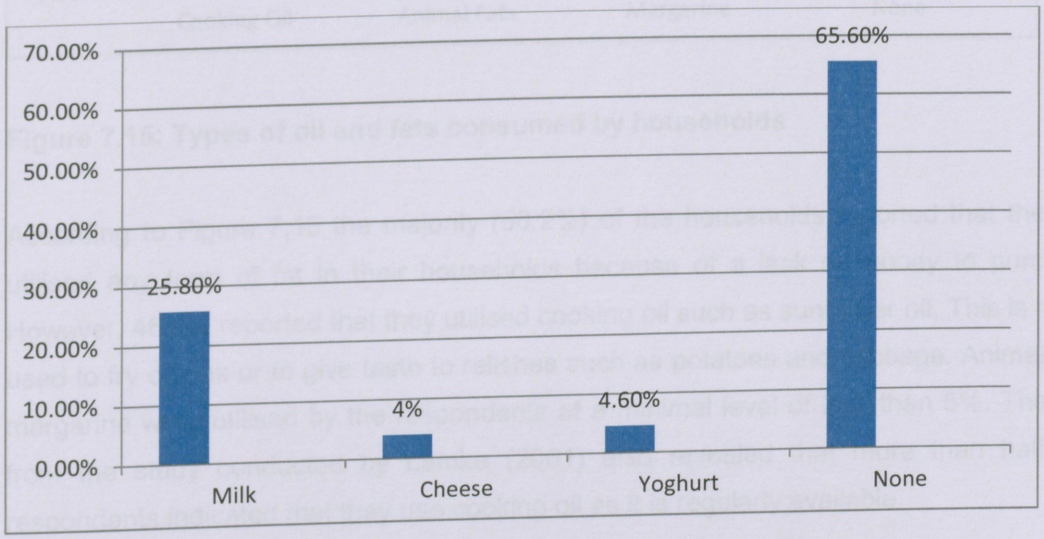


Figure 7.14: Types of milk and milk products consumed by households

According to Figure 7.14 the majority (65.6%) of the respondents reported that they did not consume any milk and milk products food while 25.8% reported that they consumed milk. Cheese and yoghurt were consumed at a very low rate below 5%. Milk consumption was low because of lack of cooling facilities in some households and the price attached to milk in a rural setting. A study conducted by Lemke (2001) indicated that 55% of the rural households have milk on a daily basis while 45% were without milk. According to Lemke (2001) reasons for low consumption of milk was that 77% of the households did not have any cooling facilities. Furthermore, Lemke (2001) indicated that the consumption of milk is very low in areas where there are no outlets with cooling facilities. In rural areas where households possessed cattle some of the households might have milk. Therefore, the consumption of milk is controlled by the availability of the cooling systems and money to purchase milk.

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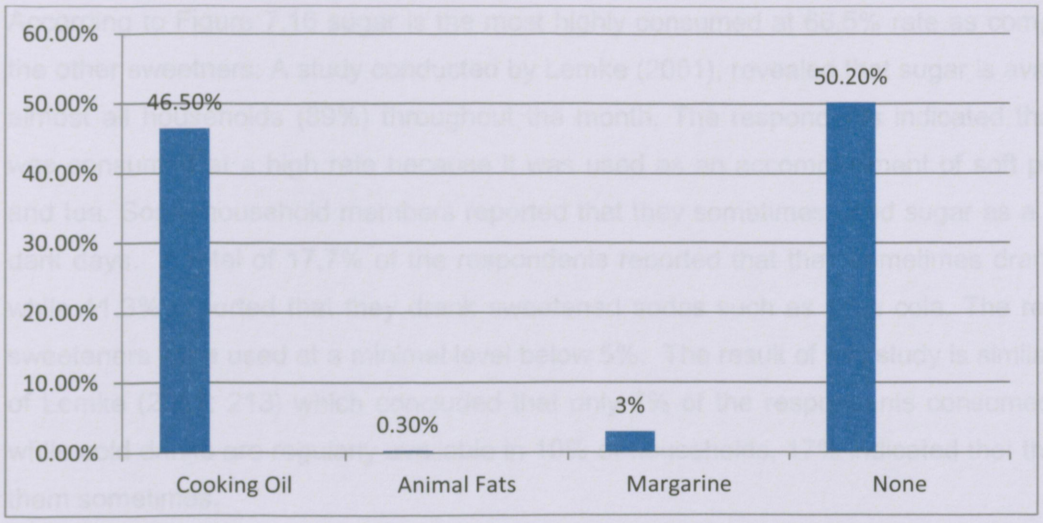


Figure 7.15: Types of oil and fats consumed by households

According to Figure 7.15 the majority (50.2%) of the households reported that they never utilised any form of fat in their households because of a lack of money to purchase it. However, 46.5% reported that they utilised cooking oil such as sunflower oil. This is normally used to fry onions or to give taste to relishes such as potatoes and cabbage. Animal fat and margarine were utilised by the respondents at a minimal level of less than 5%. The results from the study conducted by Lemke (2001) also revealed that more than half of the respondents indicated that they use cooking oil as it is regularly available.

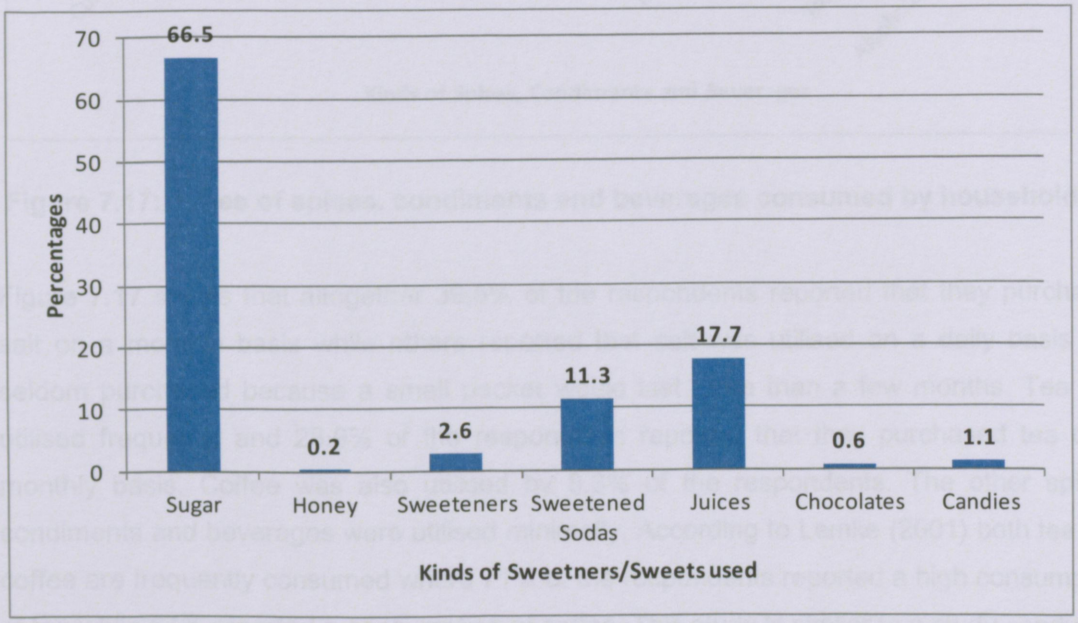


Figure 7.16: Types of sugars, sweeteners and sweets consumed by households

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According to Figure 7.16 sugar is the most highly consumed at 66.5% rate as compared to the other sweetners. A study conducted by Lemke (2001), revealed that sugar is available in almost all households (89%) throughout the month. The respondents indicated that sugar was consumed at a high rate because it was used as an accompaniment of soft porridges and tea. Some household members reported that they sometimes used sugar as a relish in dark days. A total of 17,7% of the respondents reported that they sometimes drank juices while 11.3% reported that they drank sweetened sodas such as coca cola. The remaining sweeteners were used at a minimal level below 5%. The result of this study is similar to that of Lemke (2001: 213) which concluded that only 7% of the respondents consumed juices, while cold drinks are regularly available in 10% of households, 17% indicated that they have them sometimes.

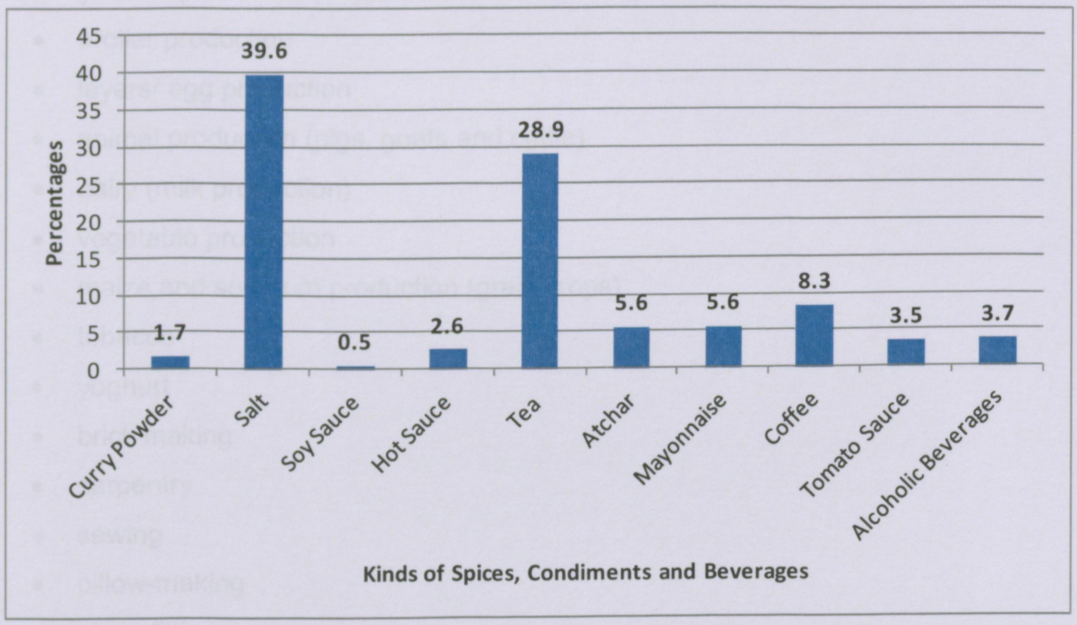


Figure 7.17: Types of spices, condiments and beverages consumed by households

Figure 7.17 shows that altogether 39,6% of the respondents reported that they purchased salt on a monthly basis while others reported that salt was utilised on a daily basis and seldom purchased because a small packet would last more than a few months. Tea was utilised frequently and 28.9% of the respondents reported that they purchased tea on a monthly basis. Coffee was also utilised by 8.3% of the respondents. The other spices, condiments and beverages were utilised minimally. According to Lemke (2001) both tea and coffee are frequently consumed where 71% of the respondents reported a high consumption of tea while 67% reported a consumption of coffee. This study is similar to a study conducted by Oldewage-Theron et al. (2006), who ranked food consumption patterns of the

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respondents and concluded that there is a high consumption of brewed rooibos tea, brewed tea and brewed coffee.

7.9 Results from Existing Community Projects

One of the objectives of the study was to investigate the role of various agricultural projects in the study area in addressing food security. In this section the presentation and discussion of results obtained from qualitative in-depth interviews were shown. The results were collected from members of the projects in 16 of the 21 villages selected as a sample for the study. The 16 villages had projects at the time when the study was conducted. The interviews focused on the types of projects and whether the project can contribute to food security. Examples of the projects were the following:

- broiler production
- layers/ egg production
- animal production (pigs, goats and cattle)
- dairy (milk production)
- vegetable production
- maize and sorghum production (grain crops)
- tobacco
- yoghurt
- brick making
- carpentry
- sewing
- pillow-making
- glass-fitting

Table 7.6 shows a summary of the villages, total number of project members in each village and the types of projects pertaining to food security and agricultural extension.

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Table 7.6: Villages, total number of respondents and the type of projects

1. Mohlalaotwane (n=27): Projects: home-based care, vegetable gardens, poultry, leather processing to make indigenous aprons
2. Mmakgatle (n=25): Projects: home base care, vegetable garden and brick making
3. Letebejane (n=10): Project: sewing
4. Mogaladi (n=13): Projects: two vegetable gardens
5. Moomane (8): Project: sewing
6. Elandskraal (52): Projects: Poultry, broiler, vegetable garden, dairy, perfumes, carpentry, pillow making, brick making and glass fitting.
7. Phokwane (25): Projects: home base care, vegetable gardens, yoghurt making.
8. Diplotong/ Herford (n=12): Individual farming: tobacco, vegetables and animal production (chickens, goats, sheep and cattle).
9. Thabaleboto (n=13): Projects: 2 poultry and piggery
10. Makgopheng(n=9): Projects: chicken and a vegetable garden
11. Gemsbokspruit/ Motsephiri (11): Projects: nursery for vegetables and a vegetable garden
12. Tafelkop/ Ga-Matsepe (22): Projects: poultry: layers and broilers
13. Mabitsi: Project (8): brick-making
14. Mamaneng (n=17): Individual farming: maize, sorghum, indigenous vegetables and nuts, animal production
15. Ngwalemong (n=12): Project: vegetable garden
16. Leeufontein (n=10): Project: vegetable garden.

The purpose of the study was to gather data on existing projects and to analyse whether the projects contribute to food security. During the research process in each village projects were visited and data on the project were recorded. Although 16 of the villages had community projects, the respondents were not willing to divulge any information pertaining to the financial status of the projects or whether the projects contribute to food security. However, project members discussed some of their challenges pertaining to the running of the projects.

7.9.1 Vegetable gardens projects

Vegetable gardens were found in 11villages. Through trans-walk and observation made in each garden, Elandskrall, Herford and Leeufontein were the only 3 areas with vegetable

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gardens where the respondents indicated that they were selling their produce. With the money earned they could buy other food which they could not afford prior to the establishment of the gardens. The other gardens in 8 villages were of a small scale nature and production was just there to cover household needs.

Focus group discussions were held with some of the members of the projects to discuss the strength, weaknesses, challenges of the projects and whether the projects contribute towards food security.

Strength: projects members are always looking forward to the provision of vegetables to their households. One of the respondents from Leeufontein said "Although we are unemployed, we always look forward to come to the gardens which provide vegetables for our families". "We produce vegetables and sell them in the village and we share the money earned which help us to buy other commodities" (Source, Elandskraal). "...we are having extension workers who assist us to sell the vegetables in Marblehall" (Source, Leeufontein).

Weaknesses: Some of the projects are seasonal and cannot provide vegetables the whole year. Project members were not committed to the activities of the projects.High levels of illiteracy of projects members. Some members attending courses in garden production while the others remained behind and resigned after the training. Some members viewed a group project as a waste of time because they end up in conflicts which need more resourceful person to resolve.

Challenges with regards to all (11) the vegetable gardens:

Lack of funding to expand the projects and to buy fertilizers and seeds; lack of equipment; lack of water and water facilities like borehole, water tanks and irrigation pumps; lack of electricity; poor marketing strategies and lack of markets; failure to establish projects properly; poor infrastructure i.e. lack of proper roads; lack of security and lack of land to expand the projects. Poor record keeping result in not knowing whether the project has any growth and or it really provide household food security.

7.9.2 Poultry projects

Poultry projects were found in 7 villages. Through trans-walk and observation made in each village Elandskrall, Herford and Tafelkop were the only 3 areas with poultry where the respondents indicated that they were selling eggs or chickens. With the earnings they could buy chicks, have wages and save for the future needs.

Strength: projects members are always looking forward towards the project as a source of employment.

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Weaknesses: Poor commitment by project members to the project itself. High levels of illiteracy of projects members. Some members attending courses in poultry production while the others remained behind and resigned after the training. Some members viewed a group project as a waste of time because they end up in conflicts which need more resourceful person to resolve.

Challenges: Lack of funding to expand the projects and to buy feed; lack of equipment; lack of water and water facilities like borehole and water tanks; lack of electricity; poor marketing strategies and lack of markets; failure to establish projects properly; poor infrastructure (i.e. lack of proper roads) and lack of security. Poor record keeping result in not knowing whether the project has any growth and or it really provide household food security.

7.9.3 Individual small scale farming

Individual farming was practiced by farmers in 2 villages namely Herford (n=12) and Mamaneng (n=17). Herford farmers had both reliable source of water and electricity while Mamaneng farmers practice dry land farming. Few of the Mamaneng farmers reported that they have boreholes which help them in the production of vegetables. Farmers at Herford were producing vegetables, tobacco, and few of the farmers had chickens, goats, sheep and cattle. Furthermore, the farmers at Mamaneng were producing crops such as maize, sorghum, indigenous vegetables and nuts and participating in animal production.

Strength: Farmers from both Herford and Mamaneng were the only respondents with more than 3 hectors plots. Respondents reported that by farming individually they had a huge strength because they don't have to deal with conflict resolutions. One farmer said "… if I die tomorrow I know that my family will have full control of my farm and its produce". "What is produced belongs to my household and if I fail to work hard the family will suffer" (Source, Herford).

Weaknesses: The farmers indicated that as individuals they were not capable of getting any funding from the government because such funding is offered to group projects.

Challenges: Lack of training on relevant skills required for project management (book keeping and marketing) lack of funds, lack of agricultural equipment's, lack of water and electricity.

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7.9.4 Other projects

The other projects found in the sampled villages were for nursery, piggery, perfume making, sewing, carpentry, yoghurt making, brick making, pillow making and glass fitting, leather processing and home base care.

Strength: The above projects are seen as a way of creating employment opportunities for the respondents even if their earnings were minimal.

Weaknesses: Lack of training and lack of resources to improve the quality of the products i.e. sewing, pillow making, carpentry and leather processing. High levels of illiteracy of projects beneficiaries. Poor financial management, poor record keeping and lack of skills especially in projects, which were funded by government and NGO`.

Challenges: The projects were diverse therefore, the challenges were also diverse. Below is a summary of the challenges.

Lack of funding to expand the projects and to buy fertilizers and seeds; lack of equipment; lack of water and water facilities like borehole, water tanks and irrigation pumps; lack of electricity; poor marketing strategies and lack of markets; failure to establish projects properly; poor infrastructure i.e. lack of proper roads; lack of security and lack of land to expand the projects. Poor land distribution .Poor record keeping and lack of security resulting in the theft. The major challenge for most of the projects: the project members did not know whether the project has any growth and or it really provide household food security.

7.9.5 Discussion of the projects results

Through focus group discussions, the study revealed that majority of the respondents required training in basic skills to run the day to day functions of the projects (technical skills), training in basic book keeping, project management, financial management and fundraising. The general assumption was that if they are trained they will be able to improve their earning capacity and improve their position. Research conducted by Tshitangoni et al. (2010), revealed similar training needs and that insufficient training and high levels of illiteracy of projects members hampered technological advancement. Although government supported them with extension workers to train them, due to literacy levels the training seems to have failed to satisfy their needs. According to Tshitangoni et al. (2010), if projects members were illiterate, it becomes difficult for them to implement what they were taught. Some of the projects established in the villages were beyond the training of extension

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workers (sewing, carpentry, yoghurt making etc.) therefore, it becomes difficult to facilitate such projects.

One of the major challenges was inappropriate methods of establishing projects this concur with the results of Tshitangoni et al. (2010) who reported that " ...for any person who was not working, the prospects for job and income and expectation of funding were the major attraction in becoming a project member". The results of this situation was observed during data collection where some of the project`s objectives was to get money either from government or NGO``s. Even those projects which were offered funding still need further funding. The respondents were not willing to provide any financial statements of the project from inception to current situations although they emphasised a need for funding. With that in mind, it was very difficult to conclude that projects lack funding or not and that funding has a correlation with the performances of the projects. These results concur with that of Kaw (2006) who concluded that it was difficult to conclude that lack of funding was affecting projects because projects which were funded had similar challenges with those that were not funded.

