

**Exploring perceptions of female food
entrepreneurs in a rural community in South
Africa**

HB Hobe



orcid.org/0000-0002-6548-4638

Mini-dissertation accepted in partial fulfilment of the
requirements for the degree *Master in Business
Administration* at the North-West University

Supervisor: Dr JJ Viljoen

Graduation: August 2021

Student number: 24138797

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the Lord Almighty for giving me the strength to pursue this dream. It was not an easy road, but His grace remained sufficient.

I dedicate this piece of work to my parents. To my late father, **Mr Charles Mangaliso Hobe**, your passion for learning and your fighting spirit inspired me to take this journey. My mother, **Mrs Anne Hobe**, thank you for standing by me since day one. You supported me in every way that you could, without expecting anything in return and always having my well-being at heart. I will always be thankful to you for this.

To my husband **Nkateko Rikhotso**, and my daughter, **Nikiwe Naledi**, who have always supported me in this journey and who believed in me, encouraged me and reminded me of my strengths. Thank you for your love, patience, your encouraging words and wisdom in this journey. You have been an important part of my journey and I thank you for this.

Gigi, Nhlanhla, Mantombi, Phillip, your love keeps me going. Thank you for always believing in me. My deepest and sincere appreciation for your encouragement, guidance, advice and support.

My leadership coach, **Mr Callen Maketshemu**, thank you for your guidance, coaching, and holding my hand when I felt like giving up. Thank you for seeing potential in me and for your continuous words of encouragement.

Dr Jos Viljoen, I will always be grateful to you for your continued support, encouragement, guidance and active interest my research. You challenged my thinking which enabled me to grow intellectually. Thank you.

Finally, I would like to thank the participants of this study, whose contribution added a significant value to this research.

ABSTRACT

The study investigated the perceptions of female food entrepreneurs on climate related opportunities and challenges in a rural community in South Africa. Female food entrepreneurs make important contributions to the economy of the country and yet today very little research interest is directed on understanding these important entrepreneurs particularly in a climate change affected rural settings. A qualitative study, utilising semi-structured interviews which were telephonically administered on eight participants residing in Ganyesa rural area in South Africa, was employed to help close the information gap. Participants were selected using non probability sampling methods: purposive and snowball sampling techniques.

The study found that there are major climate-related challenges affecting rural women and households. Understanding and awareness of these climate-related challenges and how they affect livelihoods is high. However, very little understanding was exhibited that these challenges are also associated with opportunities although discussions revealed them. The food supply bottlenecks presented entrepreneurship opportunities in the transportation and retailing of food to deficit areas at the same time attracting awareness campaigns on climate change mitigation and adaptation strategies. These food supply problems exert cost pressures and food security threats which curtail the survival and thriving of the female food entrepreneurs' businesses. It is recommended that enterprise development institutions providing entrepreneurship development training and support be more visible and accessible to these female food entrepreneurs in rural areas.

Key words: Entrepreneurship, climate change, opportunities, challenges, rural and South Africa

Table of contents

ACKNOWLEDGEMENTS.....	i
Abstract.....	ii
Chapter 1 Nature and Scope of the Study	1
1 Introduction.....	1
1.1 Background	1
1.2 Problem statement	4
1.3 Purpose of the study.....	5
1.4 Research aim	6
1.4.1 Research questions.....	7
1.4.2 Research objectives	8
1.5 Outline of the dissertation.....	9
2 Introduction.....	10
2.1 Search strategies followed	10
2.2 The significance of entrepreneurship to the economy	10
2.3 Defining entrepreneurship	11
2.4 Entrepreneurship in South Africa	12
2.4.1 Female entrepreneurs in South Africa	14
2.5 Climate change and female food entrepreneurs	15
2.5 Theoretical framework.....	16
2.5.1 The impact of human activities on the environment.....	18
2.5.2 Impact of climate change on rural women’s livelihood activities.....	19
2.5.2.1 Impact of climate change on agricultural production.....	20
2.5.2.2 Impact of climate change on food security.....	20
2.5.3 Climate change and rural women’s lifestyle.....	21
2.5.4 Poverty in rural areas	22
2.5.5 Unemployment in rural areas	22
2.5.6 Rural areas and women entrepreneurship.....	23
2.6 The role of the SA government in empowering female food entrepreneurs	24
2.7 Government strategies to promote entrepreneurship in South Africa.....	24
2.7.1 National Small Business Council (NSBC)	25
2.7.2 Khula Enterprise Finance Ltd (Khula)	25
2.7.3 Ntsika Enterprise Promotion Agency	25
2.8 Conclusion.....	26
CHAPTER 3 RESEARCH METHODOLOGY.....	28

3	Introduction	28
3.1	Research design.....	28
3.2	Study area	28
3.3	Study population.....	29
3.3.1	Inclusion and exclusion criteria	29
3.4	Sampling method.....	30
3.4.1	Sample size	30
3.4.2	Recruitment strategy	30
3.5	Recruitment of female entrepreneurs.....	31
3.5.1	Data collection	31
3.6	Data analysis	32
3.7	Trustworthiness	33
3.8	Ethical considerations	33
	CHAPTER 4 RESEARCH RESULTS AND ANALYSIS	35
4.1	Introduction.....	35
4.2	Data analysis and literature integration	35
4.3	Gathering of data.....	38
4.3.1	Data collection	39
4.3.2	Sampling.....	40
4.3.3	Qualitative sampling	41
4.3.4	Data collection process	42
4.3.5	Data analysis	42
4.3.5.1	Structure and overview of themes.....	46
4.4	Overview of study participants	51
4.4.1	Entrepreneurial background.....	52
4.5	Entrepreneurship in rural South Africa	52
4.6	Food entrepreneurs' understanding of climate change.....	53
4.7	Effects of climate change on food entrepreneurs.....	54
4.8	Climate change opportunities for food entrepreneurs	55
4.8.1	Food entrepreneurs 'climate change coping strategies	56
4.8.2	Required government support.....	57
4.8.2	Discussion	58
4.9	Conclusion.....	59
	CHAPTER 5 EVALUATION, CONCLUSION AND RECOMMENDATIONS	60

5. Introduction..... 61

5.1 Purpose 62

5.2 Summary of findings in relation to the research objectives..... 56

5.3 Limitations of the study..... 58

5.4 Conclusion..... 60

5.5 Implications of the study findings 61

5.6 Summary 63

5.7 Recommendations for future research and practical applications 64

REFERENCES 65

Annexures..... 72

LIST OF TABLES

Table 4-1: Demographic characteristics of the participants 29

Table 4-2: Themes that emanated from the analysis 30

Table 5-1: How study findings align of differ with other studies 41

LIST OF FIGURES

Figure 2-1: The human ecology model 10

Figure 3-1: Map of the study areas 20

Figure 4-1: Themes that emanated from the data analysis 30

CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1 Introduction

There is an increase in the number of governmental and non-governmental initiatives to respond through adapting policy development and interventions (Lun, 2017:2; Dvouletý, 2017:286; Akinbami *et al.*, 2019:19) where there is an unbalanced impact where gender is involved in entrepreneurship, even though the pivotal part played by entrepreneurs to promote rural and professional development, and economic empowerment of women has been reported in several studies (Audretsch *et al.*, 2015:33; Galvão *et al.*, 2017:261; Huggins & Munday, 2018:5), there remains inadequate literature on the relationship between entrepreneurship, gender and climate.

This study will explore female entrepreneurs' perceived climate related opportunities and challenges in a rural community in South Africa.

1.1 Background

Climate change continues to accelerate (Pittock, 2017:2) and it has become a complex problem that cannot be reversed regardless of the mitigation strategies adopted now (Rogelj, 2016). The irreversibility of the climate problem is because there have been tremendous volumes of greenhouse gas emissions that have been emitted into the atmosphere over centuries now (Blasing, 2016). Several studies (Weller, 2016:1; Deemer, 2016:949; Althor, 2016:281) have shown that greenhouse gas emissions are associated with global warming which in turn is responsible for natural hazards like drought, floods, cyclones among others; worsening the food security situation and existence of millions mostly in rural communities (Güneralp, 2015:217; Carlson *et al.*, 2017:63; Roudier *et al.*, 2016:341). It is significantly important, therefore, to continue investing in climate change mitigation and adaptation (Akinbami *et al.*, 2019:19).

Globally climate change has had serious implications particularly for rural communities who depend on agriculture for subsistence. According to Turpie and Visser (2013:18), approximately 40% of SA's poor population lives in rural areas and to a large extent depends on natural resources for sustenance. People in South African rural communities have limited access to socio-economic opportunities and are adversely affected by climate change compared to their urban counterparts (Mastrorillo *et al.*, 2016:5). The latter is alluded to the real that climate change directly impact sectors upon which rural communities depend on, for instance, farming, sources of water, ecosystems and biodiversity (Gandure *et al.*, 2013:33; Dallas & Rivers-Moore, 2014:46). According to Ngorora and Mago, (2018), the majority of rural people in South Africa depend on entrepreneurship for survival. Masumbe (2018:54) adds that the majority of the entrepreneurs in rural South Africa are food entrepreneurs.

Studies done on climate change have shown that climate change is bound to have a significant impact on the African continent and will be one of the challenges facing future development, especially in arid and semi-arid regions (Friedman *et al.*, 2019:446; Rao *et al.*, 2019:14). The challenges are mostly driven by the results of climate change on ecological systems, livelihoods and production, (Eastin, 2018:289) and even the limited resilience and high vulnerability of regions dominated by economic hardship, food production for subsistence and the poor and highly variable capacity for natural production. It appears that the combination of high climate variability, weak infrastructure, economic hardship and low productivity will pose significant challenges, especially for Africa and rural communities (Flatø *et a.*, 2017:14). Nevertheless, Lawson *et al.* (2019:2), reported that in the face of difficult environmental and socio-economic circumstances, some rural communities in Ghana, for example, have always managed their resources and livelihoods. They have been able to establish their livelihood strategies to a large degree in a way that helps them to continuously cope with and adapt to an unpredictable climate, extreme pest attacks, evolving local, national, and global policies, and so on (Lawson *et al.*, 2019:5). The scientific consensus that climate change is taking place and will continue well into the future, regardless of the efficacy of mitigation steps, has reinforced the need to understand climate change adaptation strategies by female food entrepreneurs in the rural areas in order to guide the strategies for adaptation in the future.

Low adaptive capacity has been identified as the cause for more vulnerability to climate changes among rural women in developing countries (Jost *et al.*, 2016; Akrofi *et al.*, 2018:45). The negative effects of climate change are already being perceived and experienced by rural dwellers, particularly women, in many aspects of their livelihoods (Akinbami *et al.*, 2015:19). Thus, it is of paramount importance to empower women in rural areas to build coping strategies against the effects of climate change and with the aim to drive their enterprises to be more resilient (Ogujiuba, 2014:3).

Entrepreneurship is a dynamic aspect that covers many contexts. Descriptions of entrepreneurship in a lot of literature studies are widely nuanced illustrating ambiguity. For this study we will focus on this description:

Entrepreneurship can be defined as the process of making use of a private initiative to turn a business idea into a new venture or to expand and diversify an existing venture or company with high growth potential (Khajeheian, 2017:119).

Innovative approaches are found by entrepreneurs to capture opportunities, leverage capital and manage expertise and take planned risks to establish markets for new products, processes and services (Gubbins *et al.*, 2020:6). Although entrepreneurship can take place without external interference, there are some approaches which can be used to fast track and encourage learning, knowledge creation and build capacity to enhance outcomes. Entrepreneurship development is a related concept, which is known as the activities involved in developing entrepreneurial skills and expertise utilizing coordinated teaching and programs aimed at building institutions. (Leonidou *et al.*, 2018:22). Entrepreneurial learning is another related indispensable concept which is widely known as a process to promote the creation of expertise that will enable new business and enterprise projects to be developed and managed (Rae, 2017:8). Considering entrepreneurship as a process helps to identify the role of individuals and their competences. The expectations of individuals of their own entrepreneurship capabilities can differ greatly, the same with their willingness to take the benefit of opportunities as they arise to start a company. In general, the larger the capacity in a general population (i.e., people in a society who feel possess the expertise and experience to transform current challenges into thriving opportunities into business), the

larger the degree of and drive in activities of entrepreneurship at the early stage and the possible contribution to solving a community (Toutain *et al.*, 2017:4).

The growth of entrepreneurship in any given society is fundamental to women (Yadav& Unni, 2016:12). Women's entrepreneurial skills and drive in the informal sector is instrumental in eradicating societal problems such as adapting agricultural practices like changing to drought resistant crops and varieties, changing cultivation to more readily marketable crop and livestock varieties (Bastian *et al.*, 2018:8). Women driven enterprises mostly small businesses generate employment and income and are key to economies worldwide (Davidson, 2018).

Understanding the expectations, attitudes, knowledge and actions of rural women with regard to instigating and driving climate-related entrepreneurial activities could potentially help direct future capacity building activities, broaden the women's economic base and increase the speed at which new ventures are developed and opportunities related to climate change are exploited and challenges are mitigated. Structured or informal learning processes in accelerating jobs creation and economic growth, may be suitable for achieving the desired development (Gbadamosi, 2019:203). Entrepreneurship learning focuses on the person who intends to establish or expand a company and focuses on growth and innovation potential (Cardella *et al.*, 2020:11).