Another major challenge was theft which occurred due to lack of security. It was reported that theft in poultry, piggery and sometimes in other projects affect the general productivity of the projects. The results obtained in this study concur with the findings of Kaw (2006) that theft was a major challenge which occurred due to lack of security and inadequate technical support from the initial sponsors of the projects leading to the problem of low production.

The other challenge was that of lack of markets. The quality of the products produced also affected their marketability i.e. sewing, carpentry, pillow making etc. Although projects were funded, the end products could not meet the market standards leading to the failure of the projects members to sell them. A study conducted by Tshitangoni et al. (2010), revealed similar results where it was concluded that unavailability of markets was a major constraint to performance of piggery and poultry projects. Therefore, it is not possible for any projects to ensure food security if it does not generate income. According to Tshitangoni et al (2010), the main assumption was that people residing within the areas where the projects are implemented are adequate to provide the required market place. The failure of this assumption to bear positive results let to the collapse of some of the projects.

Projects members indicated that one of the challenges was the resignation of experienced, trained projects members. These results are supported by Tshitangoni et al (2010) who concludes that the massive attrition emanated from the failure to fulfil the high expectations

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of generating a lot of profit in a short space of time, and this was reinforced by poor commitment to project success by members. The resignations were high because projects members never viewed any participation in projects as employment. In a study conducted by Tshitangoni et al (20102), revealed that "…poverty alleviation projects were as not viewed as proper employment. Also members allocated many hours of long periods before real profit were made". Working more hours without profit demoralised members hence the less committed once were the first to resign.

7.10 Conclusions

Conclusion was made from data collected and analysed from the 8 focus group discussions (external and internal environmental factors; food utilisation and consumption decisions; food preparation facilities, utensils and techniques used to prepare food), and conclusion made from data analysed from 602 respondents (using 24 hour recall and one month food recall) lastly the results and discussions from existing community projects.

7.10.1 Conclusion with regards to external and internal environmental factors

- **External environmental factors**

The natural physical environment of Sekhukhune district can facilitate agricultural production. However, with the current climate changes and lack of production land to the majority of the households, agricultural production is becoming lesser and lesser a means to ensure food security. There were poor technological and economic environments within some of the villages whereas in other such as Elandskraal, the villagers had advanced technology i.e. shops with variety of food, proper water supply, income generating activities facilitated by electricity in the village which are essential to promote food security. Food production was hampered by lack of land, lack of resources, climate change, and lack of water for irrigation in most of the villages. Most villages lack infrastructure i.e. roads, but had poor expensive transport system. The local shops had limited expensive food as compared to buying in town which will need more money to transport food back to the villages.

The socio-cultural environment controls what is regarded as food for consumption. It is also governed by the type of the occasion the food is prepared for. There are food for special occasions and that for household consumption. Food preparation and chores attached to it differs, where during special occasions men prepare their own food and women for the rest

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of the community. Preparation methods also differ in terms of food for special occasions or for household consumption. Household food security is compromised where food is available but because of the socio-cultural factors one is not allowed to consume such food. Example: not allowed to eat pork, Mopani worms even if they are rich in nutrients.

Socio cultural norms within the villages: it was still a cultural norm when slaughtering a cow for a wedding to give a portion of the raw meat ("le hlakori la mošate") to the chief`s household. Furthermore, it was still a cultural norm to exchange portions of raw meat between the bride and the groom`s family. It was still a cultural norm to provide food for a village during special occasions rather than providing food for the invited guests only. Such cultural norms drain the food budget leaving the household vulnerable to food insecurity after the occasion.

The educational system never prepared the households in any village with food security issues. The respondents learned food access and utilisation issues from their peers, local clinic sisters, radio, grandparents through socialization through the transfer of indigenous knowledge. It was also acknowledged that poor households were taught food issues from the wealthy households i.e. the consumption of "mahenyahenya" (newly introduced food such as cakes, cookies, salads) or social status food.

- **Internal environmental factors**

Knowledge about food and food security: It was revealed that respondents did not have knowledge of scientific names used in the food security arena, yet when the words were described and explained to them they were capable of relating them to food. Respondents emphasized the importance of indigenous knowledge when it comes to food gathering, processing, preparation and sharing. A typical example was the gathering of indigenous vegetables or the processing of indigenous dishes such as "tšhima", "dikgobe" "kgodu" and brewing beer (step by step homemade fermentation process). Socialization played a major role in learning different kinds of food, how to process and prepare them.

Traditional beliefs and practices in food: respondents are still keen to restrict consumption of certain food because of traditional beliefs. Such beliefs were related to churches such as ZCC, culture like "Bakone" and "Baroka" and different food avoidances were tabulated to indicate the complexity of what should not be consumed during the life cycle of an individual. Some respondents had attitudes towards certain food. Attitudes also can control what an individual should consume or select among the alternatives. Values also

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had a bearing on what to select as food among the alternatives and values are controlled by stage in the family life cycle. Social norms determine which foods are suitable for a particular situation. It was concluded that in this villages beliefs, attitudes, values and social norms still govern what should be regarded as food to provide food security to the households.

- **Food utilisation and consumption decisions**

Food supply and acquisition decisions: It was concluded that breadwinners (men/ women or pensioners) who support the household are the one taking food accessing decisions. However, in some households decisions are taken haphazardly by some members of the households leading to unequal distribution of resources to acquire food or allocating the whole food budget to food which did not offer them food security. Therefore, proper and fair decision making is essential in the allocation of food resources at household level.

Food storage and preservation decisions: Cereals (maize or sorghum) when produced in larger quantities is stored at the cooperative in Marblehall. Such a decision was made to avoid pest infestation but it has cost implications such as storage and transportation money. When there was abundance of vegetables household members took a decision to dry them on the sun or cook, shape and dry them for future use. Those with freezers indicate that they normally freeze their vegetables. Legumes were harvested, sundried, processed and stored for future use. If the households produced more legumes they were sold in the villages during pay days. Meat can also be dried but the respondents concluded that they never had plenty of meat for drying. It was concluded that freezing is the best method to keep both vegetables and meat.

- **Decisions around food preparation, food preparation facilities, utensils and techniques used to prepare food**

It was concluded that women are the once involved in food preparation, while men are involved in food preparation during special occasions. Food is prepared in the kitchen. Some use open fire to prepare food while others use paraffin stoves, electric hot plates and to a limited extent electric stoves. It was also concluded that the availability of preparation facilities and the cooking utensils determine their food preparation methods. Furthermore, the kinds of food available at household level also determine food preparation methods. The most commonly used food preparation methods were: boiling, frying, stewing and baking.

- **Food sharing and consumption patterns**

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It was concluded that the cultural norms of serving men first are decreasing. Separate individual plates were used to serve food. Majority of the respondents indicated that they use their hands to eat and if it is rice or soft porridge they use spoons. Acculturation has affected the current norms of sharing food in the villages. Their consumption patterns is affected by the food security status of the household where in poor household they may have two meals per day while the food secured families had a three meals per day and snack in between meals.

7.10.2 Conclusions of 24 hour recall and one month food recall

The households consume a high percentage of cereals such as maize porridge and a less percentage of brown bread. Majority in this sample have a very limited dietary diversity and cannot afford other types of food. In this study maize meal is sometimes accompanies by relishes such as spinach; Chinese spinach; white potatoes; cabbage; tomato and onions. There was a low consumption of vitamin A fruits and vegetables because of the costs attached to them and that they are not readily available in the local market. Other fruits which were consumed at a minimal were oranges; bananas and apples. Some respondents indicated that they sometimes use oranges and lemons as a relish because of lack of relishes.

Households reported a consumption of offal to substitute meat and meat products. In most villages they reported that they consume chicken feet and the intestine of chickens and this is also supported by the findings from the 24-hour recall. Chicken and beef were the only moderately consumed flesh-meat. Some of the respondents reported that they utilise chicken eggs as a relish to accompany porridge and to a lesser extent to be served with bread. Tinned fish is utilised by a smaller percentage of the respondents while a larger percentage of the respondents did not utilise fish because of dislike, taboos and/or culture. Although legumes and nuts might be less in price, their consumption is less and respondents reported that they did utilise beans because beans consume a lot of electricity, paraffin or firewood when preparing them. A smaller group of the respondents reported that they did utilise peanut butter, which is normally served with bread.

Furthermore, the consumption of milk and milk products was very low. Reasons given for low consumption of milk was that they lack cooling facilities at household level. To a limited number of respondents who used milk, it was reported that milk is used as a relish served with porridge or as an accompaniment of cereals such as sorghum soft porridge and maize

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soft porridge. In households with small children milk is always allocated to small children. Other products which were utilised at a minimum rate, are cooking oil, sugar, tea, salt, juices, sweetened sodas and coffee. There is a high consumption of sugar and tea because in households which lack relishes they used sugar and sometimes sugar and tea as their relish.

The results from both the 24-hour recall and the one month food utilisation patterns indicate that some households lack food variety hence they had a monotonous diet with high levels of maize meal. Households who can afford to have maize-meal throughout the month indicated that they normally run short of relishes. The respondents indicated that they lack food variety, which result in household food insecurity. The results of this study confirmed the findings by Lemke (2001), where it was stated that although hunger is not as widespread in South Africa as in other areas of Southern Africa, household food insecurity persists in the majority of the black South African population due to lack of food at household level. Furthermore, the majority of the respondents failed to consume adequate diets as can be seen in the results; this also confirms the findings of Lemke (2001) that there is deficiencies in dietary intake and lack of dietary diversity which are always prevalent in the food insecure households. It can be concluded that lack of food variety can result in households being food insecure.

7.10.3 Conclusions about existing community projects

The study has highlighted the weaknesses, strength and challenges posed by some of the projects. The study concluded that the resignation of projects members was a common trend among projects in Sekhukhune district and that unless projects were capable of generating income the projects are deem to collapse.

Provision of funding to projects members without training in financial management, bookkeeping and technical knowledge of running the project resulted in some of the major challenges described in these study. Most of the projects were failing to sustain themselves and failing to generate income which is needed to ensure food security. The results obtained from most of the community projects failed to substantiate their contribution to food security.

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7.11 Recommendations

7.11.1 Recommendations with regard to external and internal environmental factors

It is recommended that there should be provision of infrastructure in most of the villages in Sekhukhune district. The villages are characterised by lack of proper roads, shortage of water, poor electrical supply in some villages and lack of land for production. Therefore, it is recommended that authorities (government, NGO`s and the private sector) should assist in the provision of basic services and that the issue of land be resolved quickly.

Socio cultural norms (negative) still exist in the villages such as beliefs, values, attitudes and norms which prescribes what to consume and when to consume need to be studied and their negative aspects need to be discouraged through nutrition education. Some of the norms are the provision of food to the whole village (even when one is not invited or one does not afford it he/ she will rather go without food for some months in order to cater for the event) during a funeral or wedding. Such cultural norms drain the food budget of the households leaving them vulnerable to food insecurity after any special occasion. It is recommended that the education system should contribute to food security, by identifying and creating awareness on the factors which contribute to food insecurity; ways of mitigating food insecurity, helping households to understand food security concepts the same ways as the food security professionals.

Although the respondents lack food security knowledge, there is a need to create food security educational programmes at the grass roots level. These programmes should merge indigenous knowledge of the rural communities such as the use of a rich one dish meal known as “tšhima”. It is recommended that for development to take place there is a need to learn from the rural communities by adopting some of their food utilisation processes.

7.11.2 Recommendations with regard to 24 hour and one month food recall

It is therefore recommended that households should be encouraged to introduce food variety into their diet. This could only be possible if they could participate in food production and other food accessing strategies to improve their food security. In villages such as Elandskraal where water is available, there is a need for agricultural extension workers to encourage the households to increase agricultural productivity through home gardening projects and small stock production. In villages where there is land, agricultural production

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should include crop and small stock production to ensure food variety for the households. Nutrition education is needed as an umbrella of any strategy which will help to promote better food choices.

7.11.3 Recommendations with regard to community projects

It is therefore, recommended that when projects are initiated and funded training in book keeping, financial management, marketing and technical skills should be a priority. Training and marketing should be a priority throughout the life cycle of a project. Provision of funding to the projects should go hand in hand with the provision of technical skills to run the project. Furthermore, there should be a monitoring and evaluation process in place to assist project members to improve on their activities before the project collapse or before they deplete funding. A need to provide funding to projects which were never funded but it should be made clear in the initial stage of that the finding provided is not for their salaries/ wages but to help them to kick start the project. Project members should be involved in the decision making when projects are to be initiated, funded and executed. This study outlined major challenges which need to be addressed with the aim of strengthening some of the projects. With lack of employment opportunities in the rural areas, if existing projects were serviced (monitoring, evaluated, audited etc.), supported, improved by addressing some of the challenges they could assist in alleviating poverty and ensuring household food security. To address some of the challenges there is a need for thorough consultation between projects members, government (Department of Agriculture and the Department of Social Development), NGO`s and the private sector.

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CHAPTER 8: RESULTS FROM BINARY LOGISTIC REGRESSION ANALYSIS

8.1 Introduction

The results and discussions of this chapter are based on the results obtained from cross tab-analysis and binary logistic regression analysis. Furthermore a theoretical framework for intervention in Sekhukhune district was developed and discussed showing its relationship with household food security.

8.2 Results from cross-tab analysis (bivariate analysis)

The Pearson chi-square test was used for performing a preliminary screening of influential factors that were significantly associated with food insecurity at the household level in Sekhukhune District. A total of 26 tests of associations were performed between the dependent variable of study, Y, and each of the 26 variables of study that are well known to affect food security at the household level.

The results showed that food security at the household level was significantly associated with 14 factors at the 1% level of significance. At the 1% level of significance, significant two-way associations are characterized by large observed chi-square values and P-values that are smaller than 0.01. It can be seen from Table 8.1 that all 14 factors listed in the table are significantly associated with food security at the 1% level of significance.

It can be seen from Table 8.1 that households that lacked food security were characterized by eating less food as a coping strategy, not affording to eat desired type of food, experiencing a chronic shortage of food for children at home, excessive dependence on remittance, having to eat undesired food due to shortage of food, failure to eat desired food due to shortage of food or money, having to eat a smaller portion of food due to shortage of food or money, having to worry about shortage of food at all times, having an occupation different from that of a farmer, having to go to sleep hungry due to shortage of food, having to skip meal due to shortage of food, unemployment, having to borrow food or money due to shortage of food, and low level of formal education.

Significant associations are characterized by large observed chi-square values and small P-values. It can be seen that all 14 associations shown below in Table 8.1 are highly significant

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at the 0.001 level of significance. The 14 predictor variables shown in Table 8.1 were used for performing subsequent multivariate analysis by using binary logistic regression.

Table 8.1: Results obtained from cross-tab analyses showing factors that were significant at $P < 0.01$

Factors significantly associated with food security at the household level	Observed chi-square value	P-value
Having to eat less food as a coping strategy	142.7274	0.000
Not affording food to eat	133.9920	0.000
Not enough food for children	114.9983	0.000
Excessive dependence on remittance	84.9246	0.000
Having to eat undesired food due to shortage of food	81.3737	0.000
Failure to eat desired food due to shortage of food	68.2938	0.000
Having to eat a smaller portion of food due to shortage of food	43.9770	0.000
Having to worry about shortage of food	37.6964	0.000
Having an occupation different from that of a farmer	29.2026	0.000
Having to go to sleep hungry due to shortage of food	24.6647	0.000
Having to skip meal due to shortage of food	17.5869	0.000
Unemployment	16.9405	0.000
Having to borrow food or money due to shortage of food	16.9250	0.000
Low level of formal education	7.8062	0.005

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8.3 Results obtained from binary logistic regression analysis

Results from binary logistic regression analysis are theoretically more reliable than results from Pearson's chi-square tests of association (Hosmer and Lemeshow, 2004). This is because the measure of effect in binary logistic regression is the odds ratio, and not two-by-two significant associations. Logistic regression analysis allows multivariate analysis involving several variables that are influential over food security. It is also possible to assess the reliability of the fitted logistic regression model based on highly reliable diagnostic tests such as the classification table, the likelihood ratio test, the Hosmer-Lemeshow goodness-of-fit tests, sensitivity and specificity.

Selection of variables for binary logistic regression analysis

The selection of variables used for binary logistic regression analysis was based on two criteria (relevance to the research questions of study and the presence of a significant association with the dependent variable of study at the 0.01 level of significance). Statistical significance was assessed based on Pearson's chi-square tests of association between the various independent variables of study and the dependent variable of study (food insecurity). Based on relevance to the research questions of study, 26 of the 76 variables of study were selected for subsequent data analysis. A further screening of variables was performed by using the Pearson chi-square test of association (cross-tab analysis). At the end of the screening procedure, the following 15 variables of study (1 dependent variable of study + 14 independent variables of study) were selected for binary logistic regression analysis:

Dependent variable of study (Y)

security2: Food security (Adequate, Inadequate)

List of 14 independent variables of study ($X_1, X_2, ..., X_{14}$)

eatless2: Having to eat less as a coping strategy (Yes, No)
notafford2: Not affording food to eat (Yes, No)
notenough2: Not enough food for children (Yes, No)
remittance2: Excessive dependence on remittance (Yes, No)
kfood1: Having to eat undesired food due to shortage of food (Yes, No)
lack1: Failure to eat desired food due to shortage of food (Yes, No)

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small1: Having to eat a smaller portion of food due to shortage of food (Yes, No)

worry1: Having to worry about shortage of food (Yes, No)

occupation2: Occupation different from that of a farmer (Yes, No)

food1: Having to go to sleep hungry due to shortage of food (Yes, No)

skip: Having to skip meal due to shortage of food (Yes, No)

employment2: Unemployment (Yes, No)

borrow: Having to borrow food or money due to shortage of food (Yes, No)

educ2: Low level of formal education (Yes, No)

Binary logistic regression of analysis was performed by performing the regression of Y on $X_1, X_2, ..., X_{14}$. The stepwise backward elimination procedure was used with a probability cut-off point of 0.20. This procedure gave estimated odds ratios that are shown in the table shown below. At the 5% level of significance, influential predictors of food security have odds ratios that are significantly different from 1, P-values that are smaller than 0.05, and 95% confidence intervals of odds ratios that do not contain 1.

Table 8.2: Odds Ratios (OR) estimated from binary logistic regression analysis

Variable	P-value	Adjusted* OR and 95% C.I. +
Not enough food for children	0.00	26.10 (12.54, 54.33)
Inability to eat desired food due to shortage of money	0.00	5.80 (1.68, 19.97)
Inability to afford food to eat due to shortage of money	0.000	5.26 (2.58, 10.73)
Excessive dependence on remittance	0.000	3.66 (1.77, 7.54)
Having to borrow food or money due to shortage of food	0.005	2.96 (1.38, 6.35)
Occupation different from that of a farmer/ non- farm occupation	0.014	2.48 (1.20, 5.14)

Accordingly, 6 of the 14 variables used for binary logistic regression analysis were highly influential predictors of food security at the household level. These 6 predictor variables of study were: Not enough food for children, Inability to eat desired food due to shortage of food, Inability to afford food, Excessive dependence on remittance, Having to borrow food or money due to shortage of food, and Occupation different from that of a farmer, in a

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decreasing order of strength. This results show that food security in Sekhukhune District is significantly influenced by 6 factors.