1.2 Problem statement

Climate change impact is devastating on the economy even at the national level. (Nordhaus, 2019) According to the World Bank (2018:3), the South African economy is typical of a developing one where despite various reforms made after democracy, the productive base of the economy remains weak (Asongu, 2016). Climate change is an economic threat to rural areas with the potential to reverse development gains made since attaining democracy without major investment in adaptation responses and mitigation efforts. A lot of women, however, lack the confidence to see themselves as business owners or have the courage to recognise opportunities that could benefit them even through climate change. In order to become entrepreneurs, women need to take part in entrepreneurial activities, take risks, join hands, align resources to take advantage of the opportunities found by developing products and services in the immediate environment

(Osei & Zhuang, 2020:21). Increasing the entrepreneurship of women will offer greater economic power to women, reduce poverty and increase their social status (Osei & Zhuang, 2020:22).

This study will explore South African female food entrepreneurs' perceived climate change related opportunities and challenges in a rural area setting. Adaptive capacity can enable and strengthen women in a rural setting to grow, adapt and evolve amidst the changes around them. The study carries the potential to strengthen the effectiveness of climate change response measures nationally, promoting improved economic wellbeing of South Africa.

This study will focus on researching issues faced by female food entrepreneurs' in a rural setting affected by climate changes.

1.3 Purpose of the study

To explore female food entrepreneurs' perceived climate related opportunities and challenges in a rural community in South Africa. This is because there is a paucity of literature on food entrepreneurial opportunities for women within the context of climate change. There remain inequalities between urban and rural areas in terms of access to business start-ups and other forms of support. Hence, it is unknown whether in the context of climate change, female food entrepreneurs do find business opportunities and support. This study's purpose is to help close the information gap revealing entrepreneurial opportunities in rural areas within the context of climate change as entrepreneurship is regarded as an important vehicle in economic growth and alleviating poverty.

1.4 RESEARCH OBJECTIVES

1.4.1 Primary objective

Exploring perceptions of female food entrepreneurs in a non-urban community in South Africa.

1.4.2 Research questions

- What adaptive strategies can be applied in a rural area setting aimed at female food entrepreneurship affected by climate change?
- What challenges are faced by women's food enterprises within the context of climate change?
- What opportunities are available associated with climate change challenges, for advancing food entrepreneurial development in the rural area?

1.4.3 Secondary objectives

- To explore the adaptation strategies in the rural areas, affect by changes in the climate
- To explore climate change challenges for women's food enterprises
- To explore the opportunities, associated with climate change challenges, for advancing food entrepreneurship development in the rural area.
- To provide suggestions and recommendations of a policy framework to improve South Africa's rural women involvement in climate change business activities and other risk management practices which may be beneficial.

1.5 RESEARCH METHOD

Research methodology refers to basic actions or methods used to classify, choose, process, and assess a topic's knowledge (Basias & Pollalis, 2018:91). Research methodology enables the reader to assess the overall validity and reliability of a chosen sample (Basias & Pollalis, 2018:92). Under this section a brief description of the research methodology will be provided. A detailed discussion of the methods applied to this study will be given in chapter 3.

1.5.1 Research design

This study followed a qualitative, descriptive design. The study was qualitative because the phenomena under investigation could not be quantified. A qualitative study

encompasses perceptions, characteristics and beliefs that people have regarding the circumstances in their natural environment (Kim, 2017).

An inductive approach will be followed. The research question will be answered by a collection of empirical data, which will be used to generate a hypothesis and theory.

1.5.2 Study population

The population of the study is a collection of individuals or things that meets some certain criteria for inclusion in a given scenario and in which the researcher is interested and wants to study (Adams & Lawrence, 2018). The research will be done in a rural community in the North-West Province, South Africa and include all women food entrepreneurs.

1.5.3 Sampling method

The researcher made use of purposive and snowball sampling to choose participants who meets and can be included in the set criteria. According to Seidman (2013:54), purposive sampling refers to the conscious selection of certain participants to participate in the study. Purposive sampling was used to recruit the participants from the population so as to get the most suitable subjects to participate in the study. The purposively selected participants were then asked to identify other participants for inclusion in the sample, a sampling technique known as snowball sampling (Etikan *et al.*, 2016).

1.5.4 Sample size

According to Kim *et al.* (2017), the appropriate sample size for descriptive qualitative studies is between 8 and 50 participants. A total of 8 female participants were recruited for who met the requirements of the inclusion criteria were recruited for the study. The sample size cut off was determined by attaining that point where selecting the next participant would not add new information. Saunders *et al.*, (2018:1229) recommended the idea of saturation for attaining an appropriate sample size in qualitative research. The point of saturation is a point in their analysis of data that sampling more data will not give further information linked to their study questions (Saunders *et al.*, 2018). The point of saturation was attained after including 8 participants in the sample.

1.5.5 Data collection process

With a qualitative approach, semi-structured interviews were used for data collection. (see Annexure A). Semi-structured interviews which were administered telephonically were used to collect data. All interviews were recorded to allow careful investigation at the time of data analysis. Digital records, interview transcripts and digital audio recordings are kept on computers that were protected by passwords allowing limited access to the documents. The data that was captured data was downloaded, stored and backed up on the above mentioned computers and subsequently removed from the recorder.

In light of the Covid-19 protocols to maintain social distancing and limit the spread of the virus, every person was confined to their places of residence from 22H00 until 04H00 during Alert Level 1, semi-structured interviews administered telephonically were the best research tool for data collection.

1.5.6 Data analysis

The facilitation of data was done through digitally transcribed and recorded interviews. Recording and transcribing data supports data analysis (Phillippi & Lauderdale, 2018:7). Data analysis was done thematically with the assistance of ATLAS-qualitative analysis tool. Thematic analysis, focuses on themes (Creswell, 2009).

1.6 Outline of the dissertation

The final dissertation has a set structure consisting of the general background of the study, the review of the literature and theory, research results and discussion, analysis and findings and lastly evaluation, conclusion and recommendations. The researcher is anticipating to follow the following structure:

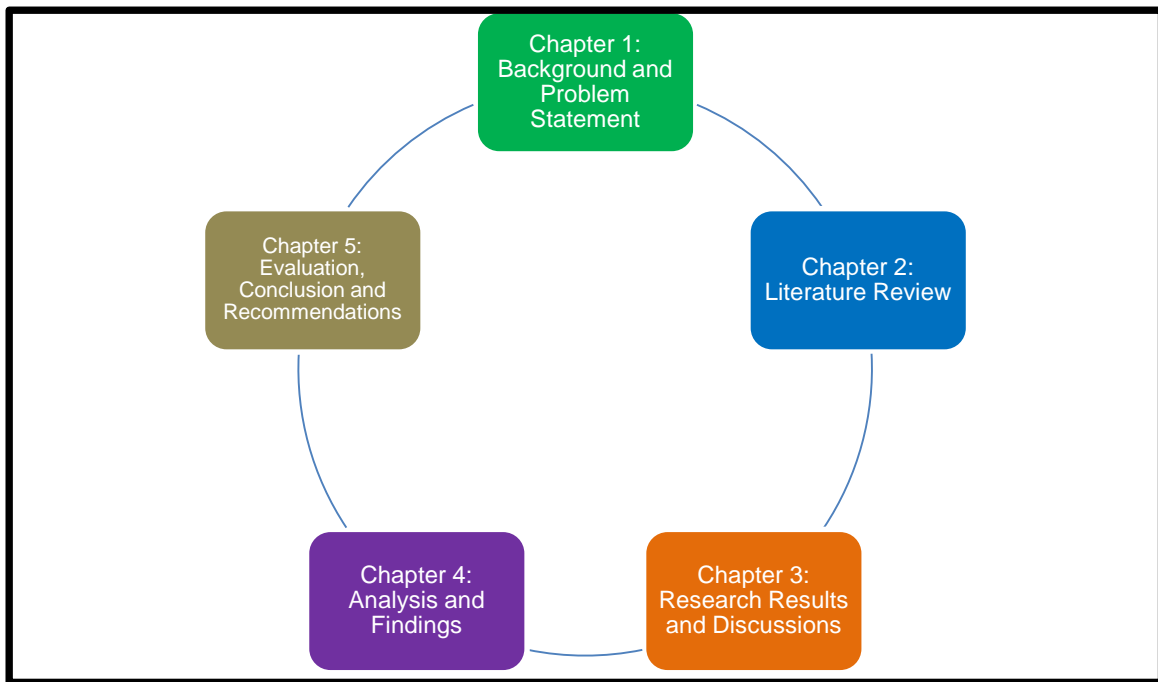


Fig 1.0 Structure of the Dissertation

Chapter 1: General background and problem statement

This chapter paints a picture of the general background of the study, the problem that encouraged the study, it's aims and objectives, methods followed in gathering and analysing data, and ethical considerations followed in the study.

Chapter 2: Literature review

An overview of literature linked to this study will be discussed. The chapter further offers insight to the phenomenon under investigation through the analysis of findings from several researchers on the same topic.

Chapter 3: Research results and discussion

Research findings will be presented, and discussed in detail.

Chapter 4: Analysis and findings

Presentation of the findings and the analysis of the study are discussed in the study.

Chapter 5: Evaluation, conclusion and recommendations.

Presentation and evaluations, recommendations, conclusions as well as limitations of the study.

Conclusion

This chapter laid the foundation for the findings, analyses and discussion in this study. This chapter provided a broad overview of the study and the rationale and reasons for selecting this study. Chapter 1 outlined the coverage of the literature review and the methodology chapters that it preceded. The background information about the research topic is also presented in chapter 1 in a manner that led to the identification of problem statement. Furthermore, the research objectives and the contributions to the study are presented in this chapter. The layout of the full extent of the study report is presented in this chapter as a guide to the reader. The literature review is presented in the next chapter.

CHAPTER 2

LITERATURE REVIEW

2 Introduction

This chapter provides the state of knowledge concerning the concepts to be utilized in this study: female food entrepreneurs, climate change, rural communities within the South African context. The chapter provides the research context and serves as an illustration of how the current study fit within the broader studies on entrepreneurship and climate change. Reviewing literature within the extend of the study area helped the research in the generation of research ideas, discovery of information gaps and to gain a holistic view of the subject area. The search strategies utilised are described in the next section.

2.1 Search strategies followed

The researcher sourced scholarly articles from the search engine google scholar, whereas policy documents were retrieved from Google under the government organisation domains. In addition, articles and textbooks from credible business sites listing relevant information relating to the topic of interest were also used. Databases that are registered under the North-West University library site (e.g. EBSCOhost, A-Z Publication Finder, JSTOR etc.) were used to retrieve other research papers. The following key words were used to get relevant articles to the subject area: *female, food entrepreneurs, climate change, rural and South African*.

2.2 The significance of entrepreneurship to the economy

Globally, entrepreneurship has been recognised as one of the key drivers of economic growth. The activities of entrepreneurs are regarded as a critical variable in the well-being of every economy and has gained a sterling reputation as an instrument for creating jobs and a means of poverty reduction (Chavan & Murkute, 2016:604). Consequently owners of small businesses and entrepreneurs are likewise recognised as significant influencers of economic growth (Oduwole, 2018:142). The growing body of literature on the critical role of entrepreneurship in an economy has fostered the need for the creation of a conducive environment in which small business and entrepreneurs survives and thrives.

Dedicated public institutions and the private sector have also been mobilised globally to support entrepreneurship.

Lately, more studies suggesting that continued economic growth entails that more entrepreneurs take part in the economy hence leading to government authorities putting focus supporting entrepreneurial projects to alleviate the economic crisis (Pinkovetskai *et al.*, 2018:177). The South African government is not lagging behind, continuously calling for citizens including foreign nationals to empower themselves and assist in economic growth through entrepreneurial projects (Mamabolo Kerrin, & Kele, 2017:3). In addition to these efforts, the South African government has availed specific grants like the National Empowerment Fund (NEF) and the National Youth Development Agency (NYDA) available to citizens who would want to venture into entrepreneurship. These are just two of a range of grant programs aimed at providing young entrepreneurs, especially young women entrepreneurs, with financial and non-financial business support (Lentswane, 2013:55). The funding efforts are premised on the fact that small to medium enterprises create jobs for a significant number of people; as a result, it reduces pressure on the government when it comes to job creation for its citizens. However, despite these efforts, South Africa lags behind other African countries in terms of its entrepreneurial zeal, a concerning statement for a developing country such as South Africa (Global Entrepreneurial Monitor [GEM]: 2016/17). The low entrepreneurial zeal in South Africa is a concern considering the benefits it can deliver across the economy and in particular lifting the peripheral economies of rural areas. Entrepreneurship in South Africa will be subjected to a closer focus after defining what the concept entails. The definition of entrepreneurship is discussed in the next section.

2.3 Defining entrepreneurship

The concept of entrepreneurship has generated tremendous interests among researchers, policy makers and policy implementors because of its positive association with economic growth and development. The word 'Entrepreneur' has its roots in the French language and it dates back to the early 1700s. Several definitions have emerged particularly during the late 20th century because entrepreneurship was increasingly becoming very popular. Hitt *et al.* (2019:3) provided a complete summary of the numerous descriptions that arose over the years. However, four distinct themes emerged from Hitt

and Duane's (2019:3) summary of definitions ranging from 2000 to 2018: introducing of something new, innovation, the quest of opportunities and a leadership approach to solving problems. In considering these themes of entrepreneurship it can be said that entrepreneurship concerns introducing new solutions to old and new problems and it encompasses the quest to identify and craft these solutions. Problems can either be solved by new products, new methods or procedures or even by identifying new uses of products and services. It thus can be deduced that entrepreneurship adds to the overall stock of economic activities hence its positive association with economic development and growth. It is believed that entrepreneurs are the mainstay of economic growth globally and have assisted in the transformation of several communities because they have the ability to create order within disordered environments (Carnes *et al.*, 2019:437).

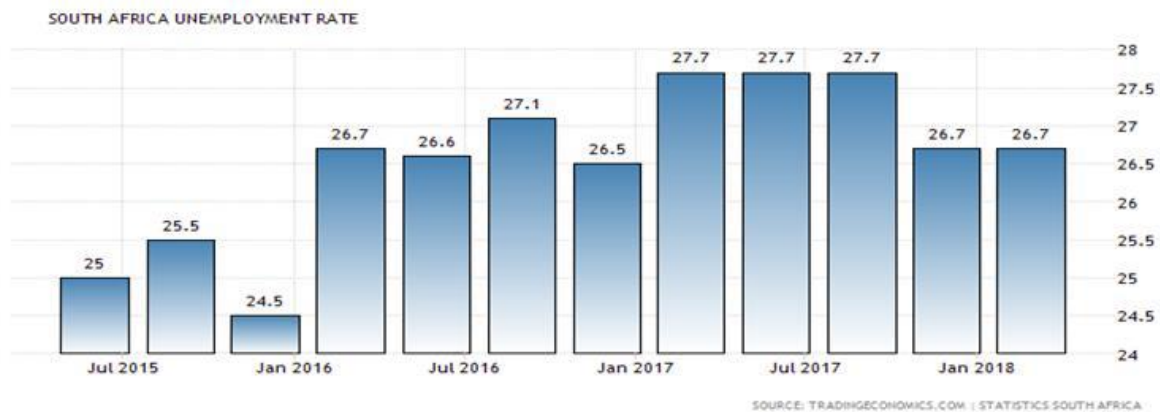
2.4 Entrepreneurship in South Africa

According to the CDE (2017:5), the South African economy is facing a myriad of challenges which include poverty, economic inequality and high levels of unemployment. These challenges appear to be endemic in South Africa as they are regularly highlighted during addresses pertaining to the economy and discussion on matters that hamper the potential economic growth in the country. In addition to high levels of unemployment, the country is also faced with the scarcity of skilled labour and poor education among its citizens (Littlewood & Holt, 2018:525). Poor education and a scarcity of skilled labour seem to have a causative relationship. A good education is likely to produce adequate skills in the areas in which the country requires them. It therefore can be argued that entrepreneurship skills are part of the scarce skills that South Africa require to help accelerate economic growth and development. Accordingly in an effort to address these challenges, the South African government is prioritising to support the small to medium enterprise as they have been recognised as having potential to create employment for the increasing figure of unemployed people (Spaull, 2018:10).

Unemployment is a major concern in South Africa in recent years in which its rate of increase has continued to rise unchecked (Taborda, 2017:1. According to StatsSA, an unemployment rate of 27.7% was recorded during the third quarter of 2017, slightly decreasing to 26.7% in the first quarter of 2018 (Statistics South Africa, 2018). Figure

1.1 shows the flow and trends of the unemployment rate since July 2015 until January 2018.

Figure 1.1 Flow and trends of unemployment rate



Source: *www.statssa.gov.za. South Africa unemployment rate.*

The unemployment rate trends shown in figure 1-1 show that the development of entrepreneurship skills and the interests shown in the construct have a relevant basis in South Africa. Firstly, the labour force being laid off work could be trained and coached in the creation of enterprises, formal or informal, which creates employment for other workers. Secondly entrepreneurial skills deployed by the remaining workforce has potential to create jobs to absorb back those who would have been laid off. These benefits will be realised if the theory, the findings, the studies, and the modern thinking around the construct of entrepreneurship is invested into using meaningful resources, practically implemented and tracked to assess and ensure a positive impact.

Entrepreneurship in South Africa is shaped by factors like customs and tradition, levels of education, the physical or social environment and the population-based characteristics (Cobbinah & Chinyamurindi, 2018:1-3). Low levels of education, social and cultural norms and training have been associated with late age entrepreneurial activity (Cobbinah & Chinyamurindi, 2018:1-3). These factors militate heavily against women in rural areas who have to deal with climate changes which they have little or no control over. The education and cultural terrain in the rural areas is worsened by a lack of basic services and the position of rural communities as custodians for cultural values. The rural areas

demographics also favor women as the majority of the dwellers. Within the African continent, it appears there is a link between education and entrepreneurship and this link manifests itself in in South Africa (Akulava *et al.*, 2016-2017:7). The reported lower levels of education have negative consequence for the growth of entrepreneurship in South Africa and its use as a policy lever to drive economic growth and development.

South Africa is reported to relatively lagging behind other developing countries in the promotion of early stage entrepreneurial activity according to GEM data. Data from the 2012 GEM report show South Africa far behind Nigeria in early stage entrepreneurial activity (Akulava *et al.*, 2016-2017:7). It is reported in the 2012 GEM report that approximately a third of Nigerian citizens are involved in entrepreneurship (Afolabi, 2015:50). South Africa, on the other hand, while showing improvement, has only achieved 11 percent rate of early-stage entrepreneurship, a far cry from rates observed in other African countries (Business report, 2018:4). Furthermore, South Africans is associated with lower entrepreneurial interests when compared to the whole African region With a regional average greater than four times of the average for South Africa (Xavier *et al.*, 2012).

It is thus concerning that, the majority of efforts appearing to have been front loaded may not bear the desired outcomes if not accompanied by changes in the educational systems, cultural transformations and deeper social changes skewed towards entrepreneurship. The plight of women in the rural areas is therefore conspicuousmajority of the women take part in the agricultural production of food and entrepreneuship would be required to help them copy with challenges surrounding farming.

2.4.1 Female entrepreneurs in South Africa

While entrepreneurship is regarded as a means of reducing the unemployment rate, there was a decrease in the number of female entrepreneurs in South Africa from 63% to 57% between the year 2015 to 2016 (GEM, 2017). According to SARSEES (2017, 8) female representation in entrepreneurship in South Africa shifted from 35% to 47% in the years 2015-2017. Brand South Africa (2017:8) in their survey found that women entrepreneurs dominated but also noted a decline in the number of youth entrepreneurs in South Arica.

It is thus established that women makes the majority of entrepreneurs in South Africa and the female majority entrepreneurship is also true for rural communities. In order to ensure policy interventions aimed at growing or addressing challenges associated with entrepreneurship are viable, considerable focus need to be placed on the entrepreneurship progress of women and the youths. Women in the rural areas are unique in that food agriculture plays a huge role in their entrepreneurship enterprise. (Anríquez, G. 2010). Consequently, climate is a big factor in the agricultural sector influencing the success of enterprises or economic activities related to food entrepreneurship (Anríquez, G. 2010).

2.5 Climate change and female food entrepreneurs

As mentioned in the previous sections entrepreneurship in South Africa is shaped by the physical environment. Climate change has been reported to have a negative impact particularly on food entrepreneurs (Hussain *et al.*, 2016:921). Climate change continues to intensify (Pittock, 2019:119), and, regardless of the mitigation strategies already implemented, it has become a complicated issue that cannot be reversed (Rogelj *et al.*, 2016:631). This is because vast amounts of greenhouse gas emissions have been released into the atmosphere over the years (Blasing, 2016:6).

Several studies (Vetter *et al.*, 2017:234; Althor *et al.*, 2016:281) have revealed that greenhouse gas emissions are responsible for global warming which consequently causes natural hazards for instance drought, floods, cyclones among others. These extreme natural hazards affect the food supply impacting the livelihoods of a huge number of people, with an extremely high impact on people living in the rural areas (Puupponen *et al.*, 2015:22; Hosseininia & Ramezani, 2016:1010; Roudier *et al.*, 2016). It is therefore important to continue investing in climate change reduction and adaptation especially in marginalised communities (Akinbami *et al.*, 2019:19). For the reason, this study is fashioned to investigate the perceptions of women in a rural community with a view to understand their coping strategies and perception of opportunities within the context of climate change.

Worldwide climate change has had severe implications for rural communities who depend on agriculture for their livelihood. Approximately 40% of SA's underprivileged population resides in rural areas and they mainly rely on natural resources for food (de Groot *et al.*,

2017:86). In South African rural communities have restricted access to socio-economic opportunities and are adversely impacted by climate change when compared to their urban counterparts (Mastrorillo *et al.*, 2016:155). The latter is linked to the actuality that climate change directly affects sectors on which rural communities depend, for example, agriculture, water supplies, habitats and biodiversity (Gandure *et al.*, 2013:39; Dallas & Rivers-Moore, 2014:2). Ngorora and Mago, (2018) argued that the majority of rural communities in South Africa are now resorting to entrepreneurship for survival.

According to Masumbe (2018:50), the majority of the entrepreneurs in rural South Africa are food entrepreneurs. Thus entrepreneurship development within a rural community will go long way in transforming the socio-economic fortunes of rural dwellers and in particular women. Women in rural areas, particularly those from developing countries are more vulnerable to climate change as they lack adaptive capacity (Jost *et al.*, 2016; Akrofi *et al.*, 2018). South Africa is a typical developing country and the adaptive progress of the women in the rural areas should attract interest from scholars and policy makers. It is concerning that there is scant literature on the adaptive capacity of rural women in rural South Africa. Whereas several policy interventions have been deployed targeting rural women and youths they beg the question what informs them and to what efficacy? People in rural areas, particularly women in developing countries already perceive and experience the negative effects of climate change in different forms, particularly their livelihood practices (Akinbami, *et al.*, 2015:19).

2.5 Theoretical framework

For this study Akinbami *et al.*'s (2019:37) human ecology theory will be adopted. The theory focuses on the connection between the environment and human activities and the manner in which human activities impact the environment. Kasarda and Bidwell (2019:183) stated that human ecology is about relationships between people and their environment. The human ecology regards the environment as an ecosystem (Fig:2-1). Under the human ecology theory an ecosystem includes the air, soil, water, living organisms, economic and physical structures in a defined area, including everything constructed by humans.

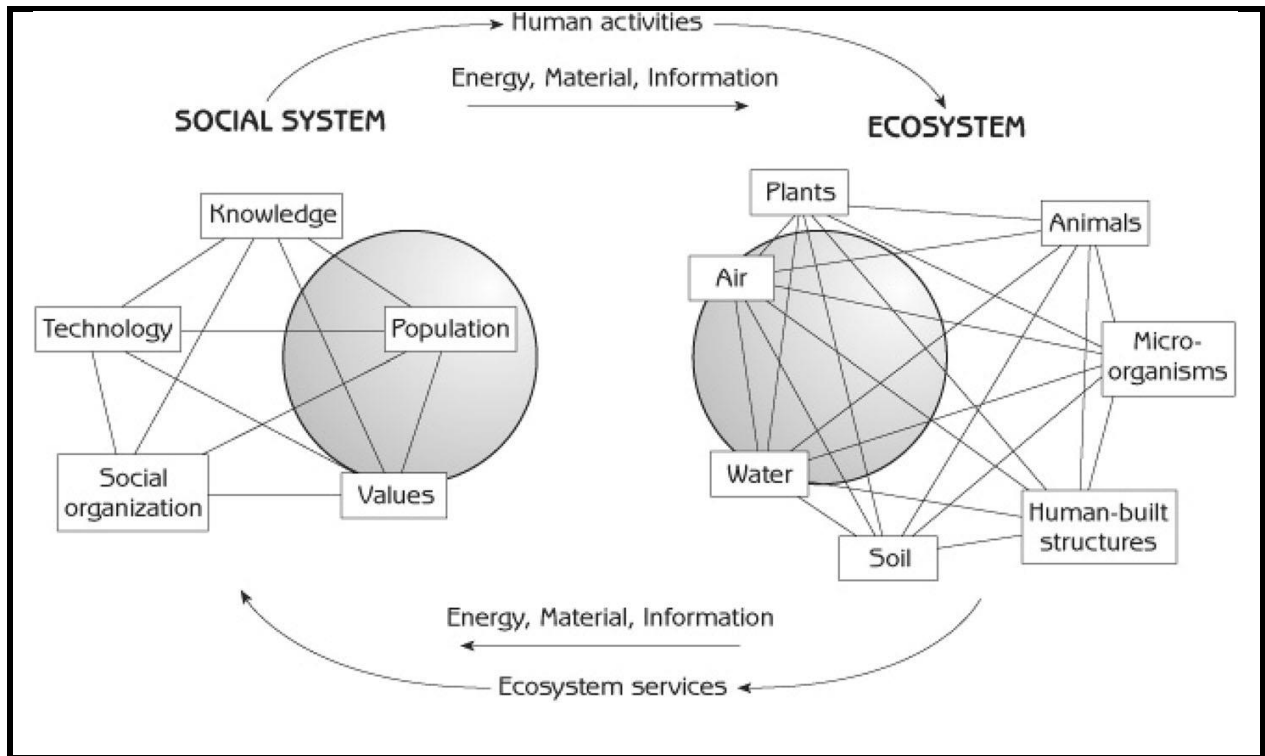


Figure 2-1: The human ecology model. Adopted from Akinbami *et al.* (2019)

Figure 2-1 shows that human beings are part of the ecosystem and it is imperative to have a better understanding of the link between human social systems and the rest of the ecosystem. The social system involves the human community and information, beliefs, technology and social institutions that form people's behaviour within the society (Poston *et al.*, 2019:2152). The social system is a key concept in human ecology as human activities which affect ecosystems are likewise affected by the community in which people live (Kasarda, & Bidwell, 2019:184). The way people process and perceive information and translate it into action is influenced by values and experiences that together form their worldview as individuals and collectively (Poston *et al.*, 2019:2153). The possibilities of what we do (actions) are formed by social groups and social structures that specify socially acceptable behavior, when individuals exert their agency (Laris *et al.*, 2015:111).