Interpretation of odds ratios

The odds ratio of the variable "Not enough food for children" was equal to 26.10. This indicates that a household in which there is not enough food for children is 26.10 times as likely to experience food insecurity in comparison with another household in which there is enough food for children to eat.

The odds ratio of the variable "Inability to eat desired food due to shortage of money" was equal to 5.80. This indicates that a household in which the head of the household does not afford to eat desired food due to shortage of money is 5.80 times as likely to experience food insecurity in comparison with another household in which the head of the household affords to eat desired food.

The odds ratio of the variable "Inability to afford food to eat due to shortage of money" was equal to 5.26. This indicates that a household in which the head of the household cannot afford to buy food due to shortage of money is 5.26 times as likely to experience food insecurity in comparison with another household in which the head of the household affords to buy food.

The odds ratio of the variable "Excessive dependence on remittance" was equal to 3.66. This indicates that a household in which the head of the household depends on remittance excessively as a means of buying food is 3.66 times as likely to experience food insecurity in comparison with another household in which the head of the household does not depend on remittance excessively as a means of buying food.

The odds ratio of the variable "Having to borrow food or money due to shortage of food" was equal to 2.96. This indicates that a household in which the head of the household is obliged to borrow food or money due to shortage of food is 2.96 times as likely to experience food insecurity in comparison with another household in which the head of the household is not obliged to borrow food or money due to shortage of food.

The odds ratio of the variable "Occupation different from that of a farmer" was equal to 2.48. This indicates that a household in which the head of the household is not a farmer is 2.48

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times as likely to experience food insecurity in comparison with another household in which the head of the household is a farmer.

Goodness-of-fit tests

Goodness-of-fit tests are used in binary logistic regression analysis for assessing the degree of reliability of the fitted model. In this study, the reliability of the fitted model is assessed using commonly used standard diagnostic procedures. Each of the methods used confirms that the fitted model is adequate, and that results obtained from binary logistic regression analysis are highly reliable.

The classification table

The classification table is the simplest and most commonly used measure of goodness-of-fit in binary logistic regression analysis. The table assesses the capacity of the fitted logistic regression model to accurately classify respondents who took part in the study in terms of their ability to secure enough food for themselves and the rest of their family at the household. The table provides measures such as the overall percentage of correct classification, percentage sensitivity (the ability of the fitted model to accurately detect people who are at risk of food insecurity), and percentage specificity (the ability of the fitted model to accurately detect people who are not at risk of food security).

.Table 8.3: Estimates from the classification table

Diagnostic measure	Magnitude
Percentage sensitivity	96.18%
Percentage specificity	74.08%
Positive predictive value	94.66%
Negative predictive value	80.21%
False positive rate for true negative values	25.96%
False negative rate for true positive values	3.82%
False positive rate for classified positive values	5.34%
False negative rate for classified negative values	19.79%
Percentage of overall correct classification	92.36%

The above classification table shows that the overall percentage of correct classification is 92.36%. The table also shows that the percentages of sensitivity and specificity are 96.18% and 74.04% respectively. These percentages are fairly large. Hence, the fitted logistic regression model is fairly adequate. The percentage of overall correct classification is equal

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to 92.36%, a figure which is above 75%. The large figures obtained for percentage sensitivity and percentage specificity show that the fitted model is highly sensitive and specific.

The Hosmer-Lemeshow goodness-of-fit test

The Hosmer-Lemeshow goodness-of-fit test is used for testing the null hypothesis that there is no reason to doubt the adequacy or reliability of the fitted model. A P-value that is greater than 0.05 shows that the null hypothesis should be accepted at the 5% level of significance, thereby confirming that the fitted model is theoretically reliable. In this study, the P-value from the Hosmer-Lemeshow goodness-of-fit test is equal to 0.5167, a figure which is greater than 0.05. Hence, we have no reason to doubt the reliability of the fitted logistic regression model.

Table 8.4: The Hosmer-Lemeshow goodness-of-fit test

Diagnostic measure	Magnitude
Number of observations	602
Number of covariate patterns	104
Degrees of freedom of chi-square statistic	93.76
P-value	0.5167

The degree of reliability of the fitted binary logistic regression model was assessed by using graphical methods. This was done by measuring the magnitude of area that lies under the ROC (Receiver Operating Characteristic) plot, and by plotting a sensitivity/specificity plot.

Magnitude of area that lies under the ROC curve

Figure 8.1 below shows a Receiver Operating Characteristic (ROC) plot. The magnitude of the area that lies under the ROC plot is a measure of variation explained by the fitted logistic regression model. In this case, the area under the ROC plot is 95.12%, a figure that is significantly above 75%. The unexplained proportion of variation is equal to roughly 5%. The large proportion of explained variation and the small proportion of unexplained variation show that the fitted model is highly reliable in explaining variability in food security as a function of the explanatory variables used for logistic regression analysis.

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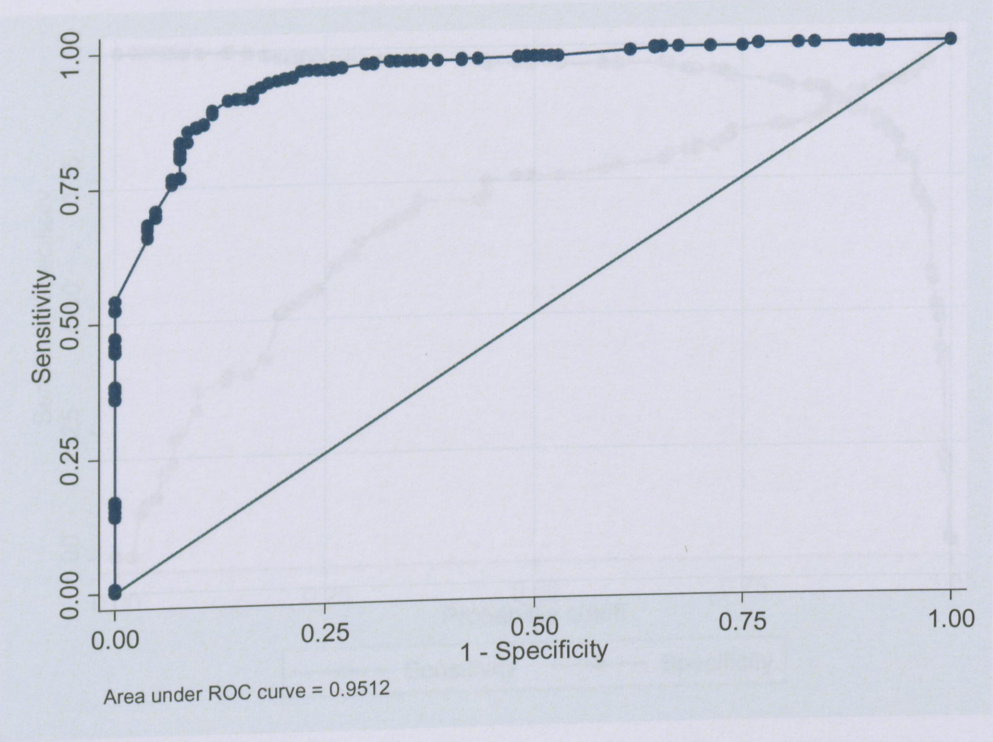


Figure 8.1: Area under the Receiver Operating Characteristic (ROC) plot

Sensitivity and specificity plots

Figure 8.2 below shows a plot of sensitivity/specificity versus probability cut-off point. The two plots cross each other fairly close to the number 1, a figure that represents the maximum value of a probability function. This shows that the fitted model is adequately sensitive and specific.

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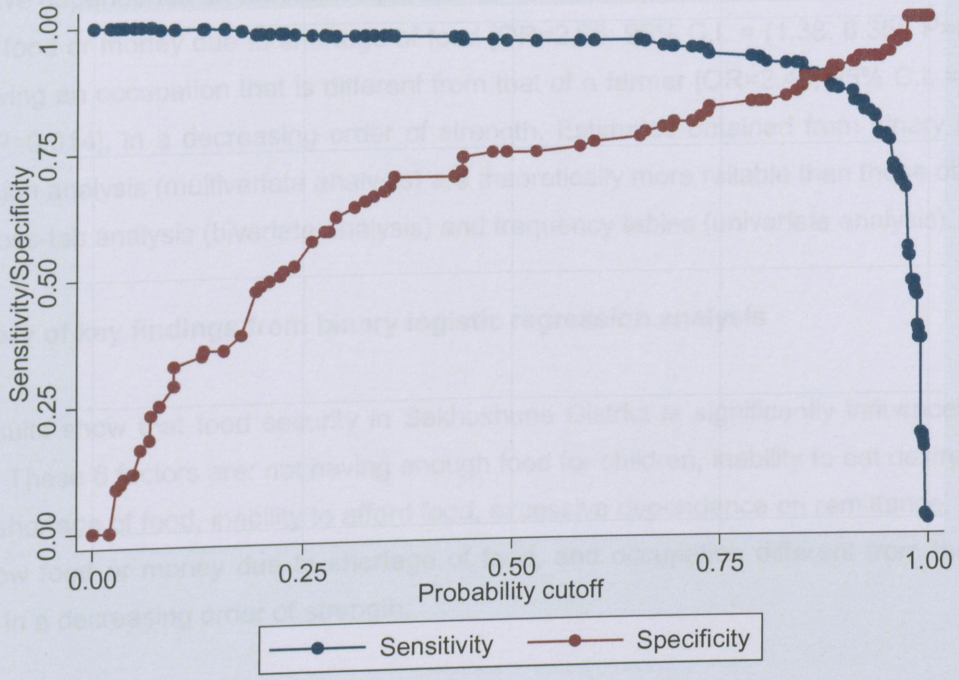


Figure 8.2: Plot of sensitivity/specificity versus probability cut-off point

The likelihood ratio test

The likelihood ratio test is used for assessing the collective efficiency of the 6 predictor variables identified in the fitted logistic regression model. At the 5% level of significance, a P-value that is smaller than 0.05 shows that the 6 predictor variables in the fitted binary logistic regression analysis are jointly efficient in accounting for food security at the household level. In this case, the P-value obtained from the likelihood ratio test was equal to 0.0000, a figure that is significantly smaller than 0.05. This large P-value shows that the 6 predictor variables used for binary logistic regression analysis are collectively efficient in accounting for food security at the household level in Sekhukhune District.

8.4 Discussion of Results Obtained from Binary Logistic Regression Analysis

Results obtained from binary logistic regression analysis showed that food security at the household level was significantly influenced by 6 predictor variables of study. These 6 variables were: not having enough food for children [OR=26.10; 95% C.I. = (12.54, 54.33); P=0.000], inability to eat desired food due to shortage of food [OR=5.80; 95% C.I. = (1.68, 19.97); P=0.000], inability to afford food [OR=5.26; 95% C.I. = (2.58, 10.73); P=0.000],

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excessive dependence on remittance [OR=3.66; 95% C.I. = (1.77, 7.54); P=0.000], having to borrow food or money due to shortage of food [OR=2.96; 95% C.I. = (1.38, 6.35); P=0.000], and having an occupation that is different from that of a farmer [OR=2.49; 95% C.I. = (1.21, 5.16); P=0.014], in a decreasing order of strength. Estimates obtained from binary logistic regression analysis (multivariate analysis) are theoretically more reliable than those obtained from cross-tab analysis (bivariate analysis) and frequency tables (univariate analysis).

Summary of key findings from binary logistic regression analysis

The results show that food security in Sekhukhune District is significantly influenced by 6 factors. These 6 factors are: not having enough food for children, inability to eat desired food due to shortage of food, inability to afford food, excessive dependence on remittance, having to borrow food or money due to shortage of food, and occupation different from that of a farmer, in a decreasing order of strength.

8.5 A framework that could be used for Intervention in Sekhukhune District

The results from this study revealed that majority of the rural households are food insecure. The study conducted by the World Bank (2014) shows that chronic food insecurity can only be overcome by building capacity in rural communities so that their livelihood improves on a sustainable basis. Such a strategy would need the development of skills that vulnerable people can use to earn a living and also depends on the degree to which local and national governments, the private sector and NGO`s provide them with development assistance which in this framework is issues pertaining to sustainable rural development. Figure 8.3 shows a framework that could be used for intervention in Sekhukhune district. The framework is adapted from the framework proposed by Jones, Ngure, Pelto and Young (2013); Erikson (2007); Sakyi (2012) Pieters et al., (2013) and Harris-Fry et al., (2015) all advocated a system approach for ensuring food security in rural households.

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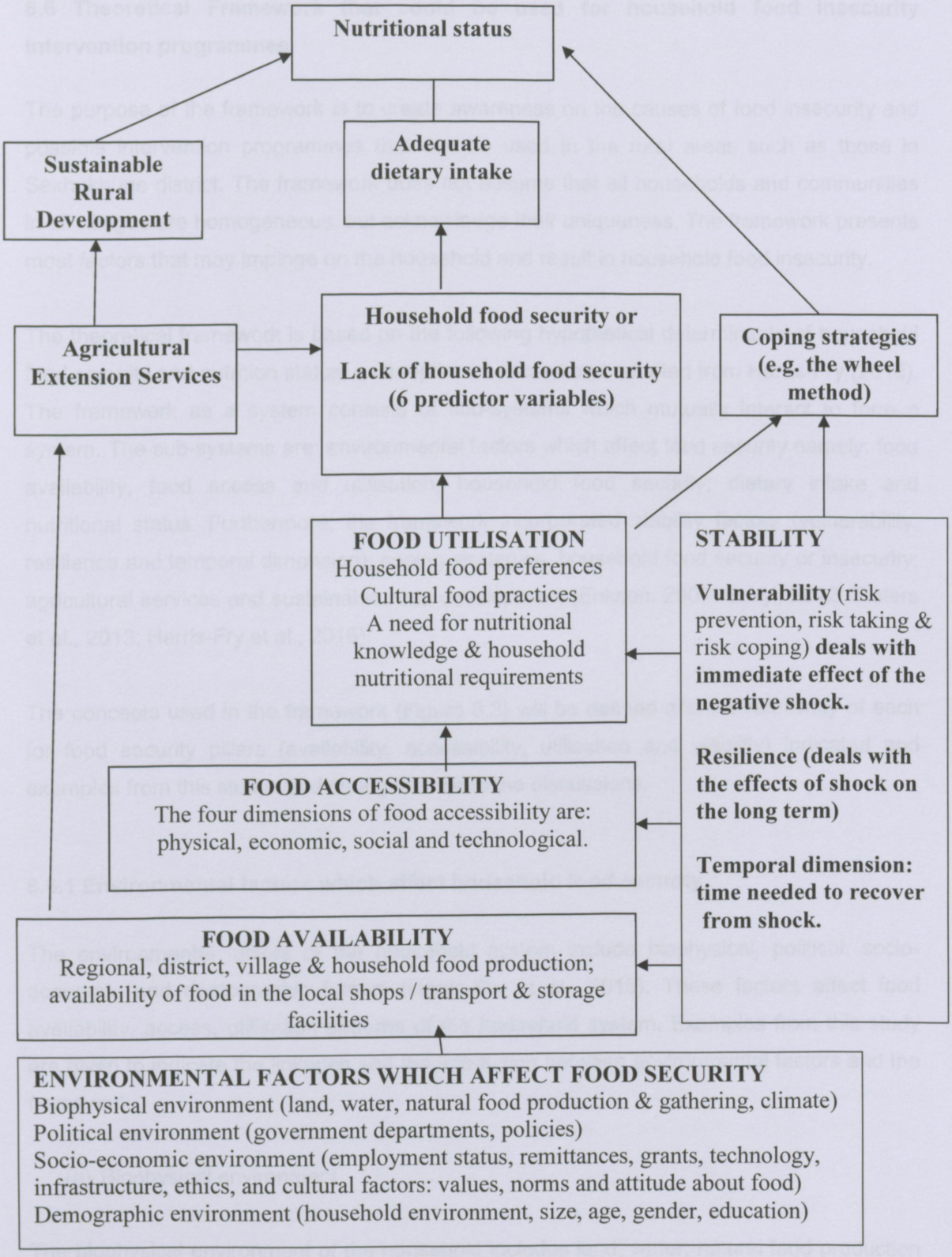


Figure 8.3: Theoretical framework that could be used for household food insecurity intervention programmes

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8.6 Theoretical Framework that could be used for household food insecurity intervention programmes

The purpose of the framework is to create awareness on the causes of food insecurity and possible intervention programmes that can be used in the rural areas such as those in Sekhukhune district. The framework does not assume that all households and communities in all villages are homogeneous, but acknowledge their uniqueness. The framework presents most factors that may impinge on the household and result in household food insecurity.

The theoretical framework is based on the following hypothetical determinants of household food security and nutrition status, assumptions selected and adapted from Harris-Fry (2015). The framework as a system consists of sub-systems which mutually interact to form a system. The sub-systems are: environmental factors which affect food security namely: food availability, food access and utilisation; household food security; dietary intake and nutritional status. Furthermore, the framework incorporated stability factors (vulnerability, resilience and temporal dimension); coping strategies, household food security or insecurity; agricultural services and sustainable rural development (Erikson, 2007; Sakyi, 2012; Pieters et al., 2013; Harris-Fry et al., 2015).

The concepts used in the framework (Figure 8.3) will be defined and the relevancy of each for food security pillars (availability, accessibility, utilisation and stability) indicated and examples from this study used as a guidance to the discussions.

8.6.1 Environmental factors which affect household food security

The environmental factors of the household system include biophysical, political, socio-economic and demographic factors (Harris-Fry et al., 2015). These factors affect food availability, access, utilisation patterns of the household system. Examples from this study are given to indicate the linkages and the interaction between environmental factors and the framework.

(a) Biophysical environment

The biophysical environment of the household includes land, water, natural food production and gathering, climatic conditions and the man-made/ structured environment used to avail, access and utilise food. The availability of land and water and climatic condition in any

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setting controls both food production and gathering. Climatic conditions influenced the seasonal availability of some of the food through the production and gathering cycle. Onset of the rainfall trends determined when fields were planted and the availability of cultivated and uncultivated indigenous vegetables. For example, In the case of this study the households had indigenous knowledge of when to plant, harvest, store and utilise both cultivated crops and gathered indigenous vegetables.

The man-made or natural structured environment included roads, dams, infrastructure, transportation and technology used to make food available and accessible. An example with reference to this study was the bad conditions of the roads especially in summer affected food distribution during the rainy season. The delivery of some foods like bread in the local shops was hampered. The natural structured environment will determine the ecological potential of food production of a particular area. An example is the types of plants that can be grown and animals that can be kept using available natural resources such as water and land. The availability of infrastructure will determine how effectively the natural resources can be used (Kgaphola, 2003; Harris-Fry et al., 2015). The technological environment has a direct bearing on food production, processing, storage and preparation that influences food availability, accessibility and utilisation. For any intervention to take place care should be taken to ensure that issues of land and water are addressed.

(b) Political environment

Political environment is the policies and regulations as set by the government of a country. The political environment influences food availability, accessibility and utilisation through the agricultural, economic and food related policies and regulations that impact on the households. An example from this study is the Feeding Schemes policy which specified that school children should be offered a meal once a day. These policies contribute to food availability and accessibility and utilisation.