Social systems, including ecosystems, can range from a family to the entire human population of the planet on any scale (Akinbami *et al.*, 2019:36). By making available materials, energy and knowledge to the social system to meet people's needs, the ecosystem provides services to the social system. Such services include water, electricity, food, clothing supplies, building materials and recreation (Akinbami *et al.*,

2019:6). As a result of human activities which impact the ecosystem, materials, energy and information move from the social system to the ecosystem (Kasarda & Bidwell, 2019:186). Most of these activities are entrepreneurial hence people impact ecosystems when they make use of resources such as water, fish, trees and animal grazing land (Kasarda & Bidwell, 2019:187). This study will explore how, such resources have been impacted by entrepreneurial activities within the context of climate change. People deliberately adapt or restructure existing ecosystems, or create new ones, to protect their needs (Poston *et al.*, 2019:2155).

2.5.1 The impact of human activities on the environment

It is possible to conceptualize the effect of human actions on the environment. Such human effects are only made clear to the affected parties until severe challenges are accrued and generated (Flandroy *et al.*, 2018:1018). Problems can arise unexpectedly at a significant time period and often from the human behaviour that trigger them (Mahmoud & Gan, 2018:1329). In most communities, disastrous floods and crop destruction have now become regular events (Noya *et al.*, 2018:3733). These floods affecting crops are often attributed to a human induced permanent change in the climate patterns. Industrialisation which have predominantly been associated with urban areas have widely been reported to contribute significantly to changes in the climate patterns. Climate change, therefore, can be viewed as the long term biproduct of human advancement efforts through industrialisation which is an important drive factor for urbanisation.

Processes of urbanization present opposing situations for rural areas, for example, out-migration levels affect agricultural production and other livelihood practices (Chikaraishi *et al.*, 2015:302). Most obviously, global warming has been caused by human interactions with the environment that cause climate related impact such as the unpredictability of rainfall patterns that have had different impacts on the people especially the most vulnerable (Flandroy *et al.*, 2018:1018). Food shortages, water shortage, droughts, induced shifts in agricultural activities and other livelihood practices, floods, sea level rise and so on contribute to these effects globally (Watts, 2017:57). The theory of human ecology promotes ecologically sustainable growth, which entails that humans should engage with ecosystems in ways that enable them to retain adequate functional integrity

in order to continue providing the food, water, shelter and other services they need by humans and all other creatures in the ecosystem (Poston *et al.*, 2019:92). The current generation must adapt to their needs without undermining future generations' ability to meet their own needs (Watts, 2017:57). The climate change question can perhaps be characterised as being current evidence that human behavior has damaged the ability of future generations to meet the own needs. There has not been ecologically sustainable interaction between human beings and their environment.

Damaged habitats that are losing their ability to meet basic human needs are closing off economic growth and social justice prospects for their inhabitants (Mahmoud & Gan, 2018:1329). Ecological sustainability, economic growth and social justice are given equal consideration by a stable society because they are all mutually reinforcing (Poston *et al.*, 2019:92). In the context of the ecological sustainability theory awareness could be built among humans particularly dwellers of vulnerable communities with a view to moderate their behavior towards gaining adequate functionality.

2.5.2 Impact of climate change on rural women's livelihood activities

Climate change is increasingly impacting people's livelihoods, and vulnerable people are experiencing particularly negative effects because of their lack of capacity to plan for and cope with the effects of climate change (Mersha & Van Laerhoven, 2016:1701). Women and men experience the impact of climate change differently. Several climate events, such as cyclones, floods and seasonal droughts that regularly affect rural communities, have a significant effect on the livelihoods of vulnerable women in rural areas (Beyene, 2016:548). According to Assan *et al.*, (2018:86) due to the ongoing impact of climate change, women face many challenges in their livelihoods, including vulnerability to their jobs, household properties, life and health, food security, education, water supplies, sanitation and transportation systems. Several studies (Otto *et al.*, 2018:142; Rao *et al.*, 2016:14; Sapkota *et al.*, 2016:53) have shown the complexities of gender and climate change and suggested that multidisciplinary research is required to further strengthen the knowledge base on the differential climate impact on women's and men's assets. The same research is required to strengthen knowledge in the well-being of rural and

agricultural communities establishing an understanding of the mechanisms that work best to empower women in poor communities to be climate resilient (Beyene, 2016:548).

There is, however, a clear negative impact on rural livelihoods as a consequence of climate change. Climate change threatens the production and distribution of food, a product which is at the center of entrepreneurship for the majority of rural communities dwellers most of whom are women. Most of these women are already vulnerable to the poor socio economic terrain of most rural areas in developing countries. The rural women's entrepreneurship activities or enterprises must survive and thrive despite the threat of climate change. Survival can be established when these women are trained and supported to see opportunities and navigate the difficult challenges despite climate change. An ability to exploit climate related opportunities and to mitigate the challenges is akin to attaining the goals of sustainable ecological development. In any case the prospects of a reversal of the negative effects of climate change is still not clear.

2.5.2.1 Impact of climate change on agricultural production

Increasing climate variability poses challenges for agriculture. The decrease in crop yields as a result of increasing climate variability can affect the assets of women in various ways (Jost *et al.*, 2016:133). Wiebe *et al.* (2015:85) in their study on the effects of weather-related shocks (floods and droughts) on the properties of women and husbands in developing countries found that floods have a positive impact on the accumulation of land by husbands. The outcome is explained by the fact that most of the land is owned by men, no significant effect was observed on land owned jointly or owned solely by the women. On the contrary drought, was reported to have a negative effect on women's nonland assets holdings, but no significant effect on men's nonland assets (Asante & Amuakwa-Mensah, 2015:78). Climate change negatively affects both yields and the assets. Dropping yields have dire consequences for food security and related agricultural related businesses.

2.5.2.2 Impact of climate change on food security

Reduced agricultural production due to increased climate variability will lead to lower incomes and smaller subsistence farming harvests (Masipa, 2017:2). This leads to a reduction in food intake, which could have created benefits for human capital. Climate extremes such as drought can contribute to food insecurity and household malnutrition, with numerous impacts on human capital for men, women and children (Vaghefi *et al.*, 2016:19). In the sense of vulnerability, these effects contribute to various user characteristics and how they communicate with sociocultural norms (Masipa, 2017:3). In a study that was conducted by Owens *et al.* (2003:1239) in rural Zimbabwe, it was reported that the 1994–95 droughts had adverse effects on the body mass of women, but not men. The authors reported that the accumulation of livestock will shield women from the adverse effects of this shock as household livestock holdings have been correlated with higher body mass index (BMI) measures for women. Hoddinott (2014:19) did a follow up study where it was reported that adult women who were adversely affected by the drought in terms of BMI recovered relatively quickly, but very young preschoolers (12–24 months) lost growth velocity. While children who resided in relatively well-off households eventually recovered this lost growth velocity, children from poorer homes did not. This suggests that drought can present short-term impacts for women's health, but long term impacts for children's growth and development in asset-poor households.

2.5.3 Climate change and rural women's lifestyle

Climate change is associated with changes in weather patterns as well as extreme weather events. Studies have shown that women's economic insecurity escalates more than men's after the occurrence of natural disasters (Mugambiwa, 2018:9). Women tend to recover at a slower rate than men from economic losses because of damage to property and loss of livelihood (Pearse, 2017:451). Food, water, health and energy are likewise affected by climate change and these buttress women's livelihoods and are premised within the scope of women's socio-economic responsibilities (Mayala *et al.*, 2015:9). Such experiences make it difficult and gruelling for women to do their tasks with the increased occurrence of drought and floods linked to climate change (Boetto & McKinnon, 2013:234). Furthermore, most rural women do not have property rights and

control over natural resources. This is also worsened by their lack of access to education, credit facilities and technology. Women usually rely on different crop varieties to accommodate climatic variability, but continuous changes in temperature would decrease agro-biodiversity and old practices (Boetto & McKinnon, 2013:234).

Regardless of the challenges which arise reflecting gender inequalities in rural communities, there are some opportunities to strengthen women's existing roles and responsibilities to attain climate adaptation objectives and where possible to challenge cultural norms. An example would be to encourage self-confidence in entrepreneurial competences. Women in rural areas play an important role in the production of food and management of natural resources (Mugambiwa, 2018:2). It is therefore imperative to meaningfully involve them in adaptation planning and implementation. Understanding how women are impacted by climate change and their ability to contribute to climate adaptation strategies is important for their successful engagement in response to climate change and for harnessing their ability to take necessary mitigative and adaptive action (Nyahunda *et al.*, 2020:1).

2.5.4 Poverty in rural areas

Following politically-sanctioned racial segregation, South Africa's successful political transition raised expectations for an economic future characterized by broadly shared development, greater entry to most public services and subsequently job opportunities (Sharaunga & Mudhara, 2020:44). Economic policies have been designed to ensure large-scale financial stability and to improve access to basic services (Biyase & Zwane, 2018:115). The South African Constitution (1996) and the Local Government White Paper (1998) advocated for measures to address poverty and unemployment. In order to establish an atmosphere conducive to improving the quality of life of citizens, many legislative, structural and administrative changes have been put in place (Sharaunga & Mudhara, 2020:56). The majority of the people vulnerable to poverty dwell in rural areas. Food entrepreneurship is their major line of economic activity which can potentially bring them out of poverty. Policy interventions addressing poverty, inequalities and unemployment should be focused on the entrepreneurial development of rural communities dwellers particularly women. It therefore should be the concern of government and private sector citizenry that these women, faced by a formidable threat

of climate change, should be guided and supported towards adaptation and mitigation. Otherwise without support we do more harm to the already problematic climate. For the most part and considering the time period that the phenomenon of climate change have been declared, the women seem to have found methods and ways to survive although room will always exist for further support.

2.5.5 Unemployment in rural areas

According to the most recent unemployment statistics from StatsSA (2018), approximately 6-million active job seekers are not gainfully employed. The report adds that more than three quarters of these unemployed people have been without a job for more than twelve months. (StatsSA, 2018:12). In South Africa, there is a disproportionate distribution of unemployment rates amongst men and women. Mhlanga (2018:6) states that the unemployment rate for men is lower than that of women. Regardless of their level of education, the unemployment rate for young people is higher, but those who do not have at least matriculation are more likely to face severe difficulties while searching for a job. According to StatsSA (2018:12), approximations, about 30 million between the ages 15 and 24 years are unemployed, with no formal education or training and the reality is even worse for women. StatsSA (2018:15) found an uneven concentration of women in a small number of economic sectors and professions. Even though there is an increase in the number of women who are progressing into higher occupations, this progress is regularly restricted to white women (Anand *et al.*, 2016:17). Furthermore, the levels of unemployment among women are significantly higher than those for men and these level continue to increase in rural areas (Sekhampu, 2013:145). In most rural areas the roles of women is still as being at home and raising the children, while the men go out an work. This mentality needs to be altered and a new era of women who are entrepreneurs needs to be developed and nurtured.

2.5.6 Rural areas and women entrepreneurship

Entrepreneurship is primarily an non-rural phenomenon and develops together with urban societies over time (Sonjani, 2020:45). The main challenge of developing an entrepreneurial atmosphere lies in the establishment of infrastructure for business networks and constructions in rural communities (Miles & Morrison, 2020:933). There is

a significant need for sound rural planning and management skills, as well as the production of rural policies and effective management of land disputes (Miles & Morrison, 2020:934). Technology has also been reported to be a challenge for entrepreneurship in rural communities in two ways:

- (i) The need might be seen as small or rather be pointless for people to travel to urban centres run business, since they may still be able to get products and services from their point of residence (Chinyamurindi, 2016:8).
- (ii) (ii) In reality, some people move to urban areas where there is access to the technology they can use to start or expand their businesses (Chinyamurindi, 2016:7).