The political environment controls the allocation of land which has a major implication on household food security especially agricultural development. Example from this study is the then land policy which provided unequal distribution of land to the rural households which the current post- apartheid policies are designed to improve these condition through the land reform policies. The type of settlements influenced the procurement of food in terms production and animal husbandry. During data collection it was observed that there were two types of settlements namely plots and traditional settlements, both characterised by unequal distribution of land. Plots in planned settlements were not big enough for stock farming but in

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some areas they had access to electricity and purified water using a communal tap. Some households kept vegetable gardens. The traditional settlements on the other side the home was adjacent to the fields and the size of the stands was relatively big. Therefore, it could also accommodate stocking farming. They had no access to water, therefore vegetable garden was impossible. Therefore, the political environment though its land policy affects the type of settlement and the type of production (both animal and plant) which will ultimately affect the type of intervention and these had major implication for agricultural and rural development.

(c) Socio-economic environments

The socio- economic environment influences income and net worth of households and their ability to produce and or purchase food (Kgaphola, 2003; Harris-Fry et al., 2015). Examples from this study are wages or salaries from part time and full time work (employment), remittances and the social grants which contribute to food availability and accessibility of the households. The overall results of this study revealed that the villages were characterised by dependence of pension and child support grant; dependence on the informal sector of the economy which provide remittances; to a lesser extent wage employment and subsistence agriculture. Lack of factories and businesses for job creation in rural villages, lack of jobs and poor infrastructure for viable markets were regarded as major causes of poverty and food insecurity in the villages. These conditions contribute to low household incomes, minimal to no means for food production and little or no food purchasing power leading to poor monthly food baskets. Example from this study: through focus group discussions, it was revealed the rise in the petrol and food prices rendered many households vulnerable to household food insecurity. For any interventions to take place socio-economic environments should be studies and interventions should be designed within these framework.

(d) Socio- cultural environment

The socio –cultural environment refer to the cultural and social group to which the household belongs (Kgaphola, 2003; Harris-Fry et al., 2015). It refers to the cultural and ideological systems which include ideas about the role of food in health, religious beliefs involving special food and food restrictions and use of food in social interaction (Kgaphola, 2003; Harris-Fry et al., 2015). In this study socio cultural environmental factors were discussed as internal factors which affect food availability, accessibility and utilisation which included cultural beliefs, values, norms and attitude about food. Furthermore, it also influenced the roles of different household members which they assume in the production, processing and

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preparation of food as well as the decision –making, and resource allocation and power of different household members.

Within the socio-cultural environment, kinship and friendship networks, informal neighbourhood structures such as neighbours, neighbourhood social assistance structures (such as in the case of death the whole neighbourhood provides assistance), formal neighbourhood structures such as burial societies and women`s groups. The kinship, friendship and neighbourhood networks were identified as support structures for food security especially food loans, grants and through a wheel method. The exchange of information, knowledge and skills regarding food procurement and utilisation takes place within these networks. During crises or planned events such as funerals or weddings (situations requiring mass catering) the whole immediate neighbourhood as well as relatives provide material and social support such as fetching water, fuel/ wood, providing utensils, crockery, pots, beverages, labour and attendance at the event. Furthermore, the formal neighbourhood structures also provide material and social support. Example from this study is the development of "mabili" or wheels groups which provide food to members of the wheel and social support. Through the development of the wheel methods, groups share resources by buying food cooperatively, sharing transport costs and information and skills.

The socio-cultural environment provided the context within which what is culturally and socially accepted as food (Kgaphola, 2003; Harris-Fry et al., 2015). Example from this study is food for children, core food such as maize meal and it also influence the cuisine such as the preparation of tshima for weddings. Furthermore, special foods and food avoidances for specific groups, such as age, gender and physiological conditions are determined by the socio-cultural environment. The degree of the entrenchment of these beliefs differs from one household to another. According to Kgaphola (2003) the carrying out of some tasks related to food production and utilisation is also determined by the social norms. Example: in these study beliefs, cultural norms, values and attitudes were fully discussed as internal environmental factors which determine food availability, accessibility and utilisation. Therefore, for any intervention to succeed being it agricultural extension services or rural development programmes, socio-cultural environment should be taken into consideration.

(e) Demographic environment

According to Dawson and Trapp (2004), characteristics of rural communities such as gender, level of education, family size, age and food security status are potential confounding variables with regard to household food security. In this study demographic

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environmental factors were discussed in Chapter 4 (demographic profiles of respondents). The results of demographic profiles of the respondents indicated that there was a relationship between age; gender; education; livelihood activities such as working full time, remittances, social grants, employment status, and food security. The results from this study outlined these associations. Therefore, there is a link between the framework and the demographic environment of the households. In order to develop the rural households the starting point will be to investigate their demographic environments and how this factors affect their food security.

8.6.2 Food security pillars and their effect on household food security

Food security has four pillars namely: availability, accessibility, utilisation and stability which in the case of this research coping strategies as a component of stability was investigated and discussed. The results from the four pillars indicated that there was a high prevalence of food insecurity at household level. Therefore this framework was designed to link environmental factors which affect food security (as discussed above) and the four pillars of food security.

(a) Food availability

According to Okigbo (1997) food availability in rural settings is related to production factors such as land ownership to grow crops or to gather wild food. The results of this study were that most of the households lack land for production. Furthermore, availability of food is achieved when an adequate amount of food is distributed in local outlets so that the public can purchase it (Lemke, 2001). Therefore, food availability is assessed in terms of food at regional, village and lastly at household level. Example: the results of this study indicated that food is available at regional/ district level, and it turns to vary at village level due to the different types of shops selling food, transportation and storage facilities in the local shops and at household level. Furthermore, the results indicated that majority of the households' lack of food availability. Therefore, food could be available at district level but may not trickle down to the households unless there are resources to procure it. Possible interventions: any efforts to improve food availability in any rural setting should focus on improving the means to avail food such as food production, district infrastructural development in terms of transport and storage facilities and providing facilitating conditions to the households so that they will be in a better position to make food available.

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(b) Food accessibility

Accessibility of food in any rural setting depends on an additional set of conditions related to gaining access to food supplies through food production and purchase. According to Sakyi (2012), food accessibility has four main dimensions namely: physical accessibility; economic access (affordability and own production, household wealth or any stable source of income, food and none food prices; shortage of resources leading to poor food access), Social accessibility (cultural acceptability of food; accessing food through social networks) and technological accessibility (household facilities to process preserve and prepare food). An example from this study was the use of HFIAS to measure food insecurity at household level. The results of this study revealed that majority of the households lack food access however, different accessing strategies and coping strategies in the form of social accessibility were outlined. Therefore, any efforts to make food accessible to the households should take into consideration the 4 main dimension of food access.

(c) Food utilisation

Food utilisation refers to proper use of food, processing, preservation and storage of food, preparation (can be hampered by lack of fuel, electricity and other utensils such as refrigerators) and adequate nutritional knowledge (Ericksen, 2007; Drimie et al., 2009; Pieters et al., 2013). Food utilisation includes household factors such as food processing and cooking, methods of preparation, meal patterns, household food distribution which include gender issues, household size, cultural and religious beliefs pertaining to food and social status (Okigbo, 1997; Drimie et al., 2009; Pieters et al., 2013). Food utilisation also involves the decision making processes within the household about who should get what portion of food and the role of gender in food distribution. Therefore, any efforts to create awareness on the causes of food insecurity should take into consideration all the factors which determine the food utilisation patterns of the households.

(d) Stability and coping strategies

Stability is the fourth pillar of food security which comprised of three elements namely: vulnerability (risk prevention, risk taking and risk coping) and resilience (which deals with the effects of shock on the long term) and temporal dimension (time needed to recover from shock) (FAO, 2009; Drimie et al, 2009; Pieters et al., 2013). Vulnerability deals with immediate effects of negative shock i.e. the probability of a household becoming food and nutrition insecure after a food price shock. Resilience focuses on whether households are

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able to recover from shock or further being pushed in to poverty trap from which recovery is impossible (Pieters et al, 2013). There is a continuous interaction between stability and the three pillars of food security where any changes impinged upon the environmental factors might stimulate change in one or all the four pillars of food security. The results from this study indicated that the households were vulnerable and food insecure. Possible interventions should take into consideration the level of stability with households (as households are homogenous) in terms of whether the household is still at a vulnerable stage or at a resilience stage. Stability stage will always determine the type of intervention. Stability also has a temporal dimension. In any interventions the temporal dimension of stability should be taken into consideration before final recommendations are made. The results from this study indicated that majority of the households were food insecure and applied coping strategies to deal with their food insecurities. Coping strategies which were employed by the households were fully discussed in chapter six of this study. It is recommended that intervention strategies should take into consideration the coping strategies that are employed by the rural households into consideration and promote some of them through extension programmes.

8.6.3 Household food security

Household food security and food insecurity were fully discussed in this study (see chapter 2 section 2.2.7). For the purpose of this section the framework indicated the link between household food insecurity and the four pillars of food security (availability, accessibility, utilisation and stability) as they interact within the framework as a system. The results of this study indicated that the rural households were food insecure. Based on these findings, a further analysis of the data was done using binary logistic regression analysis to assess household food insecurity (as discussed above). It was found that there were six predictor variables of food insecurity within the households. (The six predictors variables of study were: not having food for children, inability to eat desired food due to shortage of food, inability to afford food, excessive dependence on remittance, having to borrow food or money due to shortage of food and occupation different from that of a farmer, in decreasing order of strength).

It is recommended that any interventions to develop or improve the food insecurity status of the households should take into consideration the six predictor variables and to seek ways and means to improve some of them. Therefore, understanding household food security or

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insecurity of the households and knowing all the factors which impinge upon it are essential and important steps in determining effective food security interventions.

8.6.4 Agricultural extension and sustainable rural development

The framework indicated a link between food availability (which can be attained through food production) and agricultural extension services which ultimately affect sustainable rural development. This link indicated that for households to have food availability households should participate in food production which is always affected by some if not all environmental factors. The results of this study indicated that food production is practiced minimally this findings affect food availability hence the framework seek to link food availability with agricultural extension services. The framework proposed a flow of information from agricultural extension services to household food insecurity and back to agricultural extension services (which is a recommendation for further research).

8.6.5 Adequate dietary intake and nutritional status

Household food security/ insecurity affect adequate dietary intake and nutritional status of the households. The results of this study revealed that majority of the households were food insecure. Household food insecurity might lead to inadequate dietary food intake and poor nutritional status. This framework indicates that coping strategies were used as a facilitating factor to ensure positive adequate dietary intake and nutritional status of the households. However, it is recommended that further research is needed to investigate the link between nutrition status, adequate dietary intake and household food security.

8.7 The Contribution of the Framework to our understanding of Food Security

The framework provides a holistic view of food security as a system. The framework indicated that investigating food security is a complex process. The complex nature of the factors that contribute to food security suggests that addressing household food security issues in a fragmented fashion may not be effective in bringing about meaningful change. As Kgaphola (2003:320) put it, the benefits of changing a single factor (of the framework) may be undercut because other contributory factors were not addressed. Therefore, to address food security all the factors which interact within the framework need to be investigated. To address household food security requires an integrated intervention at several points of the

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framework as a system and its interacting subsystems (all the factors which impinged upon the system). To achieve this, it is crucial that these factors and their synergistic relationships with the household food security be identified and analysed.

The framework is important to collect information on factors that play a significant role in promoting or limiting food availability and options that households have for food access (Kgaphola, 2003), including factors that precipitate hunger and make household members vulnerable to household food insecurity. Hence the framework provides a holistic view of the causes of food insecurity (environmental factors and how they impinge on the 4 food security pillars) and the interpretation processes that households employ to procure access and utilise food. The focus on households when addressing food security is indicated by Maxwell and Frankenberger (1992) who state that household food security is emerging as an organising principle for development thinking and an objective of development initiatives.

To be relevant and effective in addressing food security at household level, it is essential that local environmental conditions (biophysical, political, socio- economic, socio cultural and demographic environments), internal and external factors as well as the pillars of food security are well understood. Therefore, the framework is advocating such interactions. According to Kgaphola (2003) this notion is also supported by argument that state that for policies and programmes to be successful, it is imperative that local practices and contexts be considered. Therefore, the analysis of the environmental factors, and the livelihoods of the households within the context of food availability, accessibility, utilisation and coping strategies within specific context is imperative for the design, implementation and evaluation of sustainable rural development programmes. This framework provides the key factors which should be taken into consideration when developing agricultural and rural development programmes with the purpose of addressing household food security.

8.8 Summary and recommendations from the framework

The study conducted by the World Bank (2014) shows that chronic food insecurity can only be overcome by building capacity in rural communities so that their livelihood improves on a sustainable basis. This including effective ways to increase the incomes of poor and extremely poor households as a means of reducing food insecurity. This could be done through improved political environment such as government land policy i.e. land reform policy, which should provide agricultural production land for the households.

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It is recommended that efforts should be made to improve some of the biophysical environmental factors such as the provision of water, land and the man- made environmental factors. Furthermore, it is recommended that socio-economic environments be improved through government policies such as the creation of employment opportunities. Socio-cultural environments should be assessed before any intervention could take place. Some of the socio-cultural factors which promote the provision of food should be promoted through extension services. Demographic environment should also be taken into consideration when planning, designing, implementing and evaluating agricultural and food security programmes.

Apart from the environmental factors the framework looked at the relationship between the four pillars of food security and lack of household food security (see Figure 8.3). Food availability is controlled by regional, district, village and household food production. It is recommended that there should be provision of food production, district infrastructural development in terms of transport and storage facilities. Therefore, it is recommended that the government through agricultural extension should provide facilitating conditions to the households thus promoting better ways to make food available.

The four main dimensions of food accessibility need to be studied before any strategies to access food are to be recommended. It is recommended that any effort to make food accessible to the household should take into consideration the four main dimensions of food access. Food utilisation factors needs to be investigated before any interventions can take place. Therefore, any effort to improve the utilisation at household level should take into consideration all the factors which determine food utilisation patterns of the targeted households. According to the framework, the last pillar of food security was stability which should always interacted with the other three pillars. It is recommended that coping strategies that seems to have helped the rural households to improve their food security status should be investigated and promoted in order of priority.

The results of this study concluded that most of the rural households in Sekhukhune district are food insecure. Based on the results from the binary logistic regression analysis, it was concluded that there were six predictor variables of food insecurity. It is therefore recommended that the six predictor variables be taken into consideration and seek ways and means to improve them.

The framework emphasised a link between environmental factors such as food production and the agricultural extension services. The study conducted by Stuff et al. (2004) has

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shown that it is possible to attain food security through improved agricultural production and the provision of educational campaigns (extension services) as well as economic incentives to the small-scale farmers. Such efforts would need an integrated, interdisciplinary and multi-disciplinary approach through sustainable rural development to ensure that households are food secure. The framework seeks lasting solutions to household food insecurity by way of promoting sustainable development through skill based training, community based programmes, awareness campaigns and stakeholder participation all facilitated through the agricultural extension services.

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CHAPTER 9: CONCLUSION OF STUDY AND RECOMMENDATIONS

9.1 Introduction

This chapter will provide a summary of conclusions that could be made based on the objectives of the study, the findings of the study along with recommendations that are appropriate and feasible.

9.2 Conclusion of the Study

The study concluded that food insecurity is a major problem in Sekhukhune district where it was found that 83% of the participants were food insecure. The principal aim of the study was to identify and describe the factors that determine food availability, access and utilisation of food and also the copying strategies at household level in the Sekhukhune district of Limpopo province in South Africa. One of the factors which play a decisive role in determining food security at household level is the demographic profiles of the households (such as their food security status, family size, gender, age category, level of education, occupation, participating in agricultural activities and non-farm activities). The results from this study are supported by Sakyi (2012) who concluded that the level of education of head of household, gender, age and household size were significant factors which influenced both mild-to-moderate and severe household food insecurity.

It was concluded that food expenditure patterns which included food and none food items in the food basket also determined the food security status of the households where poor households spent a higher percentage of their budget on food. The study found that the majority of the respondents had lager families but relied on less than R1500.00 per month as a budget for food, other groceries and burial societies, thereby confirming that the poor could not sustain their livelihoods. There was dependence on remittances and social welfare grants. The reliance on remittances and social grants, as a major source of income, was significant determinant of household food security. However, the results of this study concluded that both remittances and social grants are too little to cover the cost of a well-balanced food basket per month. Social grants although they positively contribute to food security but they are subjected to inflation rate where the prices of food increases higher while the grants do not increase at the same rate as the food prices.

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One of the objectives of this study was to investigate food availability and utilisation patterns of the rural households. Factors which determine lack of food availability at household level were lack of resources such as money to purchase food. To some households lack of land for agricultural production was a major factor which contributes to lack of food availability resulting in household food insecurity. Therefore, food might be available in the local shops or at district level but it might not trickle down to the households unless there are resources to procure it.

The second objective of this study was to investigate the ability to access food among selected rural households in Sekhukhune district. The study finds out that majority of the rural households in the study area principally rely on market purchases as a source of food. Furthermore, the results of this study concluded that food accessibility is a major problem in the study area. This observation is supported by Altman et al, (2009) who reported that a large proportion of the South African households suffer from food insecurity. The HFIAS was used to measure the food accessibility. Therefore, it was concluded that majority (80%) of the households could not access food. The findings highlighted that households cut back on meal size or the number of meals and or experiences any of the three severe conditions (running out of food, going to bed hungry, or going the whole day and night without eating). Furthermore, through the results of the HFIAS it was concluded that the rural households lack food access which influence their food security status.

The third objective was to document the current coping strategies of the rural households in instances of food insecurity. In realisation that majority of the households were food insecure a Coping Strategy Index (CSI) was used to assess their coping strategies. Eight coping strategies were recorded from the CIS namely: relying on less preferred and less expensive foods; reducing the number of meals eaten in a day; purchasing food on credit; borrowing money to buy food or borrow food; limiting portion sizes on meals; limiting your own intake to ensure that children get enough; relying on help from relatives and friends outside the household and skipping meals the whole day in order of priority. Apart from the 8 coping strategies which were recorded using CSI the results from the focus group discussions indicated that there were a further 6 coping strategies namely: piece work; out migration of family members; relying on a “wheel method”; eating elsewhere or sending the kids to eat elsewhere; resilience in survival such as resorting to small businesses operations and backyard farming and to a lesser extent gathering wild food.

The fourth objective was to investigate the external and internal environmental factors which determine food availability, accessibility and utilisation patterns using focus group

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discussions. External environmental factors such the natural physical (land for production, climate change, lack of water) renders household vulnerable to food insecurity. Technological and economic environments affect the food security status of the households such as lack of infrastructure, water, employment opportunities or any income generating activities. Households were vulnerable to food insecurity because they lack the means to avail and access food.

The socio-cultural environment also controls what is regarded as food for consumption. Household food security is compromised where food is available but because of socio-cultural factors some members of the households are not allowed to consume it. The last external environmental factor is the education system. It was concluded that the education system never prepared the rural households with food security issues. Socialisation through indigenous knowledge was used to transfer food security knowledge such as the gathering of wild vegetables as food, food processing, preservation and serving. Internal environmental factors, which included knowledge about food; traditional beliefs and practices such as social norms, attitudes and values all, affect household food security by prescribing what to choose as food amongst the alternatives.

The fifth objective was to investigate food utilisation patterns of the rural households where a 24 hour recall and a 1 month recall were used. It was concluded that households lack food variety hence they consumed monotonous diets such as maize meal and they sometimes run short of relishes. The consumption of milk, fish, meat, eggs, beans and different kinds of fruits and vegetables was low mostly due to lack of resources to access them. There is lack of dietary diversity which is prevalent in food insecure households. Households cannot utilise what they do not have. Therefore, food utilisation should always be assessed in the context of food availability and accessibility.

The sixth objective was to investigate the role of the various agricultural projects in the study area in addressing food insecurity. There were different types of project in the study area but conclusions were made in terms of the commonalities and differences within the projects. The projects had weaknesses such as poor management, lack of financial and bookkeeping skills, lack of fund to run the projects and lack of training. Most of the projects failed to generate income thus failing to provide food security to its members.

The principal aim of the study was to identify and describe the factors that affect the level of food security among the rural households in Sekhukhune district. The results from **binary logistic regression analysis** show that food security in Sekhukhune District is significantly

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influenced by 6 factors. These 6 factors are: not having enough food for children, inability to eat desired food due to shortage of food, inability to afford food, excessive dependence on remittance, having to borrow food or money due to shortage of food, and occupation different from that of a farmer, in a decreasing order of strength.

The last objective was to develop a framework that could be used for intervention programmes in rural households in Sekhukhune district. Based on the results of this study a framework was developed, discussed and its linkages with food availability, accessibility, utilisation, stability and coping strategies explained. This framework could be used to create awareness on the factors that affect the level of food insecurity in rural areas in Sekhukhune district.

9.3 Recommendations of the Study

9.3.1 Rural development policy

The South African government policies aimed at improving food security has focussed on food supplementation, food fortification, day care schemes, School feeding programmes and recently the promotion of food banks in partnership with the private sector (Sakyi, 2012). Furthermore, the South African Social Security Agency (SASSA, 2014) is also aimed at ensuring food security to the targeted individuals and or household members. In order to address the problem of food availability and accessibility in the study area and ensure that households have adequate access to food, the study suggest further improvement in policy areas such as:

1. **Education**: The level of education in the study area was low. However, education of the household head tends to be significant determinant of household food security. Hence it is recommended that development efforts should be directed at providing equal access to affordable and quality education opportunities for both males and females in the study area. In practice the education system should also include indigenous knowledge systems which contributed to the food security of the households over a period of time. The education policy should be designed in such a way that food security concepts, measurements, planning for food security, monitoring and evaluation should be part of the curriculum for learning.

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2. **Nutrition education/ non-formal educational programmes**: nutrition education programmes are needed to educate the villagers the importance of indigenous crops and vegetables. Indigenous vegetables are found to be rich in vitamins and minerals, and they can as well contribute to food availability thus ensuring household food and nutrition security. Therefore, indigenous foods should be included in any food security policies.

   The government and the private sector introduced the Food Banks which aimed at providing food to the vulnerable food insecure households. During the time of data collection the Food Banks were unknown to the household members. Therefore, food security policy through nutrition education programmes should inform the rural communities about the functions of the Food Banks which if known they can help the food insecure households in terms of food access. Therefore, nutrition education policy is needed as an umbrella of any strategy which can help to promote better food choices.

3. **Access to land:** Agricultural production has shown to improve household food security in different parts of Africa (Sakyi, 2012) however, lack of land in in the study area hampered agricultural production. Hence making land accessible could serve as a major incentive for agricultural production especially for the vulnerable groups such as the poor and the female headed households. Although the current South African policy advocate land redistribution, restitution, there is a need to evaluate whether this policy initiatives are implemented especially in the former homelands.

   The advantages of having land for production are that households will have food for consumption or to supplement purchases from the market thus ensuring household food security. Household could also generate income from the sales of own production to finance the accumulation of assets needed in times of resilience. Issues of land ownership must be addressed in the study area so that vulnerable groups have the means with which they can survive. This could be achieved by enabling the private sector to take part in community-based development programmes.

4. **Employment**: Income from formal salaries has proven to be a significant determinant of household food security and since most household depend on food purchases, providing employment opportunities would ensure that they have direct or indirect access to income for food and other non-food essential expenditure. Currently there is a high dependency on social grants. Social grants should not be relied upon as the

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main household income source but rather be used as a household safety net when they are unable to meet their food and non- food needs. Thus, receipt of social grants should not stop people from looking for work or starting up their own enterprise on a small scale.

It is therefore recommended that the government and the private sector should make provision of employment opportunities which if created would improve household socio-economic status and ensure household food security. The current level of food insecurity among rural households in the study area must be alleviated by the implementation of community-based development programmes that are designed to generate jobs in rural communities. Such programmes need to focus emphasis on skills development in areas that are related to farming and none-farm activities.

5. **Agricultural Extension Services**: The results from this study indicated that 33% of the respondents participated in vegetable gardens while 24% participated in crop production. There is a need to increase farmer participation in agricultural production through the agricultural extension services. This could be possible if there is policy in place to support the households and the farmers by giving those who are willing to farm incentives to farm. Moreover, relevant agricultural extension programmes that places households at the centre of the development process should be promoted. According to the New Partnership for Africa`s Development (NEPAD, 2003) in its Africa`s framework for agriculture, food security can be attained through agricultural production. Therefore, extension services need to play a major role in achieving some of the NEPAD objectives.

6. **Coping strategies**: The results from the CSI indicated that there are 9 coping strategies however through focus group discussions the following 6 coping strategies were revealed namely: piece work; out migration of family members; relying on a "wheel method"; eating elsewhere or sending the kids to eat elsewhere; resilience in survival such as resorting to small businesses operations and backyard farming and to a lesser extent gathering wild food. Effort should be made to support and promote coping strategies that enabled rural households to survive thus ensuring food security. Coping strategies to be promoted are encouraging small business operations, agricultural production such as back yard farming and the use of the wheel method (the formation of a social group to contribute money and use the

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money to buy food). Public works programmes could help in creating piece work or par time employment opportunities for the poor.

7. **Provision of infrastructure**: It is recommended that there should be provision of infrastructure in the study area. The rural villages are characterised by lack of proper roads, shortage of water for irrigation, poor electric supply and lack of land for production. Therefore, there is a need for public works policy/ programmes which will facilitate and accelerate the provision of infrastructure in the villages.

8. **Support for community projects**: it is recommended that when projects are initiated and funded by government, NGO`s and or the private sector there should be a training policy which should cover aspects such as book keeping, financial management, marketing and technical skills. All stakeholders involved should be bound by the policy which promote and support the projects in a district. The policy should have a monitoring and evaluation tool to ensure sustainability of the projects.

9. Measuring food insecurity is a complex process, which need a holistic approach to food availability, accessibility utilisation and stability. Binary logistic regression procedures were performed and the results were that 83% of the households were food insecure. It was further revealed that food security at household level was significantly influences by 6 predictor variables (see Chapter 8: 8.4). **It is therefore recommended that the 6 predictor variables be used as a guide in the assessment of food insecurity in the rural areas.**

10. The food insecure households are in crises. Therefore, emergency relief and other forms of social protection should be reinforces, specifically targeting the most food insecure households.

9.3.2 Further research

1. This study investigated patterns of household level availability, accessibility and utilisation of food in some rural areas of Sekhukhune district using a cross sectional study design. Therefore, it is recommended that future resourceful researchers can investigate these patterns using a longitudinal study design where the four pillars are investigated.

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2. The research results showed that the respondents used different coping strategies to decrease the level of food insecurity. Therefore, further research is required on how food access relates to dietary diversity and coping strategies.

3. One of the objectives of this study was to develop a framework based on the results of the study. Therefore, a framework has been developed (Figure 8.3) which needs further research to test its reliability and validity.

9.4 Chapter Summary

The chapter has provided a succinct summary of conclusions that could be made based on the findings of the study along with feasible recommendations that are also based on the findings of the study.

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LIST OF REFERENCES

Abebwa, S. and Ayalneh, B. 2007. Dimensions of food insecurity and livelihood strategies among rural households in Dire Dawa, Eastern Ethiopia. *Tropical Science,* 47 (2): 73-80.

Abdu-Raheem, K.A. and Worth, S.H. 2011. Household food security in South Africa: evaluating extension`s paradigms relative to the current food security and development goals. *South African Journal of Agricultural Extension,* 39 (2): 91–103.

Abhas, K.J. and Stanton-Geddes, Z. 2013. *International Bank for Reconstruction and Development*. Washington, DC: World Bank.

Alemu, Z.G. 2010. *Tracing special dimension of food insecurity, a first step to a strategic move to combat food insecurity: the case of South Africa.* Halfway House: Development Bank of Southern Africa. Research Unit.

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

Ayanji, N.E. 2004. A critical assessment of the natural disaster risk management framework in Cameroon. Available online. Website: http://info.worldbank.org/etools/ [Accessed: 31 March 2014].

Babbie, E. 1995. *The practice of social research*. 7th edition. Virginia: Wadsworth Publishing Company.

Babbie, E. and Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

Baiphethi, M.N. and Jacobs, P.T. 2009. The contribution of subsistence farming to food security in South Africa. *Agrekon,* 48 (4):473–475.

Ballantine, N., Rousseau, G.G. and Venter, D. J. L. 2008. Purchasing behaviour as a determinant of food insecurity in Klipplaat. *Journal of Family Ecology and Consumer Sciences,* 36: 1–8.

© University of Venda

University of Venda
Creating Future Leaders

Bandeira, S.O. 1994. The ethnobotany of non-medicinal plants of Inhaca, Mozambique. Proceedings of the XIIIth plenary meeting of AETFAT. National Herbarium and Botanic Gardens, Zomba, Malawi.

Bartfeld, J. and Dunifon, R. 2006. State-level predictors of food insecurity among households with children. *Journal of Policy Analysis Management,* 25 (4): 921–942.

Barrett, B. 2010. Measuring food insecurity. *Science Magazine* 12 February: 825–828. URL: http:\\www.sciencemag.org/cgi/content/full/327/5967/825 [Accessed: 21 March 2014].

Bashir,M.K., Schilizzi, S. and Pandit, R. 2012. The determinants of rural household food security in the Punab, Pakistan: an econometric analysis. Working Paper 1203, School of Agricultural and Resource Economics, University of Western Australia, Crawley, Australia: 1–18.

Bellamy, C. 1998. *The state of the world`s children*. New York: UNICEF.

Bless, C. and Higson-Smith, C. 2000. *Fundamentals of social research methods*: *an African perspective*. 3rd edition. Cape Town: Juta.

Bubolz, M. M. and Sontag, M. Z. 1993. Human ecology theory, in Boss, PG, Doherty, WJ, LaRossa, R, Schumm, WR and Steinmetz, SK (eds). 1993. *Sourcebook of family theories and methods. A contextual approach*. New York. Plenum.

Budlender, D. 1993. Community agency for social enquiry. Paper presented at the conference on Food Security in South Africa in June 1993. Johannesburg.

Bukenya, Z.R. 1994. *Solanum mucrocarpon: an under-utilized but potential vegetable in Uganda*. Proceedings of the XIIIth plenary meeting of AETFAT. Zomba, Malawi. National Herbarium and Botanic Gardens.

Campbell, C.C. and Dejardins, E. 1989. A model and research approach for studying the management of limited food resource by low income families. *Journal of Nutrition Education,* 21 (4): 162–171.

Carr E.R. 2005. Development and the household: missing the point? *Journal of Geography,* 62 (1): 71–83.

© University of Venda

University of Venda
Creating Future Leaders

CARE/WFP .2003. The Coping Strategy Index: Field Methods Manual. Nairobi: CARE and WFP.

Coates, J., Swindale, A. and Bilinsky, P. 2006. Household food insecurity. Access scale for measurement of food access. Food and Nutrition Technical Assistant Project. Available online. Website: www.fantaproject.org/publications/hifias.shtml [Accessed: 21 March 2014].

Coates, J., Swindale, A. and Bilinsky, P. 2007. Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide. Washington, DC: USAID.

Corbett, J. 1988. Family and household coping strategies. *Third World Quarterly,* 16 (9): 1099–1112.

Da Costa, M. D., Lopes M., Ximenes A., Ferreira, A. do R., Spyekerelle, L., Wiiliams, R., Nesbitt, H. and Erskine W. 2013. Household food insecurity in Timor-Leste. Food Security. Vol 5:83-94.

Deacon, R.E. and Firebaugh, F.M. 1988. *Family resource management: principles and application*. 2nd edition. Boston: Allyn and Bacon.

Dawson, B.K. and Trapp, R.G. 2004. *Basic clinical biostatistics*. 4th edition. New York: McGraw-Hill.

De Cock, N, D` Haese, M, Vink, N., van Rooyen, C.J., Staelens, L., Schonfeldt, H.C. and D`Haese L. 2013. Food security in rural areas of Limpopo province, South Africa. Food Security. The Science, Sociology and Economics of Food Production and Access to Food. Vol 5 No 2: 269-282.

Deitchler, M., Ballard, T., Swindale, A. and Coates, J. 2010. Validation of a measure of household hunger for cross-cultural use. FANTA II Project. Available on line. Website: www.fanta-2.org [Accessed: 30 March 2014].

Den Hartog, A.P., Van Staveren, W.A. and Brouwer, I.D. 2006. *Food habits and consumption in developing countries: manual for field studies*. Amsterdam: Wageningen Academic Publishers.

© University of Venda

Derrickson, J.P., Sakai, M. and Anderson, J. 2001. Interpretations of the "Balanced Meal" Household Food Security Indicator. *Society Nutrition Education,* 33 (3): 155–160.

Devereux, S. 1988. Entitlements, availability and famine: a revisionist view of Wollo 1972 – 1974. *Journal of Food Policy*, 3 (2): 270–282.

De Vos, A.S. 2001. *Research at grass roots: a primer for caring professions*. Pretoria: Van Schaik Publishers.

Drewnoski, A., Henderson, S.A., Shore, A.B., Fischler, C., Prezioski, P. and Hercberg, S. 1996. Diet quality and dietary diversity in France: implication for French paradox. *Journal of American Dietetic Association,* 96 (1): 663–669.

Drimie, S., Germishuyse, T., Rademeyer, L. and Schwabe, C. 2009. Agricultural production in Greater Sekhukhune: the future for food security in a poverty node of South Africa? *Agrekon,* 48 (3): 245–275.

Development Bank of Southern Africa. 1998. Northern Province Development Profile. Midrand: Development Bank of Southern Africa.

Du Toit, D.C. 2011. Food security. Available on line. Website: http://www.daff.gov.za/docs/GenReports/Food Security.pdf . [Accessed 14 March 2014].

Engberg, L.E. 1990. *Rural households and resource allocation for development: an ecosystem perspective.* Rome: Food and Agricultural Organisation of the United Nations.

Ericksen P.J. 2007. Conceptualizing food systems for global environmental change research. *Global Environmental Change,* 18 (1): 234–245.

Faber, M., Schwabe, C. and Drimie S. 2009. Dietary diversity in relation to other household food security indicators. *International Journal of Food Safety, Nutrition and Public Health*, 2: 1–15.

Fieldhouse, P. 1995. *Food and nutrition: customs and culture*. 2nd edition. London: Chapman and Hall.

© University of Venda

University of Venda
Creating Future Leaders

Food and Agricultural Organization (FAO). 2009. The state of food insecurity in the world economic crises: impacts and lessons learned. Rome: Food and Agricultural Organization.

Food and Agricultural Organization (FAO). 2003. Trade reforms and food security. Available online. Website: http://www.fao.org/ [Accessed: 18 March 2014].

Frank, A. 2009. How to conduct surveys: a step-by-step guide. 4th edition. New York: SAGE.

Fernandez, E., Negri, E., La Vecchia, C. and Franceschi, S. 2000. Diet diversity and colorectal cancer. *Preventative Medicine,* 31(1):11–14.

Franz, H. C. 1971. The traditional diet of the Bantu in the Pietersburg District. *South African Medical Journal,* 6 (1): 1232–1235.

Fraser, G., Monde, N. and Van Averbeke, W. 2003. Food security in South Africa: a case study of rural livelihoods in the Eastern Cape. Pietermaritzburg: University of Natal Press.

Fouché, C.B. and De Vos, A.S. 2001. *Selection of researchable topic.* Pretoria: Van Schaik Publishers.

Frongillo, E.A. and Nanama, S. 2004. Development and validation of an experience-based measure of household food insecurity within and across seasons in Northern Burkina Faso. *Journal of Nutrition,* 136 (5): 1409S–1419S.

Gittelsohn J., Thapa, M. and Landman, L.T. 1997. Cultural factors, caloric intake and micronutrient sufficiency in rural Nepali households. Social Science & Medicine. Vol. 44 No 11: 1739-1749.

Green, F. 2004. *A community base model for nutrition interventions*. Pretoria: University of Pretoria.

Gobotswang, K. 1998. *Household strategies of accessing food in Botswana: the case of Chobe.* Gaborone: University of Botswana.

Gross, R., Schoeneberger, H., Pfeifer, H. and Preuss, H. J. 2010. *Four dimensions of food and nutrition security: definition and concepts.* New York: United Nations.

© University of Venda

University of Venda
Creating Future Leaders

Hart, T. 2005. Indigenous knowledge and its relevance for agriculture: a case study in Uganda. Indilinga. *African Journal of Indigenous Knowledge Systems. A cross pollination and critique,* 4 (1, June): 249–263.

Hart, T. 2009. The status of household food security targets in South Africa. *Agrekon*, 48 (4): 362–383.

Hart, T. 2009. *Food security definitions, measurements and recent initiatives in South Africa and Southern Africa*. Pretoria: Human Sciences Research Council.

Harris-Fry, H., Azad, K., Kuddus, A., Shaha S., Nahar, B., Hossen, M., Younes, L., Costello, A. and Fottrell, E. 2015. Socio-economic determinants of household food security and women`s dietary diversity in rural Bangladesh: a cross-sectional study. Journal of Health, Population and Nutrition, 33:2, pp 1-12.

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

Hendriks, S.L. and Lyne, M.C. 2009. *Does food security improve when smallholders access a niche market? Lessons from the Embo Community in South Africa.* Pietermaritzburg: Intrepid Printers.

Henning, E. 2004. *Finding your way in qualitative research*. Pretoria: Van Schaik Publishers.

Hoddinot, J. and Yohannes, Y. 2002. Dietary diversity as food security indicator. Washington, DC: Academy of Educational Development.

Hosmer, D.W. and Lemeshow, S. 2004. *Applied logistic regression*. New York: John Wiley and Sons.

Human Sciences Research Council. 2014. Fact Sheet: poverty in South Africa. Available online. Website: www.hsrc.ac.za [Accessed: 18 May 2014].

Human Sciences Research Council. 2012. Food security in South Africa: Key policy issues for the medium term. Pretoria: Human Sciences Research Council.

© University of Venda

University of Venda
Creating Future Leaders

Human Sciences Research Council. 2004. Food security in South Africa: key policy issues for the medium term. Position paper. Pretoria: Human Sciences Research Council.

International Federation of Red Cross and Crescent Societies. 2007. Global food security assessment guidelines. Geneva: Red Cross and Red Crescent Societies.

Jacobs, P.T. 2009. The status of household food security targets in South Africa. *Agrekon,* 48 (4, December): 410–433.

Jacobs, P. 2012. Household food access in rural South Africa: lessons for emerging food security policy. Cape Town: Human Sciences Research Council.

Jerome, N.W., Pelto, G. H. and Kandel, R.F. 2012. *An ecological approach to nutrition anthropology*. New York: Redgrave.

Jones, A.D., Ngure, F.M., Pelto, G. and Young, S.L. 2013. What are we assessing when we measure food security? A compendium and review of current metrics. *Advances in Nutrition: an International Review Journal*, 4(5): 481–505.

Kaw, IW. 2006. The Challenges Facing Organized Community Agricultural Projects in South Africa: The case of Limpopo Province. Africa Insight, 36: 56-74.

Kennedy, E. and Haddad, L. 2011. Food security and nutrition. *Food Policy,* 17 (1): 2–6.