The migration of women from rural to urban areas provides several benefits that can be related to financial and social empowerment, such as democracy, economic emancipation through trade and the leverage of economic opportunities. Women's migration will indirectly help reduce poverty by raising the productivity, education and health of women and their families, all of which are crucial to reducing inequality and poverty in the home (Spaull, 2015:33).

There are very few incentives for developing infrastructure in the rural areas. The return on investments on such investments are not readily understood and the situation is made worse by the pull factors many rural dwellers to respond to urban migration. Opportunities within urban areas and in particular the development and investments into women empowerment seem to overshadow those found within the rural areas. To that end, the socio economic development of rural areas economies have lagged that of urban centres. The impact of climate change on the production of food, the mainstay of most rural economies in the developing countries, worsens the push factors for urban migration to occur (FAO IFAD IOM WFP. 2018).

2.6 The role of the SA government in empowering female food entrepreneurs

South Africa lacks viable programs or initiatives that can sustain the new and existing enterprises of women entrepreneurs at various levels of government (Iwu & Nxopo, 2015: 10). Entrepreneurs are either not aware of current opportunities or don't make use the

networks available (Gabriel, 2017:67). Female entrepreneurs in South Africa experience various constraints when it comes to government initiatives:

- (i) Lack of training
- (ii) Lack of funding from the government to start enterprises.
- (iii) Lack of motivation for those who are venturing into entrepreneurship and loss of control of the enterprises
- (iv) Slow and ineffective taxpayer-driven organisations to fund private businesses (Okeke-Uzodike *et al.*, 2018:83).

However, there are quite a number of initiatives which have been implemented by the government to promote entrepreneurship in the country.

2.7 Government strategies to promote entrepreneurship in South Africa

According to the White Paper on the Development of Small Business government should play a significant role in the development of entrepreneurship and small businesses. Government role is justified by the fact that entrepreneurship is vital in addressing the challenges of employment creation, economic growth and equity. As a result, the DTI, through the Centre for Small Business Promotion, was mandated with the responsibility of coordinating the implementation of government's initiatives to develop and support SMMEs. The key aim of the Centre was to provide a forum for the coordination of policies and support initiatives for SMEs at all levels of government. The additional development bodies that were created are described in the next sections.

2.7.1 National Small Business Council (NSBC)

The NSBC was a legislative body set up to promote and represent the interests of small and medium-sized enterprises especially to enable small and medium-sized enterprises to engage significantly in the creation of government policies (Nieman, 2001:8). The legislative body premised on the National Small Business Act, 1996 (South Africa. Department of Trade and Industry, 1996:3). Khula Enterprise and Ntsika Enterprise Promotion were the other bodies that were also formed according to this Act. Among

these bodies, however, the NCB was established as the key pillar of the government policy to promote a strong SMME market and women entrepreneurs.

2.7.2 Khula Enterprise Finance Ltd (Khula)

Established by the Department of Trade and Industry to provide SMMEs with better accessibility to loans and capital for equity (Akrong, 2013). Khula is a wholesale lending organization. Khula Institutional Services, a subsidiary, has identified unique financial challenges faced by women entrepreneurs and initiated the Khula Start and Micro Startup programs to improve the issuing of microcredit to women entrepreneurs (Worku, 2016:12). Khula makes use of intermediaries for instance banks, retail financial intermediaries and micro-credit outlets when lending money to SMMEs. In order to help entrepreneurs run their companies, Khula also runs a mentorship program.

2.7.3 Ntsika Enterprise Promotion Agency

Ntsika was set up to deliver services for small business support and promotion. The agency also serves as an intermediary for the provision of non-financial services to SMEs by the state, the private sector and service providers (Ayandibu & Houghton, 2017:2). The key functions of Ntsika are:

- To develop, co-ordinate and monitor, capacity building, provide consultancy and any other non-financial services to small business in line with the National Small Business Support Strategy.
- Give financial aid to service providers that offer the services listed above.
- Collaborating with other service providers with the purpose of: Facilitating the provision of business consultancy to small business,
- Facilitate access by small businesses to raw material and other products,
- Promote global and national access to a market for the products and services of small business, and build the capacity of service providers to support small enterprises to participate effectively within the economy.
- Develop and co-ordinate a nationwide programme of policy research, gathering and giving out information.

These services are relevant to the development of entrepreneurship activity. The challenge is that the infrastructure distribution does not favor rural areas and as such they are likely to be excluded from these Interventions.

2.8 Conclusion

The chapter provided the state of knowledge concerning female food entrepreneurs, climate change, rural communities within the South African context. It also gave an overview of what the government of South Africa is doing to promote female entrepreneurship. The chapter was fashioned to describe the research context and show how current study fits into the grand scheme of studies that were done pertaining to the concepts of the study. The climate related opportunities for female food entrepreneurs were known to be real but low while the challenges are severe and many. (Akinbani et al. 2019) argued that entrepreneurship is a tool for facilitating rural economic development, which is becoming increasingly needed to respond to the growing impacts of accelerating climate change on rural women's livelihoods in less developed countries creating constraints on sustainable development.

Climate change has resulted in extreme weather patterns or completely new weather events. Greenhouse Gas emissions have been a frontline issue for most countries as they have an impact on the global warming that might spiral out of control if stricter measures are not in place to halt them. Global warming will bring about more natural disasters. There are many challenges associated with climate change in rural communities: drought, depletion of water resources and biodiversity, soil erosion, decreased subsistence economies and cessation of cultural activities. Agriculture is one sector that will be mostly affected by these changing weather patterns.

On a local level, maize is the largest produced field crop and the most important source of carbohydrates in the southern African region. South Africa is currently the main maize producer on the African continent with most production concentrated in the North West province, the Free State, the Mpumalanga Highveld and the KwaZulu-Natal Midlands. Approximately 10-12 million tons of maize is produced in South Africa annually on more-or-less 2.5 million hectares of land. Currently almost half of the production consists of white maize, for human food consumption. (Syngenta, 2011). Climate change is strongly

associated with extreme drought which adversely affects water supply and extreme conditions of winds, rain and hail storms destroys the crop. The production of food crops is reduced leading to poor nutrition, low income or even job losses.

Women have key roles in communities' natural resources management, innovation, farming and care-giving and it is key to position them well to develop strategies for adapting to the changing environment. Experience has shown that communities fare better during natural disasters when women play a leadership role in early warning systems and reconstruction. Women tend to share information related to community wellbeing, choose less polluting energy sources, and adapt more easily to environmental changes when their family's survival is at stake (Akinbani et al. 2019).

However, despite all the challenges mentioned above, climate-related opportunities can be explored. Most women use wood energy for cooking and heating and the lack of wood fields affects the daily chores mostly ran by women in their homes. Climate change presents an opportunity to build awareness among women towards the use of renewable energy sources. Promotion of renewable energies like solar power systems provides alternative energy sources and at the same time help reduce the emissions of greenhouse gas. Installation of home solar system and the training thereof, improves the wellbeing of women and the overall community through job creation, empowerment while protecting the environment.

The following chapter describe a description of the research methodology that was used to answers the research objectives of this study.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This chapter describes and provides a justification for the methods selected for the purpose of collecting and analysing data in this research. The methodology chapter is organised into several sections: research design, research instruments, research population, sampling, data analysis, measures used to ensure trustworthiness and ethical considerations. The research design is discussed in the next section.

3.1 Research design

This study followed a qualitative descriptive design. The study utilised a qualitative descriptive design because the phenomena under investigation could not be quantified. The qualitative descriptive design encompasses perceptions, attributes and beliefs that people have regarding the phenomena in their natural environment (Kim, Sefcik & Bradway, 2017). The descriptive design is utilised where describing the phenomenon sufficiently satisfies the research objectives and answers the research questions. The study is descriptive because of the need to describe the perceived climate related opportunities and challenges in a rural community in South Africa (Mollick, 2014). The design entails understanding and then describing the perceptions of sample participants under investigation as opposed to generalising results from the sample to the general population of the study.

3.2 Study area

The rural community under investigation is Ganyesa which have a total population of approximately 20,000 people. This rural community is located in the North West province of South Africa. Ganyesa's climate is semi-arid and the people there depend mainly on subsistence farming. The people's main source of livelihood (farming) has been affected by climate change induced natural hazards. Many people within the area are resorting to

entrepreneurship to augment subsistence farming. Below is the map of the area under investigation indicated in red.



Figure 3-1: Map showing the location of the study area (Ganyesa)

The Dr Ruth Segomotsi Mompati District Municipality in the North West Province of South Africa is a drought-prone area. Livelihood activities in the region mostly revolve around communal and commercial cattle farming. In light of the dualist, historically racially determined manner in which South African agriculture is organised, commercial and subsistence farmers bear an unequal share the effects of recurrent drought, and by logical extension, potentially adverse climatic changes. (Van Riet, 2012)

However, droughts have become more frequent and their frequency more unpredictable over recent decades (Hudson 2002:23). Participants suggested that climate change might have already begun affecting the Dr Ruth Segomotsi Mompati District Municipality. They stated that they could recall the occurrence of regular and long-lasting droughts since the 1920s, but that the frequency and duration of droughts appears to be increasing.

One district official noted: 'The normal times of rain has changed'. Rains often occur later in the season. The impact of drought in the area over time has been far reaching, resulting in a loss of grazing land, which typically translates into a loss of cattle. Participants indicated that they had lost up to 80% of their cattle in one particular drought. Furthermore, drought often leads to other disasters, for example, veld fires and the spread of animal diseases. In addition, stock theft often occurs during times of drought. (Van Riet, 2012)

3.3 Study population

The population of the study refers to individuals who meet a certain criterion for inclusion in a given setting and in which the researcher is interested (Adams & Lawrence, 2018). The research will be done in a rural community in the North-West Province, South Africa.

3.3.1 Inclusion and exclusion criteria

Exclusion criteria are features of the study participants that could interfere with the success of the study and thus will not be included in the current study. Together with inclusion criteria, exclusion criteria make up the eligibility criteria that rule the participants in a research study in or out. The exclusion and inclusion criteria clearly maps the boundaries of the universal set under investigation by the study.

Inclusion – The inclusion criteria permitted women of a majority age (18 years and above) who were able to communicate in English and Setswana additionally meeting the following criterion:

- Residing in a selected rural community within the North-West Province
- Should have been involved in entrepreneurship for the past 5 years
- Participation is not restricted to race
- Willingness to participate (voluntary)

3.4 Sampling method

The researcher made use of purposive and snowball sampling to select participants that complied with the inclusion criteria. Seidman (2013:54) stated that purposive sampling is the conscious selection of certain participants to be involved in the study. In other words, the selected participants must be accessible to the researcher and fit for the purpose of their inclusion in the study. Purposive sampling was used to recruit the participants from the population so as to get the most suitable subjects to take part in the study. The selected participants were then requested to identify other like participants whom the researcher obtained informed consent from before participating. The sampling methods is utilised when it is difficult or time consuming to gain access to the other participants and is referred to as snowball sampling (Etikan *et al.*, 2016). Eligible participants were all given written informed consent before involving them in the study.

3.4.1 Sample size

According to Kim *et al.* (2017), the ideal sample size for descriptive qualitative studies is between 8 and 50 participants. For this study the researcher recruited 8 female participants who met the requirements of the set criteria. Saunders (2018:1229) recommended that sample size be determined in qualitative studies by the saturation point. The data saturation point is that point in selecting participants whereby selecting the next participant will not add new data to the research. In this study the saturation point was used to determine sample size and a total of 8 participants were included in the study.

3.4.2 Recruitment strategy

The recruitment strategy entails the actions taken to complete the process of recruitment and obtaining informed consent. Three participants were recruited for their accessibility to the researcher and five participants were obtained by obtaining referrals from the accessed participants. The three participants were considered accessible to the researcher following a networking exercise with the municipal councillor. The informed consent bundle was send through social media to five participants identified by the communication link of which only three responded positively. On completion of the

interviews sessions the participants were requested to identify potential participants. A list was created of the suggested candidates for participation of which five responded positively up to the point of attaining saturation.

3.5.1 Recruitment instrument

The data on the perceived climate related opportunities and challenges in a rural community in South Africa were collected by means of semi-structured telephonic interviews. A list of questions fashioned into an interview guide was used to direct the interviews. The researcher electronically obtained informed consent from the participants prior to data collection. The researcher self-administered the semi-structured interviews over the phone. The researcher received training on conducting the interviews over the phone media.

Hard copies of this study, such as informed consent forms and transcripts of the semi-structured interview, were/are stored in data storage cupboards that were locked at North-West University.

All digital data including the transcripts and audio tapes of the interviews were saved on computers protected by passwords accessible to the research team working with the data. Recorded data was downloaded, stored and backed-up onto password-protected computers as soon as possible and deleted from the recorder afterwards. Hard copy and digital data will be stored for five years and will be shredded, deleted and destroyed responsibly thereafter. These data sources will only be used for research purposes.