Kennedy, E. and Peters, P. 2013. Household food security and child nutriton: the interaction of income and gender of household head. *World Development,* 20 (8): 1077–1085.

Kgaphola, M. S. 2003. Food accessing strategies and utilization patterns of rural households in Manhaar Ward, Mpumalanga. Pretoria: University of Pretoria.

Kgaphola, M.S. and Boshoff, E. 2002. Proposal for a conceptual frame of reference to study household`s food accessing strategies and utilization patterns. *Journal of Family Ecology and Consumer Sciences,* 30: 65–74.

Kgaphola, M.S. and Viljoen, A.T. 2000. Food habits of rural Swazi households: 1939–1999, Part 1: Technological influences on Swazi food habits. *Journal of Family Ecology and Consumer Sciences,* 28 (1): 68–74.

© University of Venda

Khumbane, T. 2004. Food security: traditional knowledge and permaculture. South African Rural Development Quarterly, Development Bank of South Africa, Volume 2, Q4, October–December. Midrand, South Africa.

Kidane, H., Alemu, Z.G. and Khundhlande, G. 2005. Causes of household food insecurity in Koredegaga Peasant Association, Oromiya zone, Ethiopia, *Agrekon,* 44 (4): 543–560.

Kinabo, J. 2008. Food and nutrition security. International workshop experts on health and human well-being in Africa. Pretoria: University of Pretoria.

Krondl, M. 1990. *Conceptual models. Diet and behaviour: multidisciplinary approaches.* London: Springer-Verlag.

Labadarios, D., Davids, Y. D., Mchiza, Z. and Weir-Smith, G. 2009. *The assessment of food insecurity in South Africa.* Pretoria: Human Sciences Research Council.

Labadarios, D., Mchiza, Z. J., Steyn, N.P., Gericke, N.P., Maunder, M.W., Davids, Y. D. and Parker, W. 2011. Food security in South Africa: a review of national surveys. Available online. Website: http://www.who.int/bulletin/volumes/89/12/11-089243/en/ [Accessed: 21 March 2014].

Latham, M.C. 1997. *Human nutrition in developing world.* Rome: Food and Agricultural Organization of the United Nations (FAO).

Leary, P. M. 1964. The diet of the Pedi school children. *South African Medical Journal,* 50 (1): 792–795.

Lemke, S. 2001. *Food and nutrition security in black South African households: creative ways of coping and survival.* Weihenstephan, Germany: Technische Univestitat Munchen.

Machete, C.L., Reardon, T. and Mead, D.C. 1997. Promoting farm/non-farm linkages for employment of the poor in South Africa: a research agenda focussed on small scale farms and agro-industry. *Development Southern Africa*, 14 (3).

Machete, C.L., Mollel, N.M., Ayisi, K., Mashatola, M.B., Anim, F.D.K. and Vanasche, M. 2004. Smallholder irrigation and agricultural development in the Olifants River Basin of

© University of Venda

Limpopo province: management transfer, productivity, profitability and food security issues. Pretoria: South African Water Research Commission.

Maliwichi, L.L. Bourne, L. and Sukwana, V. 2002. Household food security: coping strategies of low resource households in Khayelitsha to ensure food security. *South African Journal of Clinical Nutrition,* 14 (56):1231–1241.

McLachlan, M. and Landman, A. P. 2013. Nutrition –sensitive agriculture- A South African perspective. Original Paper. Food Security. Sprigner. 5: 857-871.

McLachlan, M. and Thorne, J. 2009. Seeding change: a proposal for renewal in the South African food system. Halfway House: Development Bank of Southern Africa.

Majake, M.P, 2005. Evaluation of the impact of a household food security in Qwaqwa using a Coping Strategy Index. Pietermaritzburg: University of KwaZulu-Natal.

Maponya, P. and Moja, S. 2012. Asset Portfolio and Food Accessibility in Sekhukhune District, Limpopo Province, South Africa. *Journal of Agricultural Science,* 4 (11): 144–153.

Matla, M.T.H. 2008. The contribution of food accessing strategies to dietary diversity of farm workers households on Oranje Farm in the Fouriesburg District of the Republic of South Africa. Pretoria. University of Pretoria.

Marula Marketing South Africa. 2010. The Limpopo Province general information. [Available online]. Website: http://www.marula.co.za/Limpopoinfo.htm [Accessed: 31 March 2014].

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

Maxwell, S. and Frankenberger, T.R. 1992. Indicators used for assessing household food security. In Maxwell, S. & Frankenberger , T.R. Household food security: concepts, indicators and measurements. New York. UNICEF/IFAD.

Maxwell, D., Watkins, B., Wheeler, R. and Collins, G. 2003. The coping strategies index: a tool for rapid measurement of household food security and impact of food aid programs in humanitarian emergencies. [Available online]. Website: ftp://ftp.fao/docrep/fao/meeting/009/ae513e.pdf . [Accessed: 21 March 2014].

© University of Venda

University of Venda
Creating Future Leaders

Maxwell, D.; Watkins B.; Wheeler R. and Collins, G. 2003. " Food Security in Complex Emergencies: building policy frameworks to address longer-term programming challenges" FAO International workshop, Trivoli. 22-25 September.

Maunder, E. and Labadarios, D. 1999. The food procurement and household inventory method. In Labadarios, D (Ed). The National Food Consumption Survey (NFCS): Children aged 1–9 years, South Africa, 1999. Pretoria: South African National Department of Health.

May, J., Rogerson, C. and Vaughan, A. 2000. *Livelihood and assets*. Cape Town: David Phillip.

May, J. and Woodlard, I. 2007. *Poverty traps and structural poverty in South Africa*. Durban. University of KwaZulu-Natal.

Modirwa, S. and Oladele, O. I. 2012. Food security among male and female-headed households in Eden District Municipality of the Western Cape, South Africa. *Journal of Human Ecology,* 37 (1): 29–35.

Monde, N. 2003. Household food security in rural areas of central Eastern Cape: the case of Guquka in Victoria East and Koloni in Middledrift districts. Unpublished PhD. thesis, Department of Agricultural Economics, University of Fort Hare, Alice, South Africa.

Mjonono, M. 2008. An investigation of household food insecurity coping strategies in Umbumbulu. Pietermaritzburg: University of KwaZulu-Natal.

Mjonono, M., Ngidi, M. and Hendriks, S.L. 2009. Investigating household food insecurity coping strategies and the impact of crop production on food security using coping strategy index (CIS). Bloomington, USA. Proceedings of the 18th International Congress on Farm Management.

Musemwa, L.; Muchenje, V. Mushunje, A. and Aghdasi, F. 2015. Household food insecurity in the poorest province of South Africa: level, causes and coping strategies. Food Security, 7: 647-655.

Mwanyambo, M.L. 1994. Non-medicinal plants uses of the Nyakusa, lower Shongwe valley, Karonga, Malawi. Proceedings of the XIIIth plenary meeting of AETFAT. National Herbarium and Botanic Gardens, Zomba, Malawi.

© University of Venda

University of Venda
Creating Future Leaders

Ndhleve S., Musemwa L. and Zhou L. 2012. Household food security in a coastal rural community of South Africa: Status, causes and coping strategies. *Journal of Agricultural Biotechnology and Sustainable Development*, 4 (5): 68–74.

Neumam, W.L. 2000. *Social research methods: quantitative and qualitative approaches.* Boston: Allyn and Beacon.

New Partnership for Africa's Development (NEPAD). 2003. Africa's framework for agriculture, NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP). [Online]. Available from: http://www.nepad.org/foodsecurity/knowledge/doc/1802/caadp-2003-document [Accessed: 11 August 2014].

Ngidi M.S.C. and Hendriks S. L.2014. Coping with Food Insecurity in Rural South Africa: The Case of Jozini, KwaZulu-Natal. Mediterranean Journal of Social Sciences. Vol 5 No 25 November: 278- 289.

Ngqangweni, S.S, Kristen J.F. and Delgado, C.L. 2001. How efficient are African smallholders? A case study in the Eastern Cape Province of South Africa. *Arekon,* 40 (1): 58–65.

Nieuwoudt, L. and Groenewald, J. 2003. *The challenge of change: agriculture, land and the South African economy*. Pietermaritzburg: University of KwaZulu-Natal Press.

Norhasmah, S. Zalilah, M.S. and Asnarulkhadi A. S. 2010. Food security concepts and definitions. *Journal of Community Health,* 16 (2): 2– 9.

Obayelu, A.E. 2010. Classification of households into food security status in the Northern-Central Nigeria: an application of the Rasch Measurement Model. *Journal of Agricultural and Biological Science,* 5 (3): 26–41.

Okigbo, B.N. 1987. Nutritional perspective on food security and family survival: the role of the home economist. The Economic Food Security and Family Survival in Africa. Proceedings of the first all Africa Home Economics Conference, held in Ghana on 20–24 April, Accra: Kwame Nkurumah.

© University of Venda

University of Venda
Creating Future Leaders

Oldewage-Theron, W.H., Dicks, E.G. and Napier, C.E. 2006. Poverty, household food insecurity and nutrition: Coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Journal of the Royal Institute of Public Health,* 120 (9): 795–804.

Paolucci, B., Hall A.O. and Axinn, N. 1977. *Family decision making: an ecosystem approach.* New York: Wiley.

Parraga, I.M. 1990. Determinants of food consumption. *Journal of the American Dietetic Association,* 90(5):661–663.

Pieters, H.,Guariso A. and Vandeplas A. 2013. Conceptual framework for the analysis of the determinants of food and nutrition security. LICOS- Centre for Institutions and Economic Performance & Department of Economics, KU Leuven, Belgium.

Quandt, S.A., Arcury T.A., Early, J. Tapia, J. and Davis, J.D. 2004. Household food security among migrant and seasonal Latino farm workers in North Carolina. Public Health Reports/ November – December. Volume 119: 568–579.

Quin, P.J. 1964. Food and feeding habits of the Pedi. *South African Medical Journal.* December: 969–971.

Quin, P.J. 1959. Food and feeding habits of the Pedi with special reference to identification, classification, preparation and nutritive value of the respective foods. PhD. Witwatersrand University Press, Johannesburg.

Rokeach, M. 1968. Beliefs, attitudes and values. San Francisco: Jossey-Bass.

Roos, J.A. and Ruthven G. 2011. Food system analysis: an assessment of food availability and accessibility. ISEM Proceeding, September 21–23, Stellenbosch, South Africa.

Rose, D. and Charlton, K.E. 2002. Quantitative indicators from a food expenditure survey can be used to target the food insecure in South Africa. *The Journal of Nutrition*, 132, 3235–3242.

Ruel, M.T. 2002. Is dietary diversity an indicator of food security or dietary quality? A review of measurement issues and research needs. Food Consumption and Nutrition Division (FCND) no 140.Washington D.C.

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© University of Venda

Rule, S. 2005. Report survey in Sekhukhune to pilot the development of a food insecurity and vulnerability modeling system (FIVIMS) for South Africa. [Available online]. Website: http://www.agis.agric.za/agisweb/FIVIMS [Accessed 15 March 2014].

Shiferaw, F., Kilmer, R. and Gladwin, C. 2005. Determinants of food security in Southern Ethiopia at household level. *Agricultural Economics,* 33 (30): 351–363.

Sakyi, P. 2012. Determinants of food accessibility of the rural households in the Limpopo Province, South Africa. Unpublished. Master's of Science in Nutrition and Rural Development, Ghent University, Ghent.

Sanjur, D. 1982. *Social and cultural perspectives in nutrition.* Englewood Cliffs, NJ: Prentice Hall.

Sayed, N. 2002. Graduate reading fundamentals of nutrition security in rural development. Nutrition security in rural communities. Pretoria: Flemish Interuniversity Council.

Sarris, A., and Karfakis, P. 2008. Household Vulnerability in Rural Tanzania. Number 17. Commodities and Trade Policy Research Working paper. FAO.

Seligman, H.K., Barbara, A.L. and Kushel, M.B. 2010. Food insecurity is associated with chronic disease among low-income NHANES participants. *The Journal of Nutrition*, 140(2): 304–310.

Sims, L.S. 1978. Food related value-orientations, attitudes and beliefs of vegetarians and non-vegetarians. *Journal of Ecology Food Nutrition,* 7 (1): 23–24.

Sims, L.S. 1982. Further thoughts on research perspectives in nutrition education. *Journal of Nutrition Education,* 13 (1): 70–74.

Sims, L.S. and Simiciklas-Wright, H. 1978. An ecological systems perspective: its application to nutrition policy, program design and evaluation. *Journal of Ecology Food Nutrition,* 7 (1): 173–179.

South African National Department of Agriculture and Land Affairs. 2002. The integrated food security strategy of South Africa. Pretoria: South African National Department of Agriculture and Land Affairs.

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South African National Department of Agriculture and Land Affairs. 2012. The integrated food security strategy of South Africa. Pretoria: South African National Department of Agriculture and Land Affairs.

South African National Department of Agriculture and Land Affairs. 2014. Agricultural Policy in South Africa: a discussion document. Pretoria: South African National Department of Agriculture and Land Affairs.

South African National Department of Health. 2014. Integrated nutrition programme: a foundation for life. Pretoria: South African National Department of Health.

South African National Department of Social Development. 2014. Demographics of poverty in Mpumalanga. Pretoria. South African National Department of Social Development.

South African Social Security Agency. 2014. Social grants. Available online. Website: http://www.sassa.gov.za/index.php/social-grants [Accessed: 13 March 2014].

STATA Corporation. 2013. User's Guide for STATA Version 13. College Station, Texas, USA: STATA Corporation.

Statistics South Africa. 2007. *South Africa: fast facts 2007.* [Online]. Available from: http://www.statssa.gov.za/ [Accessed: 31 March 2014].

Statistics South Africa. 2008. *Results of the general household survey of October 2007: Statistical Release P0318.* [Online]. Available from: http://www.statssa.gov.za [Accessed: 31 January 2014].

Statistics South Africa. 2009. Limpopo province profile: Report-00-91-09. Pretoria: Statistics South Africa.

Statistics South Africa. 2010: *Millennium Development Goals for South Africa: Country report 2010.* [Online]. Available from: http://www.statssa.gov.za/news_archive/Docs/MDGR_2010.pdf [Accessed: 31 March 2014].

Statistics South Africa. 2011. *Report for quarter 3 of 2011.* [Online]. Available from: http://www.statssa.gov.za/ies/welcome.asp. [Accessed: 31 March 2014].

Statistics South Africa. 2012. *Results of Census 2011.* [Online]. Available from: http://www.statssa.gov.za/ [Accessed: 31 March 2014].

Statistics South Africa. 2013. *Business Register 2010.* [Online]. Available from: http://www.statssa.gov.za/ [Accessed: 31 March 2014].

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Statistics South Africa. 2014. *South Africa: Fast facts 2014.* [Online]. Available from: http://www.statssa.gov.za/ [Accessed: 31 March 2014].

Stuff, J.E., Casey, P.H., Szeto, K.L., Gossett, J.M., Robbins, J.M., Simpson, P.M., Connel, C. and Bogle, M. 2004. Household food insecurity is associated with adult health status. *The Journal of Nutrition*, 134(9): 2330–2335.

Swindale. A. and Bilinsky, P. 2009. Development of universal applicable household food insecurity measurement tool: process, current status, and outstanding issues. *The Journal of Nutrition,* 136 (5): 1449S–1452S.

Swindale, A. and Bilinsky, P. 2006. Household Dietary Diversity Score for Measurement of Household Food Access: Indicator Guide. Washington D. C. USAID.

Tshitangoni, M, Okorie, A. and Francis J. 2010. Assessment of challenges facing poverty alleviation projects in Vhembe District of Limpopo Province in South Africa. Scientific Research and Essays Vol. 5(17), pp. 2375-2383, 4 September.

Terry, R.D. 1994. Needed: a new appreciation of culture in food behaviour. *Journal of the American Dietetic Association,* 94 (1): 139–151.

Todaro, M.P. 1984. *Economic development in Third World countries*. New York: Longman.

United Nations Children's Fund. 2014. Eradicate extreme poverty and hunger by 2015. Available online. Website: http://www.unicef.org/mdg/poverty.html [Accessed: 13 March 2014].

United Nations Development Programme. 2014. UNDP food security report in Africa to be honored for excellence. Available online. Website: http://undp.org.za/ [Accessed: 21 March 2014]

United States Department for International Development (1992). USAID Policy Determination: Definition of Food Security. PD No. 19. USAID.

Van den Heever, E. 1995. Some indigenous leaf crops as possible food. *Africa Crops Info.* 95. Pretoria: Vegetable and Ornamental Plant Institute.

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Creating Future Leaders

Van Rensburg, W.S.J; Van Averbeke, W. Slabbert R., Faber, M., Van Jaarsveld, P., Van Heerden, I., Wenhold F. and Oelofse, A. 2007. African leafy vegetables in South Africa. Water S.A. Vol. 33 (3): 317- 326.

Vermaak, L. & Van Niekerk, D. 2004. Disaster risk reduction initiatives in South Africa. *Development Southern Africa,* 21 (3): 47–56.

Ward, P.R., Verity, F., Cater, P., Tsourtos, G., Coveney, J. and Chui Wong, K. 2013. Food stress in Adelaide: the relationship between low income and affordability of healthy food. *Journal of Economic and Public Health, Volume 2013, Article ID 968078:1–10.* Available on line. Website: http://www.hindawi.com/journals/jeph/2013/968078 [Accessed 25 April 2014]

Webb, P. Coates, J. Frongillo, E.A. Rogers, B.L. Swindale, A. and Bilinsky, P. 2006. Measuring household food insecurity: why it's so important and yet so difficult to do. *The Journal of Nutrition,* 136 (5): 1404S–1408S.

Wehmeyer, A. S. and Rose, E. F. 1983. Important indigenous plant used in the Transkei as food supplements. Bothalia, 14 (3/4): 613- 615.

Wentzel, E.1999. "National Food Consumption Survey North West Province – Report of the Fieldwork". Internal Report. University of Potchefstroom.

Wolf, E.C. 1986. Beyond the green revolution: new approaches for third world agriculture. Washington DC: World Watch Institute.

World Bank. 2014. Eradicate Extreme Poverty and Hunger by 2015. Available online. Website: http://www.worldbank.org/mdgs/poverty_hunger.html [Accessed: 13 March 2014].

Ziervogel, G., Taylor, A., Thomalla, F., Takama, T. and Quinn, C. 2006. Adapting to climate, water and health stresses: insights from Sekhukhune, South Africa. [Available online]. Website: www.egs.uct.ac.za/ [Accessed 18 March 2014].

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APPENDICES

APPENDIX A: QUESTIONNAIRE OF STUDY

A. DEMOGRAPHIC INFORMATION OF THE PARTICIPANT

1. Name of the participant .....

2. Position in the household

☐ Mother ☐ Father ☐ Grandparent ☐ Child ☐ Any other household elative

3. Total numbers of household member .....

4. Gender: Male ..... Female .....

5. Age at last birthday

Below 20 years ☐ 20- 29 years ☐ 30-39 years ☐ 40-49 years ☐ 50-59 years ☐ Above 60 years ☐

6. Educational level

None formal schooling ☐ Primary education ☐ Secondary education ☐ High school education ☐ Tertiary education diploma ☐ Tertiary education degree and above

7. Occupation (livelihood activities)

Full time farmer ☐ Part time farmer ☐ Indigenous food gathering ☐ Remittance ☐ Not applicable

8.If you are a part-time farmer how often do you visit you farming area for farming purposes?

Seasonally ☐ Monthly ☐ Weekly ☐ Daily ☐ Not applicable

9. Do you have a vegetable garden? Yes ☐ No ☐

If Yes, what kind of vegetables do you plant?

.....

.....

10.If you depend on remittances for your livelihood, what is your monthly remittance?

Below R200.00 ☐ Between R200.00 to R700.00 ☐ Between R700.00 and R1000.00 ☐ Above R1000.00 ☐

Not applicable ☐

11.If you depend on pension/ child support grants what is your monthly grant?

Below R300.00 ☐ Between R300.00 to R700.00 ☐ Between R700.00 and R1000.00 ☐ Above R1000.00 ☐

Not applicable ☐

B. SOCIOECONOMIC INFORMATION

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12. Employment status

Working full time ☐ Working part time ☐ Casual/ piecejobs ☐ Unemployed ☐ Housewife taking care of the home ☐ Pensioner ☐ Student ☐

13 Approximately how much can be spent on food?

Daily ..... Weekly ..... Monthly.....

14 Are there any other sources of income? YES ☐ NO ☐

If yes, explain .....

C. AVAILABILITY OF FOOD AT HOUSEHOLD LEVEL

15. With this questionnaire the researcher would like to get an impression of the availability of food at household level. Grade yourself as quickly and as honestly as possible. Do not speculate too long before you answer. The first answer that comes to mind is usually the correct one. Mark the relevant item with an x using the following:

An impression of the availability of food at household level	**1**	**2**	**3**	**4**	**5**
1. My food runs out before I get money to buy more					
2. I do not know where the next day`s food is going to come from					
3. The food that I buy is not enough to feed my family					
4. I am often hungry					
5. I eat less than I think I should					
6. I don't` have enough money for food					
7. I cannot afford to feed my children					
8. My children are not getting enough food to eat					
9. My children go to bed feeling hungry					
10. I have enough food to last until I get money to buy more					
11. I know where tomorrow`s food is going to come from					
12. I can afford to eat enough everyday					
13. I have enough money for food					
14. I go to bed feeling hungry					
15. I still have food in the house the day before someone gets paid					

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D. FOOD ACCESS SCALE

MEASUREMENT TOOL: HOUSEHOLD FOOD INSECURITY ACCESS SCALE (HFIAS)

NO	QUESTION	RESPONSE OPTION	CODE
1.	In the past four weeks, did you worry that your household would not have enough food?	0=No (skip to Q2) 1=Yes	....
1.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
2.	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of lack of resources?	0=No (skip to Q3) 1=Yes	....
2.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
3.	In the past four weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?	0=No (skip to Q4) 1=Yes	....
3.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
4.	In the past four weeks, did you or any household member have to eat some foods that really did not want to eat because of lack of resources to obtain other types of foods?	0=No (skip to Q5) 1=Yes	....
4.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
5.	In the past four weeks, did you or any household members have to eat a smaller meal than you felt you needed because there was not enough food?	0=No (skip to Q6) 1=Yes	....
5.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
6.	In the past four weeks, did you or any household members have to eat fewer meals in a day because there was not enough food?	0=No (skip to Q7) 1=Yes	....
6.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
7.	In the past four weeks, was there ever no	0=No (skip to Q8)	.....

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	food to eat of any kind in your household because of lack of resources to get food?	1=Yes	.....
7.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
8.	In the past four weeks, did you or any household members go to sleep at night hungry because there was not enough food?	0=No (skip to Q9) 1=Yes	....
8.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....
9.	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?	0=No (questionnaire is finished) 1=Yes	....
9.a	How often did this happen?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	....

Food and Nutrition Technical Assistance II Project (FANTA-2). 2010 Validation of a Measure of Household Hunger for Cross-Cultural Use. Pp14-16.

E. FOOD UTILISATION AND DIVERSITY QUESTIONNAIRE

Please describe the foods (meals and snacks) that you ate yesterday during the day and night, whether at home or outside the home. Start with the first food eaten in the morning. Write down all food and drinks mentioned by the respondent. When the respondent has finished probe for meals and snacks not mentioned.

Breakfast	Snack	Lunch	Snack	Dinner	Snack

[Household level: consider foods eaten by any member of the household, and exclude foods purchased and eaten outside of the home]

When the respondent recall is complete fill in the food groups based on the information recorded above. For any food groups not mentioned, ask the respondent if food item from this group was consumed.

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- Probe for snacks eaten between meals
- Probe for foods to be given to children or lactating/pregrant women
- Probe for added foods such as sugar in tea, oil in mixed dishes or fried foods.

If mixed dish was eaten, ask about and underline all the ingredients of the dish

Question number	Food group	Examples (**CIRCLE THE FOOD CONSUMED**)	YES=1 NO=0
1	CEREALS	Corn/maize, rice, wheat, sorghum, millet or any other grains or foods made from these (e.g. bread, noodles, porridge, oats)	
2	VITAMIN A RICH VEGETABLES AND TUBERS	Pumpkin, carrots, squash orange sweet potatoes, red sweet peppers	
3	WHITE TUBERS AND ROOTS	White potatoes, white cassava, white yams	
4	DARK GREEN LEAFY VEGETABLES	Including wild ones e.g. amaranth, cleome, spinach, cassava leaves, kale, green peppers, lattice etc.	
5	OTHER VEGETABLES	Cabbage, cauliflower, tomato, onion, eggplant including wild vegetables	
6	VITAMIN A RICH FRUITS	Mangoes, apricots (fresh or dried)papaya, dried peaches or any locally available fruit	
7	OTHER FRUITS	Other fruits apples, bananas, guavas, pears, grapes, pineapples, figs, marula,	
8	ORGAN MEAT (IRON RICH)	Liver, kidney, heart, mala-offal, other organ meet or blood based foods.	
9	FLESH-MEATS	Beef, pork, lamb, goat, rabbit, wild game, chicken, duck or other birds	
10	EGGS	Chicken, duck, guinea hen	
11	FISH	Tinned, fresh, dried or shellfish	
12	LEGUMES, NUTS AND SEEDS	Beans, peas, lentils, nuts, seeds, or food made from these.	
13	MILK AND MILK PRODUCTS	Milk, cheese, yogurt or other milk products	
14	OILS AND FATS	Oil, fats or butter added to food or used in cooking	
15	SWEETS	Sugar, honey, sweetened soda or sugary foods such as chocolates, candies, cookies and cakes.	
16	SPICES, CONDIMENTS, BEVERAGES	Spices (black or red pepper, salt) condiments (soy sauce, hot sauce, tomato sauce, atchar, mayonnaise,) coffee, tea (black, green or herbal), alcoholic beverages such as marula	

FAO/ Nutrition and Consumer Protection Division, version of February, 2007:4-5.

F. COPING STRATEGIES

1 Who make decisions for household food purchases?.....
.....
.....

2 Can you explain to me what you do when you have no food or money to buy food in the household?

1 Rely on less preferred and less expensive foods and less expensive foods ☐

2 Borrow food or money to buy food ☐

3 Purchase food on credit from the shops ☐

4Rely on help from relatives, friends outside the household ☐

5 Limit your own intake to ensure that children get enough. ☐

6Reduce number of meals eaten in a day ☐

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7Skip the whole day without eating ☐
8 Depending on government grants for purchasing food ☐

9 Others (specify).....

10 Not applicable .....

3 Can you tell me the type of support which is available in the community when you have no food or money to buy food?
.....
.....

4. Can you explain to me as to how decisions are made on food distribution when there is limited food in the household?
.....
.....

G. COMMUNITY PROJECTS AND THEIR CONTRIBUTION TO HOUSEHOLD FOOD SECURITY

.

1. How many community projects are found in your village?
   .....
2. What type of projects.....
   .....and who initiated them.....
3. Who are involved in each project: men ☐ women ☐ both ☐
   .....
   .....
   .....How many members per project? .....
   .....
4. When/ how long were the projects formulated? ..... And who funded them
   .....
5. Can the individuals' access food from the projects Yes ☐ or No ☐
6. If yes, what type of foods.....
   .....
7. Can the individuals sell products produces to buy foods Yes ☐ or No ☐

   If yes what type of food .....
8. Estimate the total earnings for an individual per day ☐ week ☐ months ☐

   .....
   .....

12 Can the projects help the households to sustain their livelihoods? Yes ☐ No ☐

9. If Yes how .....
10. If No what can you do to ensure that the projects provide sustainable livelihoods
    .....
11. Can the project contribute to food security? Yes ☐ No ☐
12. If Yes, how .....
13. If No, what can you do to ensure that the projects provide food security?
    .....
14. How can the projects help projects members to access food?
    .....

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15. Are you a member of these projects? YES ☐ NO ☐
16. If yes, what are your reasons for joining the project?
    .....
17. If no, what are your reasons for not joining the projects?
    .....
    .....

Thank you for taking part in my study.

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APPENDIX B: CODING SHEET FOR QUESTIONNAIRE OF STUDY

V1= Interview schedule number

V2= Date

V3= Name of village/ location/ plot

V4= Municipality

V5= Name of the participant

V6= Position in the household

a. = Mother

b. = Father

c. = Grand parent

d. = Child

e. = Any other household relative

V7 . Total numbers of household member

V8. Gender

a. = Male

b. = Female

V9. Age at last birthday

a= below 20 years

b= 20- 29 years

c= 30-39 years

d= 40-49 years

e= 50-59 years

f= above 60 years

V10. Educational level

a = none formal schooling

b= primary education

c= secondary education

d= high school education

e= tertiary education diploma

f= tertiary education degree and above

V11. Occupation (livelihood activities)

a= Full time farmer

b= Part time farmer

c= Indigenous food gathering

d= Remittance

e= Not applicable

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V12. If you are a part-time farmer how often do you visit you farming area for farming purposes?

a= Seasonally
b= Monthly
c= Weekly
d= Daily
e= Not applicable

V13. Do you have a vegetable garden?

a= Yes
b= No

V14. If Yes, what kind of vegetables do you plant?

a= cabbage
b=beetroots
c=carrots
d=onions
e= tomatoes
f= spinach
g= indigenous crops and vegetables

V15. If you depend on remittances for your livelihood, what is your monthly remittance?

a= Below R200.00
b=Between R200.00 to R700.00
c= Between R700.00 to R1000.00
d= Above R1000.00
e= Not applicable

V16. If you depend on pension grant/ child support grant what is your monthly grant?

a= Below R200.00
b= Between R200.00 to R700.00
c= Between R700.00 to R1000.00
d= Above R1000.00
e= Not applicable

B. SOCIOECONOMIC INFORMATION

V17. Employment status

a= Working full time
b= Working part time
c= Casual/ piece jobs
d= Unemployed
e= Housewife taking care of the home
f= Pensioner
g= Student

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V18. Are there any other sources of income?

a= YES
b= NO

C. AVAILABILITY OF FOOD AT HOUSEHOLD LEVEL

V19. My food runs out before I get money to buy more

a= never
b= sometimes
c= half the time
d= often
e= always

V20. I do not know where the next day's food is going to come from

a= never
b= sometimes
c= half the time
d= often
e= always

V21. The food that I buy is not enough to feed my family

a= never
b= sometimes
c= half the time
d= often
e= always

V22. I am often hungry

a= never
b= sometimes
c= half the time
d= often
e= always

V23. I eat less than I think I should

a= never
b= sometimes
c= half the time
d= often
e= always

V24. I don't have enough money for food

a= never
b= sometimes
c= half the time
d= often
e= always

V25. I cannot afford to feed my children

a= never
b= sometimes
c= half the time
d= often
e= always

V26. My children are not getting enough food to eat

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a= never
b= sometimes
c= half the time
d= often
e= always

V27. My children go to bed feeling hungry

a= never
b= sometimes
c= half the time
d= often
e= always

V28. I have enough food to last until I get money to buy more

a= never
b= sometimes
c= half the time
d= often
e= always

V29. I know where tomorrow's food is going to come from

a= never
b= sometimes
c= half the time
d= often
e= always

V30. I can afford to eat enough everyday

a= never
b= sometimes
c= half the time
d= often
e= always

V31. I have enough money for food

a= never
b= sometimes
c= half the time
d= often
e= always

V32. I go to bed feeling hungry

a= never
b= sometimes
c= half the time
d= often
e= always

V33. I still have food in the house the day before someone gets paid

a= never
b= sometimes
c= half the time
d= often
e= always

E. FOOD ACCESS SCALE

V34. In the past four weeks, did you worry that your household would not have enough food?

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a = No (if no skip to V35)
b= Yes

V35. How often did you worry that your household would not have enough food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V36 In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of lack of resources?

a= No (skip to V37)
b= Yes

V37. How often did you or any household member not able to eat the kinds of foods you preferred because of lack of resources?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V38. In the past four weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?

a= No (Skip to V39)
b=Yes

V39.. How often did you or any household members have to eat a limited variety of foods due to lack of resources?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V40. In the past four weeks, did you or any household member have to eat some foods that really did not want to eat because of lack of resources to obtain other type of foods?

a= No (Skip to V41)
b=Yes

V41. How often did you or any household members have to eat some foods that really did not want to eat because of lack of resources to obtain other type of foods?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V42. In the past four weeks, did you or any household members have to eat a smaller meal than you felt you needed because there was not enough food?

a= No (skip to V42)
b= Yes

V43. How often did you or any household members have to eat a smaller meal than you felt you needed because there was not enough food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V44. In the past four weeks, did you or any household members have to eat fewer meals in a day because there was not enough food?

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a= No (skip to V44)
b= Yes

V45. How often did you or any household members have to eat fewer meals in a day because there was not enough food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V46. 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?

a= No (skip to V46)
b= Yes

V47. How often was there ever no food to eat of any kind in your household because of lack of resources to get food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V48. In the past four weeks, did you or any household members go to sleep at night hungry because there was not enough food?

a= No (skip to V48)
b= Yes

V49 How often did you or any household members go to sleep at night hungry because there was not enough food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

V50. 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?

a= No (skip to V50)
b= Yes

V51. How often did you or any household members go a whole day and night without eating anything because there was not enough food?

a= Rarely (once or twice in the past four weeks)
b= Sometimes (three to ten times in the past four weeks)
c= Often (more than ten times in the past four weeks)

F. FOOD UTILISATION AND DIVERSITY

V52. What kinds of cereals do you normally consume?

a=corn/ maize
b= rice
c=wheat
d= sorghum porridge
e= maize porridge
f=bread (brown)
g=bread white
h= sephaphatha
i=noodles
j =oats

V53. what kinds of vitamin A rich vegetables and tubers do you normally consume?

a= pumpkin
b= butter nuts

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c= carrots
d= squash
e= orange sweet potatoes
f= red sweet peppers

V54. What kinds of white tubers and roots do you normally consume?
a= white potatoes
b= white cassava
c= white yams

V55. What kinds of dark green leafy vegetables do you normally consume?
a= amaranth (wild)
b= cleome (wild)
c= spinach
d= Chinese spinach / tanapose
e= cassava leaves
f= kale
g= green pepper
h=lattice

V56. What kinds of other vegetables do you normally consume?
a= cabbage
b= cauliflower
c= tomato
c= onion
d= eggplant
e= beetroot
f= wild vegetables

V57. What kinds of vitamin A rich fruits do you consume?
a= mangoes
b= apricots (fresh or dried)
c= papaya
d= peaches (fresh or dried)
e= oranges

V58. What kinds of other fruits do you consume?
a= apples
b= bananas
c= guavas
d= pears
e= grapes
f= pineapples
g= figs
h=avocado
i= marula
j= any wild fruits

V59. What kinds of organ meat do you normally consume?
a= liver
b= kidney
c=heart
d= mala-offal,
e= other organ meet or blood based foods.

V60. What kinds of flesh-meats do you normally consume?
a= beef
b= pork
c= lamb
d= goat
e= rabbit
f= wild game
g=chicken
h= duck
i=other birds

V61. What kinds of eggs do you normally consume?

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a= chicken
b= duck
c= guinea hen
d= wild birds

V62. What kinds of fish do you normally consume?
a= tinned fish
b= fresh fish
c= dried fish
d= shell fish

V63. What kinds of legumes, nuts and seeds do you normally consume?
a= beans
b= peas
c= lentils
d= nuts
e= peanuts butter
f =seeds

V64. What kinds of milk and milk products do you normally consume?
a= milk
b= cheese
c= yogurt
d=other milk products

V65. What kinds of oils and fats do you normally use?
a=cooking oil (i.e. sunflower)
b= animal fats
c= margarine
d=butter
e= olive oil

V66. What kind of sweets and sweeteners do you normally use?
a= sugar
b= honey
c= sweetened soda (cold drinks)
d= sweeteners
e=juices
f=chocolates
g= candies
h= cookies
i= cakes

V67 What kinds of spices, condiments and beverages do you consume
a= spices (black or red pepper)
b= salt
c= soy sauce
d= hot sauce
e= tomato sauce
f= achar
g= mayonnaise
h= coffee
i= tea (black, green or herbal)
j= alcoholic beverages (i.e. marula)

G. COPING STRATEGIES

V68 Can you explain to me what you do when you have no food cr money to buy food in the household.

a= Rely on less preferred and less expensive foods
b= Borrow food or money to buy foods

c= Purchase foods on credit

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d=Rely on help from relatives, friends outside the household

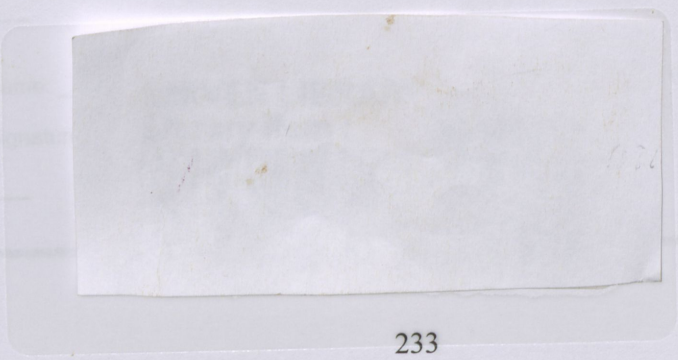
e= Limit your own intake to ensure that children get enough

f=Reduce number of meals eaten in a day

g=Skip the whole day without eating

h=Others (specify)

i=Not applicable



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APPENDIX C: INFORMED CONSENT FORM

PROJECT TITLE: Patterns of Household-level Availability, Accessibility and Utilisation of Food in Some Rural Areas of Food of Sekhukhune district in South Africa

Primary investigator: Mrs M.R. Masekoameng, PhD (Rural Development) student at the University of Venda, Thohoyandou.

Study leader: Professor L.L. Maliwichi, Co-study leader, Professor S.A. Oni

The above mentioned study will be conducted by Mosima Masekoameng, a PhD student at the University of Venda rural development programme. The study aims to investigate food security and its three pillars namely accessibility, availability and utilisation patterns. I want to find out from you how foods are accessed, how available they are and how they are utilised at household level. I want to investigate food accessing strategies, identify food availability and utilisation patterns. I would like to document the current coping strategies in instances of food insecurity. I want to investigate the current development projects` role in community development and whether the projects ensure household food security.

The results of my study will be used to write a PhD thesis. This report will be presented to various stakeholders interested in food security issues including Local Government in Sekhukhune District; The Limpopo Department of Agriculture, and the National Departments of Agriculture and of Land Affairs and Rural Development. Through this report readers will obtain a picture of the situation of food security issues in Sekhukhune District and how people access, utilise food and cope in instances of food insecurity. The overall aim is to propose intervention strategies towards ensuring household food security.