3.5.2 The interview guide

An interview guide was designed with a list of questions that helped to guide the semi structured interviews. The interviews guide consists of two sections: the demographic section and the research questions sections. The demographic section contains question questions that profile the sample and the research question section contains questions that are relevant to satisfying the research objectives. The interview guide is presented below:

Section A: Demographic Profile of Participants

1. Please tell me your age?
2. Tell me something about your background?
3. Please give me information on your education and qualifications you have achieved?
4. How long have you been involved in food entrepreneurship?

Section B: Research Questions

5. How would you define the view of Entrepreneurship in rural South Africa?
6. Can you please explain to me what you understand about climate change?
7. How has climate change affected you (challenges) as a food entrepreneur?
8. Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?
9. How have you managed to cope with the changes in climate over the years?
10. Is support from the government or your municipality necessary to succeed as an entrepreneur? Explain.

3.6 Data analysis

Digitally recorded interviews were transcribed. Each participant was assigned a unique name and each interview line a unique identity on the transcript. Data analysis was done following data analysis guidelines provided by what has come to be known as Creswell's generic (ATLAS-ti) qualitative analysis approach, which was thematically focused (Creswell, 2009). The data analysis

- The researcher read through all the scripts and assigned initial codes to any emerging ideas.
- The codes are then revisited with a view to rename or collapse them as well as deleting the redundant ones.
- The modified codes are organised into categories.
- Re-examining categories to identify the most important ones against the less important otherwise combine them where meaningful.
- Finalising organisation of categories.

- Categories were upgraded to concepts or themes.
- The concepts or themes were checked against the research objectives and question.
- The researcher obtained help from an experienced researcher to check whether the coding process had not omitted any important data.

3.7 Trustworthiness

According to Connelly (2016:435), trustworthiness as an alternative construct for validity and reliability in qualitative research. Trustworthiness has four epistemological standards: credibility, transferability, dependability and confirmability. Credibility was established through members checks in which the researcher made notes of some of the responses made by the participants and asked the participants to check whether the researcher had understood then in the same light as they had meant to respond. The use of the purposive sampling to maximise specific data relative to the context in which it was collected, likely enhanced data transferability. It is assumed in this study that once credibility has been established dependability would have been established as well. Setting findings in this study against findings in other similar studies helped to establish confirmability in this study.

3.8 Ethical considerations

Ethical considerations entail that when we conduct the research none of the role players must be exposed to any harm. The researcher used a three stage ethical approach starting with an approval from an ethical committee, acquisition of informed consent and ensuring anonymity and confidentiality.

Permission to conduct the research: Approval to conduct the research was sought from the North-West University Research Ethics Committee. The committee checked the proposed research methods against the ethical research values permissible.

Informed consent: The researcher obtained informed consent from participants No-one was compelled by any circumstances to participate and there were no negative consequences for refusing to participate. The voluntary nature of participating in a

research is key to maintaining an acceptable ethical standard (Sil & Das, 2017:380). The consent form is attached with the research report as Annexure B.

Confidentiality and anonymity: The researcher ensured that data generated by the research was not subjected to unauthorised access, use, disclosure, modification and loss or theft. Data autonomy was also maintained in which the researcher had the capacity to understand information as argued in Tourangeau (2018:501) that the researcher ought to act on the data voluntarily, use own judgment, make decisions about own actions and to ensure voluntary participation in the research.

Participants were identified by way of pseudonyms in the reports and transcripts to ensure anonymity. Numbers and alphabetical words were used for identifying respondents to protect their identity during the interviews and in their written responses. No piece of data could be traced back to the participant. The participants were duly informed that the research outcomes would only be made available to them upon request, whilst the full research report would be submitted to North-West University to be stored in its archives.

All data was stored and retrieved in accordance with the NWU data policy.

CONCLUSION

The methodology was presented and justification provided for the methods the researchers used in designing the inquiry. A qualitative research method was used and a descriptive research design was deemed sufficient to describe the phenomenon and thereby satisfy the research objectives. Non probability sampling techniques, purposive and snowball sampling techniques, were used to select participants up until the point of saturation was attained.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

The research results are presented in this chapter starting with the profile of the participants. The emerging themes are then presented together with an analysis showing how the data collected from the sample relates to the study's context. The data from participants is literature controlled leading into an analysis and discussion of the emerging themes and how they contribute to satisfying the objective of the study. An overview of the study's participants is presented below:

4.2 Overview of study participants

The point of saturation was attained upon interviewing eight (8) female food entrepreneurs who were selected from a rural community affected by climate change in South Africa. Table 4-2 below is a presentation of the demographic profile of the participants.

	P1	P2	P3	P4	P5	P6	P7	P8
Age (years)	33	41	33	32	55	33	29	35
Duration (minutes)	42	53	60	48	55	54	49	58
Years of experience as a food entrepreneur	3	5	2	4	5	2	2	3

Level of education	Matric certificate	College Diploma	Matric certificate	College Diploma	College Diploma	Matric certificate	Matric certificate	Matric certificate
---------------------------	--------------------	-----------------	--------------------	-----------------	-----------------	--------------------	--------------------	--------------------

Table 4-1: Participants demographics characteristics and duration of the interviews

Most (5) of these female food entrepreneurs were within the age range of 30 to 35 years. The majority (5) of the food entrepreneurs had a matric certificate and the rest had a college diploma. The years of experience as an entrepreneur among the food entrepreneurs ranged from 2 to 5 years. The average interview duration was 52 minutes with the shortest interview lasting for 42 minutes, and the longest one going on for 60 minutes. The pertaining to the research specific interview questions in presented in the next section.

A flow chart illustration of the themes and sub themes is presented in figure 4.1 below:

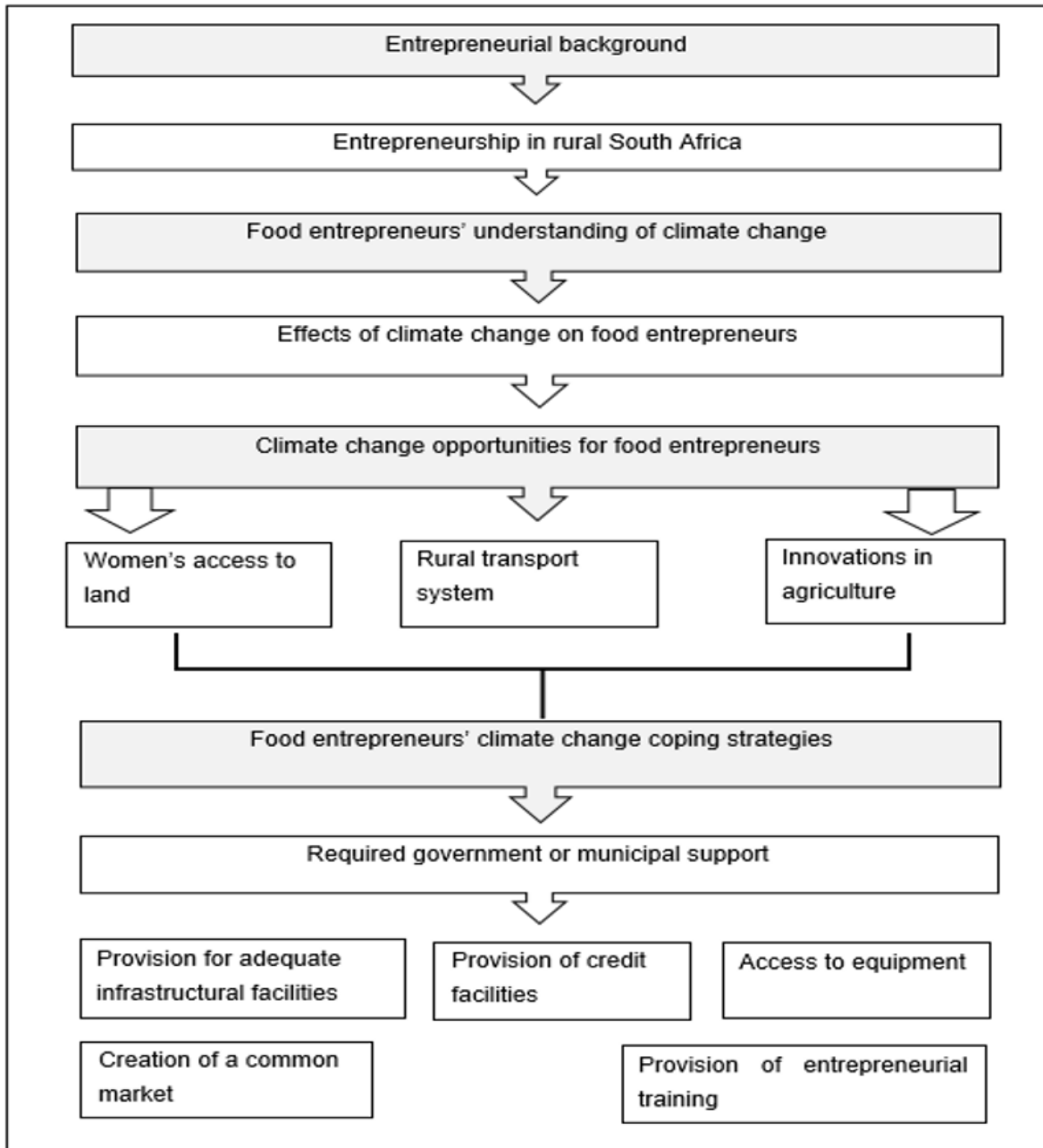


Figure 4-1 illustrates the themes that emanated from the research questions.

The table below illustrates the relationship between the themes and the research questions:

Research questions	Themes
1. Tell me as much as you can about your background.	Entrepreneurship background
2. How would you define Entrepreneurship in rural South Africa?	Entrepreneurship in rural South Africa
3. Can you please explain to me what you understand about climate change?	Food entrepreneurs' understanding of climate change
4. How has climate change affected you (challenges) as a food entrepreneur?	Effects of climate change on food entrepreneurs
5. Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?	Climate change opportunities for food entrepreneurs
6. How have you managed to cope with the changes in climate over the years?	Climate change coping strategies
7. What support do you require from government to succeed?	Required government or municipal support

Seven themes emerged from the data analysis conducted for this study:

- Entrepreneurial background
- Entrepreneurship in rural South Africa,
- Food entrepreneurs'
- The understanding of climate change
- The understanding of effects of climate change
- The effects of climate change on food entrepreneurs
- Climate change opportunities for food entrepreneurs
- Food entrepreneurs' climate change coping strategies
- The required government or municipal support.

The themes and the sub themes will be discussed in the next sections.

A description of how data was gathered and analysed is given below.

4.3 Entrepreneurial background

Several studies (Santoso, 2016:4; Xuan *et al.*, 2020:91; Lai *et al.*, 2020:51), have established that prior knowledge is required to identify an entrepreneurial opportunity and the sources include a personal background, education, work experience and from the empirical knowledge of the field of interest. In this study the researcher explored and made inferences between entrepreneurial background of the food entrepreneurs with their capability to evaluate information and to identify entrepreneurial opportunities within the context of climate change.

Participants were asked to provide a detailed description of their background. Most participants indicated that they came from a family where they were involved in farming and selling of their crop yields as a source of income. However, due to the changes in weather patterns they have not been able to get much from farming lately. This has led to a situation where they now must buy the same crops which they use to produce locally from somewhere and sell to sustain their families. Participants used their previous agricultural experiences as the conduit through which the backbone of their businesses was set. For example, some participants who had worked on a farm within the same district who were now involved in buying and selling of agricultural produce had this to say:

"I am a former farmworker who has been involved in farming from a very young age and never imagined one day owning a successful business. It was only when I was discovered and acknowledged for my passion for buying and selling, that I realised that in fact, I am a businesswoman". (Participant 3)

"At school, I used to like business studies and I passed it during my matric, I have always been interested in starting my business, but I was not sure which one. I was introduced to this food business by my friend who also has a shop and is doing well. Here I am selling fast food and we buy our stock cheaper from whole sellers and make profit". (Participant 4)

"Long back, my parents were commercial farmers, so as a family we were relying on agriculture for everything. In fact, all of my siblings were involved in farming and we would grow and sell vegetables to retail shops. Now I decided to grow my own vegetables using recent technologies in agriculture like drip irrigation, this is why I have fresh vegetables and I am still supplying to other local shops, at a small scale. There are only a few of us left we can supply fresh produce due to the change in climate". (Participant 5).

The participants' responses above are a clear indication that entrepreneurial interests can be influenced by an individual's background. Most of the participants have a farming entrepreneurial background which helped to propel them into food entrepreneurship albeit at higher level of food processing and retailing. It also must be noted that a change in the climate patterns opened up food retailing opportunities to satisfy a food demand created by shortages and falling yields. It can be argued that climate change has presented an opportunity whereby these women entrepreneurs have been upgraded up the food value chain from simple subsistence farmers to successful food entrepreneurs.

4.4 Entrepreneurship in rural South Africa

According to Boohene and Agyapong (2017), rural entrepreneurship can be used as a growth tool in developing countries like South Africa. Korsgaard *et al.* (2015:574) stated that entrepreneurship is an important catalyst for economic activity and economic growth in rural areas. There are many opportunities to encourage rural entrepreneurship. Thus, concerted efforts by many actors are needed to ensure that rural entrepreneurship thrives and can have an impact on people's welfare in different communities.

According to Müller and Tanvig (2015:6), rural entrepreneurship can be characterised as all types of economic activity that take place, relative to the national context, in areas characterized by wide open spaces and small population settlements. Entrepreneurship involves innovative practices, such as diversification of capital into non-farm (or non-agricultural) uses of resources. Rural entrepreneurs are involved in activities like catering, carpentry, tourism and spinning. Lately, there has been an increase in entrepreneurial activities in rural areas. (Ferguson *et al.*, 2015:9).

Participants were asked to describe how they view rural entrepreneurship in South Africa and most participants seemed to be optimistic about the growth of entrepreneurship in rural areas despite the challenges they face.

“Rural entrepreneurship in South Africa is growing despite the challenges that we face in the country. Here in rural areas, we have enough land or space but we face a lot of challenges. Otherwise, we have the potential to grow our businesses.”
(Participant 2).

“We do not have industries here in rural areas, therefore entrepreneurship here is good because we don’t need to worry about jobs and do not have to travel to urban areas to look for employment” (Participant 7).

Participants indicated that rural entrepreneurship is a very significant driver of rural economic development in line with literature findings. Participants also indicated that there was potential for growth in entrepreneurship activities within the rural areas. The potential for growth in entrepreneurship cannot be fully exploited under current infrastructure and services which are inadequate and falls short of what is required to work on the available land resources. There is therefore dire need to promote entrepreneurial activities in rural areas.

4.5 Food entrepreneurs’ understanding of climate change

Climate change refers to the changes in the earth’s climate system resulting in new weather patterns that remain in place for a long time. This length of time varies from a short time to decades to a long as hundreds of years (Werndl, 2016:33). Participant 1 had the following to say in connection to their understanding of climate change.

“Climate change is an increase in temperature, and this affects our crops and our animals. It also causes a lot of diseases. It is affecting everyone in the country”

Participant 8 added:

“It is the change in weather like now it is dry here and we don’t have rain anymore. Sometimes it rains in January, it used to rain October but, as we speak you see

everywhere its dry and we are affected. The farmers too are affected". And Participant 6 remarked:

"It has something to do with the climate. You know it's very hot and there is drought and a lot of problems affect us as people. In some places there is no water but it's different from place to place" (Participant 6). Participants had an understanding that climate change is linked to changes in weather patterns and natural hazards like drought. This is consistent with what was reported in the literature by several authors, who also linked climate change to changes in weather patterns (Ohba & Sugimoto, 2019:4277; Hashim & Hashim, 2016:4; Michalak, 2016:349) and consequently loss of livelihood particularly for rural people. The level of understanding for what climate change entails exhibited by participants bears hope that mitigation and adaptive interventions by these food entrepreneurs

The researcher made use of purposive and snowball sampling to select participants that meet the inclusion criteria. Purposive sampling was used to recruit the participants from the population to get the most suitable subjects to take part in the study. The selected participants were then used to get to other participants and this sampling approach is what is referred to as snowball sampling (Etikan *et al.*, 2016:24).

4.6 Effects of climate change on food entrepreneurs

Changes in climate, like extreme weather conditions, significantly affect the supply-demand chain with a huge effect on food production (Otto *et al.*, 2018:142). Some areas experience extreme temperatures, others lack adequate rain and these changes affect the production of agricultural crops (Sapkota *et al.*, 2016:53). Depending on how rapid climate changes will occur, the food industry will be adversely affected. If change is gradual, then there will be time for the socio-political and economic climate to adapt lessening the negative impact although even a slight temperature change could have devastating effects on agriculture, forestry and biodiversity in some areas (Wiebe *et al.*, 2015:85; Rao *et al.*, 2016:14).

In this study, participants were asked to describe how climate change had affected them as food entrepreneurs and they had the following to say:

"I think it contributes so much to reduced crop production and income for us who depend on agriculture for survival. Our businesses are affected because prices go up everywhere..." (Participant 4).

"The effects are bad because it's a chain, if one person is affected, it affects us all because the circulation of money is affected. Like here we don't have banks to borrow money and we depend on customers for our business capital and the customers are affected by climate change too. It's bad." (Participant 8)

"It just creates a lot of problems in the community, we hear on the radio about this climate change and that it is causing drought in our communities when there is drought, there is lack of food and here we sell food. It means at the end I will close my business." (Participant 7).

These responses are consistent with the findings of Vaghefi. (2016:19) as well as those of Masipa (2017:3), who postulated that the impact of climate change on entrepreneurship in rural communities is that it hinders entrepreneurs in finding more opportunities, acquire resources and support as well as lower their cost of doing business. Participants identified the problem of supply bottlenecks which puts pressure on prices to go up paring down food entrepreneurs' profitability. The food entrepreneurs are not always able to pass on the costs to their customers. Squeezing profitability can potentially cause their businesses to shut down permanently or seasonally.

4.7 Climate change opportunities for food entrepreneurs

Several women do not realise entrepreneurship opportunities when focusing on the difficulties they face in protecting their livelihoods, which are only intensified by climate change. However, the study reveals some potential climate-related opportunities. A business opportunity exists for the selling of grain imported from other places in South Africa which are not extremely affected by climate change. Another business opportunity is in the transportation of food that is purchased from wholesalers outside the rural

community. The following three sub-themes emanated from the main theme entrepreneurial opportunities for food entrepreneurs:

Women's access to land

Land is significant to the livelihoods and culture of people especially in rural areas as it provides the basis for poverty reduction, food security, gender equity, cultural survival and environmental protection to safeguard their rights (Akinola, 2018:34). Women constitute more than half of the rural population and the labour force on commercial farms, but they are deprived of ownership of land. In several ways, women who have benefited from land reform programs are excluded from the decision-making procedures on land use issues (Akinola, 2018:34). These challenges to women's access to land and security of tenure persist notwithstanding the progressive initiatives that have been made by the South African government. Participant 3 had the following to say:

"If only we can get land to expand our businesses it will be better. Land in rural areas is cheaper and it an opportunity for us as women to make use of this land and if we can have the same rights as men then we can do better in our businesses". (Participant 3).

The participant alludes to the challenge faced by women in acquiring and accessing land resources. The opportunity here is in addressing the land ownership issues so that women, who are already actively adapting and mitigating the effects of climate change, can be empowered through acquiring land resources to expand and make a success of their entrepreneurship endeavours.

Rural transport system

The challenge for female entrepreneurs in their rural area, with regard to climate change, is with the transport system. Due to the changes in weather patterns food has to be transported into areas that used to produce food in abundance. Food entrepreneurs are faced with the challenge to get their product in and out of the rural areas they operate in. The transport challenge is made worse by the fact that these female entrepreneurs are producing on a small scale and it is problematic to find affordable transportation to

different markets. They have to rely on other people who will be going to order their stock outside the rural community. Participant 4 had the following to say:

"When I go to order my stock I also go with other people or carry their things with my car and I get some money for transporting their goods. I also sell some grains that I buy from places like free state and many other places " (Participant 4).

Transport business opportunities to transport food in and out of markets are climate related opportunities which women must be empowered to exploit in the rural areas. Realising the full potential of the transportation business opportunities mean that the transport infrastructure must improve and women must be willing to learn and venture into the transportation for food as well.

Sustainable farming practices

South Africa's agriculture faces a myriad of climate-related threats, including changes in rainfall patterns, higher evaporation rates, higher temperatures, higher pests and diseases, and changes in disease and pest distribution ranges, decreased yields and spatial shifts in optimal growing regions (Agovino *et al.*, 2019:525). In addition to more conventional farming approaches, new sustainable practices are growing. In order to tackle climate change, to minimize the use of toxic pesticides and to allow optimal use of scarce resources while at least sustaining and sometimes increasing yields, so-called precision farming uses technology to continuously track and implement the relationship between agricultural inputs and outputs (Agovino *et al.*, 2019:525). For example, some women are now involved in the sale of hybrid seeds which are drought resistant as a way of generating household income. It was noted that some women were making use of agricultural technologies like drip irrigation to grow cash crops. This is a system of crop irrigation which involves the controlled delivery of water directly to individual plants through a network of tubes or pipes (Kavianand *et al.*, 2016:19). Participants had the following to say:

"Due to the problem of water, some of us have now moved to drip irrigation when it comes to watering our crops. The equipment is cheap in Joburg, so we buy and

use it to grow our crops for sale here. At least we are surviving here." (Participant 5).

"It is difficult with this change in temperatures, our crops are drying and we have to really make a plan. We sometimes check on the internet to see how others are coping in other countries, which technologies are being used to ensure that we do not lose our crops or livestock due to climate change." (Participant 3).

The adaptive and migratory processes which are normally executed by changing to more drought and disease resistant seed varieties are in themselves a business opportunity which rural women can exploit. The sale and maintenance of drought mitigating equipment such drip irrigation equipment is yet another business opportunity area where women can scale their entrepreneurial activities thereby running business that are relevant to climate change. Information communication is another area suggested by participant 4 where agricultural information centres are relevant to food entrepreneurs and farmers helping them to benchmark their methods find good prices for their crops and surplus. These agricultural information centres can be operated on profit basis to serve all value chain players with a rural community.

4.8 Food entrepreneurs 'climate change coping strategies

Women were asked to describe their coping strategies concerning to climate change and their businesses. Participants mentioned that some entrepreneurs whose businesses are agro-based and rely on water have been making use of wells which they dug. Some have been collecting rain water even though the rainfall had been erratic. When it comes to access to capital, the female entrepreneurs indicated that they pooled resources into savings or investment society where from which they receive a lump sum payment. They call this *stokvel* in South Africa. The participants had the following to say:

"As women, we organise ourselves into groups where each member contributes an agreed amount of money, that money we use it as a loan for our businesses. We call it stokvel. Some of us don't have access to banks to get a loan or money and we cannot afford one and we cannot also wait for the government to help us...." (Participant 2).

"You know, as women, it's difficult when our water supply is affected by drought and we have to dig very deep wells or wait so that we collect water when it rains, and it is not reliable." (Participant 6)

A number of opportunities exist that can create adaptive capacity among rural women (Ngorora & Mago, 2018:15). Opportunities for rural women range from emerging technologies, infrastructural growth and institutional developments, and these create assets key to women's livelihood and developing household resilience if effectively enabled by a participatory approach, catalysing greater risk appetite and ability to engage in entrepreneurial activities and eventually leading to a low-carbon, more vibrant rural economy (Akinbami *et al.*, 2019:119).

4.9 Required Government Support

The majority of rural entrepreneurs in the rural community believe that the government has a significant role to play if entrepreneurship is to grow in rural areas. These results confirm Ngorora and Mago's (2018:16) findings that the government is a significant player that creates institutions required for entrepreneurs to exist and function well. Female food entrepreneurs mentioned that the government can assist if they provide capital for entrepreneurs to grow their businesses. Participants indicated that the government must provide training opportunities on the basics of entrepreneurship thus helping to sharpen the opportunity recognition capabilities of entrepreneurs. The government must facilitate the development of infrastructure for entrepreneurial activities. Another participant reiterated that by providing equipment to entrepreneurs, the government can also help entrepreneurship grow, while others did not believe that the government is of any benefit to their growth because they accused government officials of being unethical in providing public services.

Provision for adequate infrastructural facilities

Infrastructure is a key factor to economic development as it is required in the production processes. Variations on the production infrastructure quality directly impacts the production performance of an enterprise adjusting output, income, profits and job creation capability (Jegade, 2019:30). The availability of infrastructure in most developing

countries especially in the rural areas is akin to economic empowerment. Participants had the following to say:

“For a business to run smooth there should be good infrastructure in rural areas and we don’t have that, poor road networks caused serious delays because they are some people who are selling perishable foods which have to be at the market before they go bad. We don’t have good infrastructure and it’s a priority for us” (Participant 5).

“We don’t have the infrastructure here in rural areas, and our government should help us in building infrastructure where we can do and learn on how to grow our businesses.”(Participant 6)

Climate change mitigation and adaptation is an opportunity to address infrastructure gaps such as in that supports transport and technology so that rural entrepreneurs can grow their businesses.

Provision for credit facilities

Entrepreneurs from under-represented and disadvantaged groups for instance rural women, often face more challenges when it comes to access to credit facilities often due to a lack of collateral and credit history. Participants had the following to say:

We struggle to get loans from the bank because we do not have the required credit score that is required by the banks for us to take loans for our bossiness. (Participant 6).

We do not have the required papers for us to get the loans and its only people who are working who have access to loans because they have a salary (Participant 1).

Climate change mitigation initiatives are also an opportunity to bolster the funding models for rural food entrepreneurs whereas stockvels plays a key role there is need to expand them and remodel them with other funding models with a view to ensure credit facilities inclusiveness.

Easy access to equipment

It was mentioned in the interviews that entrepreneurs are affected in a significant way by the lack of equipment necessary for the day to day running of their businesses.