I (name)..... hereby give my permission to participate in the study.
I understand that
* My participation is voluntary, if I choose not to participate or withdraw from the study at anytime, there will be no penalty.
* The questionnaire will be administered to me by an interviewer in my native language (Sepedi)
* The questionnaire will be asked once
* The amount of time to finish answering the questionnaire will be 30 minutes.
* Answers given by myself will be kept confidential to research staff and my identity will remain anonymous in the analysis of the study.
* The results of the study will be published and my name will not be used.
My participation in the study will generate information that will contribute to food security issues and interventions in Sekhukhune district.

CONSENT

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information. I am aware that the results of the study will be anonymously processed into a research report. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Research participant's name: _____ (Please print)

Research participant's signature: _____
Date: _____

Researcher's name: _____ (Please print)

Researcher's signature: _____

Date: _____

VERBAL CONSENT

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(Applicable when participants cannot read or write)

I hereby declare that I have read and explained the contents of the information sheet to the research participant. The nature and purpose of the study were explained, as well as the possible risks and benefits of the study. The research participant has clearly indicated that he/she will be free to withdraw from the study at any time for any reason and without jeopardizing his/her relationship with the research team.

I hereby certify that the research participant has verbally agreed to participate in this study.

Research participant's name: _____ (Please print)

Researcher's name: _____ (Please print)
Researcher's signature: _____Date _____

APPENDIX D: PROBE QUESTIONNAIRE FOR FOCUS GROUP DISCUSSIONS

NAME OF THE VILLAGE.....TOTAL PARTICIPANTS.....

A. EXTERNAL ENVIRONMENTAL FACTORS AND HOW THEY AFFECT FOOD AVAILABILITY AND ACCESS

1. Natural and physical environment of the village
2. Technology and economic environment
   * Food production
   * Transportation
   * Community water supply
   * Economic environment
3. Sociocultural environment
4. The educational system

B. INTERNAL ENVIRONMENTAL FACTORS AND HOW THEY AFFECT FOOD ACCESS AND UTILISATION

1. Knowledge about food
2. Traditional beliefs and practices about food (i.e. food avoidances)
3. Attitudes about food
4. Values about food
5. Social norms regarding food

C. FOOD UTILISATION AND CONSUMPTION DECISIONS

1. Food supply and acquisition decisions
2. Food storage and preparation
   Cereal
   Vegetables
   Legumes
   Meat
3. Food preparation facilities, utensils used to prepare food
4. Food sharing

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APPENDIX E: ETHICAL CLEARANCE FORM

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

PROVISIONAL

NAME OF RESEARCHER/INVESTIGATOR: MASEKOAMENG M.R.

PROJECT TITLE: *PATTERNS OF HOUSEHOLD-LEVEL ACCESSIBILITY, AVAILABILITY AND UTILIZATION OF FOOD IN SOME RURAL AREAS OF SEKHUKHUNE DISTRICT IN SOUTH AFRICA.*

PROJECT NO: SHS/11/PH/006

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof. L.L. Maliwichi	University of Venda, Family Ecology	Supervisor
Prof. S.A. Oni	University of Venda, Agricultural Economics	Co-supervisor
M.R. Masekoameng	University of Venda, Centre for Rural Development & Poverty Alleviation	Student

ISSUED BY:
UNIVERSITY OF VENDA, HEALTH, SAFETY AND RESEARCH ETHICS COMMITTEE

Date Considered: 25 May 2011
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. C.V. Nikodem

NB: A provisional certificate is offered until such time the principal investigator(s) submits the corrected versions of their proposal(s).

UNIVERSITY OF VENDA
PRIVATE BAG X5050, THOHOYANDOU, 0950λ LIMPOPO PROVINCEλ SOUTH AFRICA
TELEPHONE (015) 962 8504/8484 /8313 FAX (015) 962 8439

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PPENDIX F: RESULTS FROM CROSS-TAB ANALYSES

. use c:\mosima.dta, clear

. for var fsize2 gender agecat2 educ2 occupation2 veg1 remittance2 pension2 employment2 notenough2 eatless2 notafford2 nofood2 worry1 kfood1 lack1 small1 food1 cheap borrow credit help limit reduce skip: tab2 security2 X, cell exp chi2

```
-> tab2 security2 fsize2, cell exp chi2

-> tabulation of security2 by fsize2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |        fsize2
 security2 | 5 or less  More th.. |     Total
-----------+----------------------+----------
  Adequate |        37         67 |       104
           |      43.9       60.1 |     104.0
           |      6.15      11.13 |     17.28
-----------+----------------------+----------
Inadequate |       217        281 |       498
           |     210.1      287.9 |     498.0
           |     36.05      46.68 |     82.72
-----------+----------------------+----------
     Total |       254        348 |       602
           |     254.0      348.0 |     602.0
           |     42.19      57.81 |    100.00

          Pearson chi2(1) =   2.2560   Pr = 0.133

-> tab2 security2 gender, cell exp chi2

-> tabulation of security2 by gender

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |        gender
 security2 |    Female       Male |     Total
-----------+----------------------+----------
  Adequate |        85         19 |       104
           |      86.4       17.6 |     104.0
           |     14.12       3.16 |     17.28
-----------+----------------------+----------
Inadequate |       415         83 |       498
           |     413.6       84.4 |     498.0
           |     68.94      13.79 |     82.72
-----------+----------------------+----------
     Total |       500        102 |       602
           |     500.0      102.0 |     602.0
           |     83.06      16.94 |    100.00

          Pearson chi2(1) =   0.1570   Pr = 0.692

-> tab2 security2 agecat2, cell exp chi2

-> tabulation of security2 by agecat2

+--------------------+
```


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```
| Key                 |
|---------------------|
|     frequency       |
| expected frequency  |
|  cell percentage    |
+---------------------+

           |          agecat2
 security2 | 40 or m..   Below 40 |     Total
-----------+----------------------+----------
  Adequate |        68         36 |       104
           |      69.6       34.4 |     104.0
           |     11.30       5.98 |     17.28
-----------+----------------------+----------
Inadequate |       335        163 |       498
           |     333.4      164.6 |     498.0
           |     55.65      27.08 |     82.72
-----------+----------------------+----------
     Total |       403        199 |       602
           |     403.0      199.0 |     602.0
           |     66.94      33.06 |    100.00

          Pearson chi2(1) =   0.1381   Pr = 0.710

->  tab2 security2 educ2, cell exp chi2

-> tabulation of security2 by educ2

+---------------------+
| Key                 |
|---------------------|
|     frequency       |
| expected frequency  |
|  cell percentage    |
+---------------------+

           |          educ2
 security2 | Primary..  Seconda..  |     Total
-----------+-----------------------+----------
  Adequate |        42         62  |       104
           |      54.9       49.1  |     104.0
           |      6.98      10.30  |     17.28
-----------+-----------------------+----------
Inadequate |       276        222  |       498
           |     263.1      234.9  |     498.0
           |     45.85      36.88  |     82.72
-----------+-----------------------+----------
     Total |       318        284  |       602
           |     318.0      284.0  |     602.0
           |     52.82      47.18  |    100.00

          Pearson chi2(1) =   7.8062   Pr = 0.005

->  tab2 security2 occupation2, cell exp chi2

-> tabulation of security2 by occupation2

+---------------------+
| Key                 |
|---------------------|
|     frequency       |
| expected frequency  |
|  cell percentage    |
+---------------------+

           |       occupation2
 security2 |   Farmer   Not a f..  |     Total
-----------+-----------------------+----------
  Adequate |        50         54  |       104
           |      27.8       76.2  |     104.0
           |      8.31       8.97  |     17.28
-----------+-----------------------+----------
Inadequate |       111        387  |       498
           |     133.2      364.8  |     498.0
           |     18.44      64.29  |     82.72
-----------+-----------------------+----------
     Total |       161        441  |       602
```


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```
           |      161.0       441.0 |      602.0
           |      26.74       73.26 |     100.00

          Pearson chi2(1) =  29.2026   Pr = 0.000


-> tab2 security2 veg1, cell exp chi2

-> tabulation of security2 by veg1

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |         veg1
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        65         39 |       104
           |      69.8       34.2 |     104.0
           |     10.80       6.48 |     17.28
-----------+----------------------+----------
Inadequate |       339        159 |       498
           |     334.2      163.8 |     498.0
           |     56.31      26.41 |     82.72
-----------+----------------------+----------
     Total |       404        198 |       602
           |     404.0      198.0 |     602.0
           |     67.11      32.89 |    100.00

          Pearson chi2(1) =   1.2103   Pr = 0.271

-> tab2 security2 remittance2, cell exp chi2

-> tabulation of security2 by remittance2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |           remittance2
 security2 | Above R..         NA  R1000 o.. |     Total
-----------+---------------------------------+----------
  Adequate |        56         15         33 |       104
           |      21.6       33.7       48.7 |     104.0
           |      9.30       2.49       5.48 |     17.28
-----------+---------------------------------+----------
Inadequate |        69        180        249 |       498
           |     103.4      161.3      233.3 |     498.0
           |     11.46      29.90      41.36 |     82.72
-----------+---------------------------------+----------
     Total |       125        195        282 |       602
           |     125.0      195.0      282.0 |     602.0
           |     20.76      32.39      46.84 |    100.00

          Pearson chi2(2) =  84.9246   Pr = 0.000


-> tab2 security2 pension2, cell exp chi2

-> tabulation of security2 by pension2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+
```


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security2	pension2 Above R..	NA	R1000 o..	Total
Adequate	64	19	21	104
	54.6	19.5	29.9	104.0
	10.63	3.16	3.49	17.28
Inadequate	252	94	152	498
	261.4	93.5	143.1	498.0
	41.86	15.61	25.25	82.72
Total	316	113	173	602
	316.0	113.0	173.0	602.0
	52.49	18.77	28.74	100.00

Pearson chi2(2) = 5.1715 Pr = 0.075

-> tab2 security2 employment2, cell exp chi2

-> tabulation of security2 by employment2

Key
frequency
expected frequency
cell percentage

security2	employment2 Employed	Unemplo..	Total
Adequate	69	35	104
	49.9	54.1	104.0
	11.46	5.81	17.28
Inadequate	220	278	498
	239.1	258.9	498.0
	36.54	46.18	82.72
Total	289	313	602
	289.0	313.0	602.0
	48.01	51.99	100.00

Pearson chi2(1) = 16.9405 Pr = 0.000

-> tab2 security2 notenough2, cell exp chi2

-> tabulation of security2 by notenough2

Key
frequency
expected frequency
cell percentage

security2	notenough2 No	Yes	Total
Adequate	78	26	104
	17.3	86.7	104.0
	12.96	4.32	17.28
Inadequate	22	476	498
	82.7	415.3	498.0
	3.65	79.07	82.72
Total	100	502	602
	100.0	502.0	602.0
	16.61	83.39	100.00

Pearson chi2(1) = 309.4193 Pr = 0.000

-> tab2 security2 eatless2, cell exp chi2

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```
-> tabulation of security2 by eatless2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |      eatless2
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        71         33 |       104
           |      24.2       79.8 |     104.0
           |     11.79       5.48 |     17.28
-----------+----------------------+----------
Inadequate |        69        429 |       498
           |     115.8      382.2 |     498.0
           |     11.46      71.26 |     82.72
-----------+----------------------+----------
     Total |       140        462 |       602
           |     140.0      462.0 |     602.0
           |     23.26      76.74 |    100.00

          Pearson chi2(1) = 142.7274   Pr = 0.000

->  tab2 security2 notafford2, cell exp chi2

-> tabulation of security2 by notafford2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |     notafford2
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        80         24 |       104
           |      30.9       73.1 |     104.0
           |     13.29       3.99 |     17.28
-----------+----------------------+----------
Inadequate |        99        399 |       498
           |     148.1      349.9 |     498.0
           |     16.45      66.28 |     82.72
-----------+----------------------+----------
     Total |       179        423 |       602
           |     179.0      423.0 |     602.0
           |     29.73      70.27 |    100.00

          Pearson chi2(1) = 133.9920   Pr = 0.000

->  tab2 security2 nofood2, cell exp chi2

-> tabulation of security2 by nofood2

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |      nofood2
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        80         24 |       104
           |      33.5       70.5 |     104.0
           |     13.29       3.99 |     17.28
-----------+----------------------+----------
Inadequate |       114        384 |       498
           |     160.5      337.5 |     498.0
```


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```
           |      18.94       63.79 |      82.72
-----------+----------------------+-----------
     Total |       194        408 |       602
           |     194.0      408.0 |     602.0
           |     32.23      67.77 |    100.00

          Pearson chi2(1) = 114.9983   Pr = 0.000

-> tab2 security2 worry1, cell exp chi2

-> tabulation of security2 by worry1

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |      worry1
 security2 |        No          Yes |     Total
-----------+----------------------+-----------
  Adequate |        51           53 |       104
           |      26.3         77.7 |     104.0
           |      8.47         8.80 |     17.28
-----------+----------------------+-----------
Inadequate |       101          397 |       498
           |     125.7        372.3 |     498.0
           |     16.78        65.95 |     82.72
-----------+----------------------+-----------
     Total |       152          450 |       602
           |     152.0        450.0 |     602.0
           |     25.25        74.75 |    100.00

          Pearson chi2(1) =  37.6964   Pr = 0.000

-> tab2 security2 kfood1, cell exp chi2

-> tabulation of security2 by kfood1

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |      kfood1
 security2 |        No          Yes |     Total
-----------+----------------------+-----------
  Adequate |        50           54 |       104
           |      19.9         84.1 |     104.0
           |      8.31         8.97 |     17.28
-----------+----------------------+-----------
Inadequate |        65          433 |       498
           |     95.1        402.9 |     498.0
           |     10.80        71.93 |     82.72
-----------+----------------------+-----------
     Total |       115          487 |       602
           |     115.0        487.0 |     602.0
           |     19.10        80.90 |    100.00

          Pearson chi2(1) =  68.2938   Pr = 0.000

-> tab2 security2 lack1, cell exp chi2

-> tabulation of security2 by lack1

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+
```


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security2	lack1 No	Yes	Total
Adequate	46	58	104
	15.9	88.1	104.0
	7.64	9.63	17.28
Inadequate	46	452	498
	76.1	421.9	498.0
	7.64	75.08	82.72
Total	92	510	602
	92.0	510.0	602.0
	15.28	84.72	100.00

Pearson chi2(1) = 81.3737 Pr = 0.000

-> tab2 security2 small1, cell exp chi2

-> tabulation of security2 by small1

Key
frequency
expected frequency
cell percentage

security2	small1 No	Yes	Total
Adequate	42	62	104
	18.5	85.5	104.0
	6.98	10.30	17.28
Inadequate	65	433	498
	88.5	409.5	498.0
	10.80	71.93	82.72
Total	107	495	602
	107.0	495.0	602.0
	17.77	82.23	100.00

Pearson chi2(1) = 43.9770 Pr = 0.000

-> tab2 security2 food1, cell exp chi2

-> tabulation of security2 by food1

Key
frequency
expected frequency
cell percentage

security2	food1 No	Yes	Total
Adequate	91	13	104
	69.3	34.7	104.0
	15.12	2.16	17.28
Inadequate	310	188	498
	331.7	166.3	498.0
	51.50	31.23	82.72
Total	401	201	602
	401.0	201.0	602.0
	66.61	33.39	100.00

Pearson chi2(1) = 24.6647 Pr = 0.000

-> tab2 security2 cheap, cell exp chi2

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```
-> tabulation of security2 by cheap

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |        cheap
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        11         93 |       104
           |       8.5       95.5 |     104.0
           |      1.83      15.45 |     17.28
-----------+----------------------+----------
Inadequate |        38        460 |       498
           |      40.5      457.5 |     498.0
           |      6.31      76.41 |     82.72
-----------+----------------------+----------
     Total |        49        553 |       602
           |      49.0      553.0 |     602.0
           |      8.14      91.86 |    100.00

          Pearson chi2(1) =   0.9989   Pr = 0.318

->  tab2 security2 borrow, cell exp chi2

-> tabulation of security2 by borrow

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |       borrow
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        64         40 |       104
           |      45.1       58.9 |     104.0
           |     10.63       6.64 |     17.28
-----------+----------------------+----------
Inadequate |       197        301 |       498
           |     215.9      282.1 |     498.0
           |     32.72      50.00 |     82.72
-----------+----------------------+----------
     Total |       261        341 |       602
           |     261.0      341.0 |     602.0
           |     43.36      56.64 |    100.00

          Pearson chi2(1) =  16.9250   Pr = 0.000

->  tab2 security2 credit, cell exp chi2

-> tabulation of security2 by credit

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |       credit
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        55         49 |       104
           |      44.4       59.6 |     104.0
           |      9.14       8.14 |     17.28
-----------+----------------------+----------
Inadequate |       202        296 |       498
```


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```
           |      212.6       285.4 |      498.0
           |      33.55       49.17 |      82.72
-----------+----------------------+----------
     Total |       257         345 |       602
           |      257.0       345.0 |      602.0
           |      42.69       57.31 |     100.00

          Pearson chi2(1) =   5.3394   Pr = 0.021

->  tab2 security2 help, cell exp chi2

-> tabulation of security2 by help

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |         help
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        62         42 |       104
           |      56.0       48.0 |     104.0
           |     10.30       6.98 |     17.28
-----------+----------------------+----------
Inadequate |       262        236 |       498
           |     268.0      230.0 |     498.0
           |     43.52      39.20 |     82.72
-----------+----------------------+----------
     Total |       324        278 |       602
           |     324.0      278.0 |     602.0
           |     53.82      46.18 |    100.00

          Pearson chi2(1) =   1.6986   Pr = 0.192

->  tab2 security2 limit, cell exp chi2

-> tabulation of security2 by limit

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |         limit
 security2 |        No        Yes |     Total
-----------+----------------------+----------
  Adequate |        49         55 |       104
           |      51.8       52.2 |     104.0
           |      8.14       9.14 |     17.28
-----------+----------------------+----------
Inadequate |       251        247 |       498
           |     248.2      249.8 |     498.0
           |     41.69      41.03 |     82.72
-----------+----------------------+----------
     Total |       300        302 |       602
           |     300.0      302.0 |     602.0
           |     49.83      50.17 |    100.00

          Pearson chi2(1) =   0.3716   Pr = 0.542

->  tab2 security2 reduce, cell exp chi2

-> tabulation of security2 by reduce

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
```


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+--------------------+

           |        reduce
 security2 |        No         Yes |      Total
-----------+----------------------+----------
  Adequate |        30          74 |        104
           |      21.8        82.2 |      104.0
           |      4.98       12.29 |      17.28
-----------+----------------------+----------
Inadequate |        96         402 |        498
           |     104.2       393.8 |      498.0
           |     15.95       66.78 |      82.72
-----------+----------------------+----------
     Total |       126         476 |        602
           |     126.0       476.0 |      602.0
           |     20.93       79.07 |     100.00

          Pearson chi2(1) =   4.7601   Pr = 0.029

->  tab2 security2 skip, cell exp chi2

-> tabulation of security2 by skip

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| expected frequency |
|  cell percentage   |
+--------------------+

           |         skip
 security2 |        No         Yes |      Total
-----------+----------------------+----------
  Adequate |        92          12 |        104
           |      74.5        29.5 |      104.0
           |     15.28        1.99 |      17.28
-----------+----------------------+----------
Inadequate |       339         159 |        498
           |     356.5       141.5 |      498.0
           |     56.31       26.41 |      82.72
-----------+----------------------+----------
     Total |       431         171 |        602
           |     431.0       171.0 |      602.0
           |     71.59       28.41 |     100.00

          Pearson chi2(1) =  17.5869   Pr = 0.000
```

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