"They should give us equipment to use for our projects...like tractors and seeds and irrigation. We cannot afford, stokvel alone is not enough" (Participant 7). Capital funding as a support to food entrepreneurs is prone to less corruption and inappropriate use but can assist women with the adaptive and migratory responses required against climate change.

Creation of a common market

A common market entails grouping several entrepreneurs in a value chain by way of a formal agreement in a common market, entrepreneurs also allow free trade and free movement of labour and capital within the entrepreneurship network. The business arrangement will be premised on providing improved economic benefits to all entrepreneurs within the common market. One of the participant has the following to say:

"We need a central place where we can sell our products and it has to be close to us, just like it is in the big cities, you find people go and sell their products at a central place and by going there you also learn and get ideas from those with established businesses." (Participant 3).

The development of a market is a central part of the infrastructure intervention required to ensure women food entrepreneurs can adapt to climate change. A central market can reduce the distance, cost and time to the market for most entrepreneurs enhancing profitability of their ventures.

Provision for entrepreneurial training

At the moment there are a myriad of entrepreneurship education and training initiatives in South Africa. However, these trainings are to a great extent uncoordinated and lack standardisation and effectiveness. The conversion rate from training to small enterprise or co-operative start-up is low when compared to other countries in the region and it

appears nothing is being done to better understand and assess the effectiveness of entrepreneurship training in fostering enterprises. Part of the response from the participants is as follows:

"Yes, the government must provide training opportunities on how to be an entrepreneur, as some of us had to learn for ourselves and it is not easy and we know they are running some training and they don't include us people from the rural areas" (Participant 4)

"I would say that the government is not helpful at all they are only corrupt and stealing there and the people in rural areas suffer the most...They don't care about us. There should be accountability when it comes to these programs targeted towards entrepreneurship" (Participant 8).

The exclusion of rural people from training programs constitute missed opportunities in helping them to adapt and mitigate the effects of climate change on the entrepreneurship activities. The low developmental status of rural areas and corruption could be blamed for the exclusion of rural areas in entrepreneurship training interventions funded by government.

Table 4.2: The relationship between the themes and the research questions

Research questions	Themes
8. Tell me as much as you can about your background.	Entrepreneurship background
9. How would you describe the view of Entrepreneurship in rural South Africa?	Entrepreneurship in rural South Africa
10. Can you please explain to me what you understand about climate change?	Food entrepreneurs' understanding of climate change
11. How has climate change affected you (challenges) as a food entrepreneur?	Effects of climate change on food entrepreneurs

12. Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?	Climate change opportunities for food entrepreneurs
13. How have you managed to cope with the changes in climate over the years?	Climate change coping strategies
14. Do you need any support from the government or your municipality to succeed as an entrepreneur? Explain.	Required government or municipal support

Source: Compiled by the researcher

There are seven (7) themes that emerged from this analysis, entrepreneurial background, entrepreneurship in rural South Africa, food entrepreneurs' understanding of climate change, effects of climate change, effects of climate change on food entrepreneurs, climate change opportunities for food entrepreneurs, food entrepreneurs' climate change coping strategies and required government or municipal support. Figure 4-1 illustrates the themes and also the sub-themes that will be discussed in this chapter.

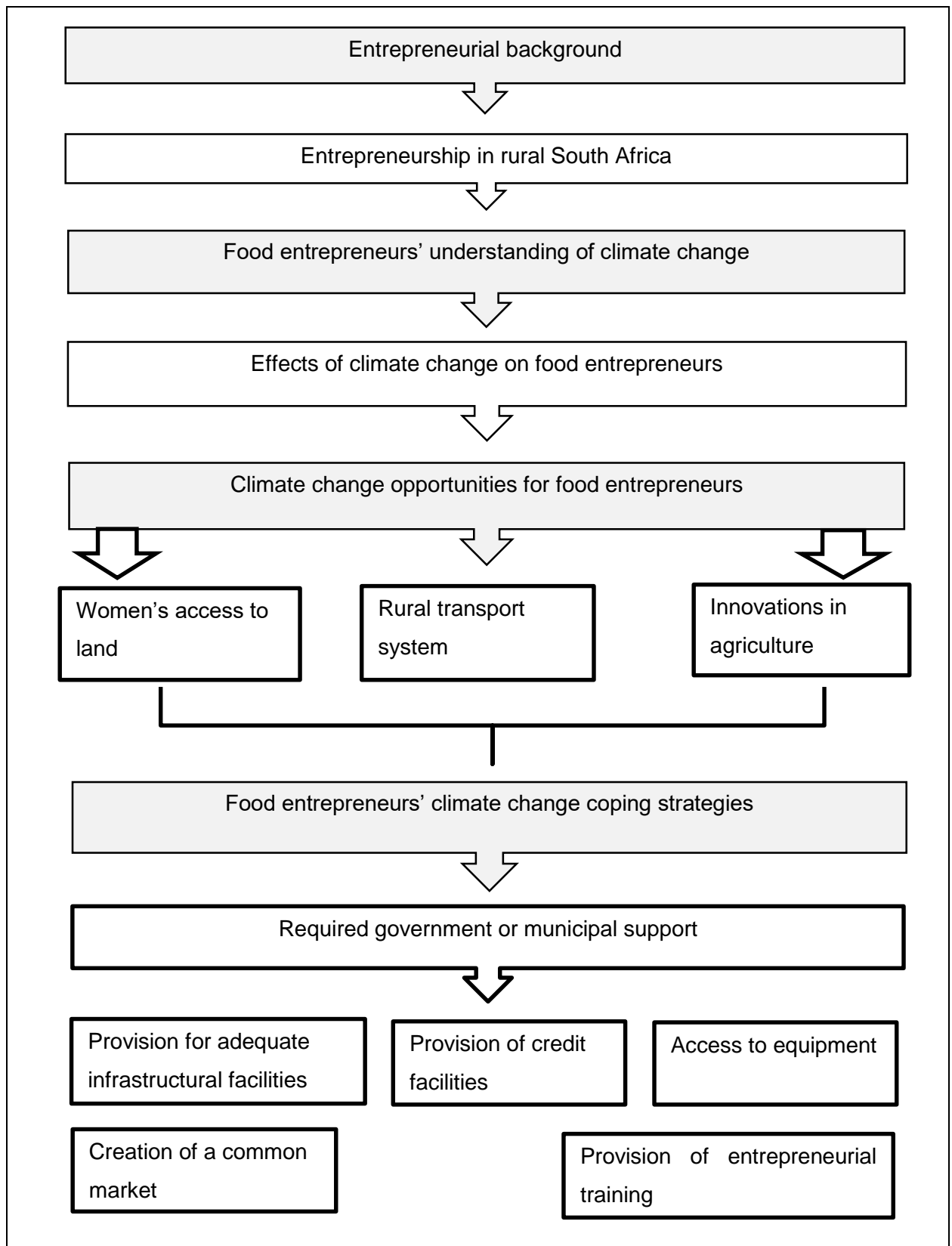


Figure 4-1: Themes that emanated from the research questions. Source: compiled by researcher

4.4 Discussion

Apart from women handling their daily household chores, women also play an important role in weakening the effects and changes in the climate. Women take the necessary action plans to reduce the risk associated with the change especially if it affects their livelihood. It can be noted that women use unique methods and tools as part of their adaptive strategies to ease and overcome amidst the challenges and changes.

The study has indicated that rural women and their households are affected by major climate changes as illustrated by the participants in the North West identified rural area. It has also been established that the women's understanding of these climate-related changes and how they affect their source of income and survival is improving. Several adaptation methods used by these women seem are mainly coping strategies rather than adaptation strategies that can build up livelihoods and thereby ultimately improve their drive. Moreover, the challenges that impede business growth are significant, including lack of skills, availability and access to finance.

According to Sefer (2020:3), to improve adaptation programming that may be given is to concentrate more on entrepreneurship, however, women are at the moment facing major challenges in developing small businesses. Most women do not see entrepreneurship opportunities that reflect on the obstacles they face in protecting their livelihoods, which are only intensified by climate change. Yet some future climate-related opportunities were exposed in the interviews with women and these are closely related to the challenges as the meaning of entrepreneurship entails.

This study contributes to the literature by showing interrelationship between women entrepreneurship, rural development and climate change. The data in this study offers knowledge about how human interactions with ecosystems can be handled in order to create a stable, well-balanced ecosystem that addresses the issue of food security. This will in turn improve the livelihood practices of the rural communities, especially, the women who are part of the vulnerable group to climate change effects such as a rise in temperature, unpredicted rainfall and flooding. In addition, the data collected helps to advance awareness of the possibility of translating the consequences of climate change into opportunities for entrepreneurship.

The data showed that the effects of climate change are not likely to be minimised, so adaptive steps that are appropriate for rural communities should be implemented for rural women to deal with the impacts of climate change. In addition, these adaptive strategies are possible entrepreneurship opportunities that will ultimately boost livelihood practices and thus reduce the level of poverty among rural women. However, development projects that serve the dual purposes of adaptive measures and entrepreneurship opportunities suitable for rural communities need to be identified and effectively monitored for the successful implementation of the proposed adaptive strategies.

Conclusion

Data collected for this research was presented in this chapter. The data was collected from eight participants who are female food entrepreneurs living in a rural community affected by climate change in South Africa. The chapter sought to solicit the participants' perceptions regarding climate related opportunities and challenges in a rural community in South Africa. Thematic content analysis identified themes and codes that were interconnected. Popular themes identified included entrepreneurial background, climate change opportunities for food entrepreneurs, Food entrepreneurs 'climate change coping strategies and required government support. Conclusion and recommendations are presented in the next chapter.

CHAPTER 5

EVALUATION, CONCLUSION AND RECOMMENDATIONS

5. Introduction

The study's findings on female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa are presented. The findings are literature controlled with other studies conducted on the same study focus area. The limitations of the study, the implication of the research findings and recommendations for future studies are also presented in this final chapter. The study's ability to satisfy the research objectives is discussed in the next section.

5.1 SATISFYING THE OBJECTIVES SET FOR THE RESEARCH

The primary objective this study was to explore female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa. A gap in literature of studies that explore climate-related opportunities and challenges in rural in South Africa was identified. There remain inequalities between rural and urban communities in terms of access to business start-ups initiatives and other forms of support. Hence, it is unknown whether in the context of climate change women living in rural areas perceive any entrepreneurship opportunities or challenges. The research objectives of this study and how they were achieved are discussed in the below:

1. To explore the current climate change adaptation strategies in the rural areas

Several adaptation strategies were being employed by the women food entrepreneurs in the rural areas: digging wells, collecting rain, transporting food from surplus places, using drought resistance seed varieties, adapting precision agriculture by using technology and deploying sustainable farming methods. Participants mentioned that some entrepreneurs whose businesses are agro-based and rely on water have been making use of wells which they dug. Some farmers have been collecting rain water even though the rainfall had been erratic. Capital generation for the women consisted in forming investment or

savings societies where members contribute agreed amounts on a regular basis which is then parcelled to members at given times. They call this *stokvel* in South Africa. The food shortages brought about by the changing weather patterns have made the women to embark into food retailing in which the food is transported from surplus areas and sold in deficit areas. Some food entrepreneurs are actually processing the food and selling the end product.

2. To explore climate change challenges for women's food enterprises

The findings revealed that changes in climate, like extreme weather conditions, has a negative effect on food production significantly affecting the food supply and demand chain, Bottlenecks in food supply causes food prices to rise and the costs many not be transferable across the value chain causing profitability of food enterprises to drop. In some instances, profitability's dangerously drops and affects the survival of food enterprises. Some areas experience extreme temperatures, others to lack rain, and these changes affect the production of agricultural crops.

3. To explore the opportunities associated with climate change challenges for enhancing food entrepreneurship development in the rural area.

A high number of the women do not realise entrepreneurship opportunities when focusing on the difficulties they face in protecting their livelihoods which are only intensified by climate change. However, the discussions with participants show the existence of some climate-related opportunities. For example, some women are now involved in the sale of hybrid seeds which are drought resistant as a way of generating household income. It was noted that some women were making use of agricultural technologies like drip irrigation to grow cash crops. The raising of climate change awareness among rural women builds knowledge and the use of sustainable farming methods which are also migratory to climate change.

4. To suggest a policy framework to enhance South Africa's rural women participation in climate entrepreneurship and other climate risk management practices.

. A policy framework that address the land rights for women, upgrade their capital raising capacity, address infrastructure gaps in the rural communities and ensures the smooth

flow of information throughout the food enterprise value chain is recommended to enhance South Africa's rural women participation in climate entrepreneurship. The four pronged policy framework is also relevant to upgrade rural women's awareness and participation in climate risks management practices.

The study satisfied its objective in light of the discussions above. A summary of the findings is presented in the next section.

The purpose of this study was to explore female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa. This is because there is paucity in literature of studies that explored climate-related opportunities and challenges in a rural community in South Africa. There remain inequalities between rural and urban communities in terms access to business start-ups and other forms of support. Hence, it is unknown whether in the context of climate change women living in rural areas perceive any entrepreneurship opportunities or challenges. The following were the research objectives of this study and how they were achieved:

5. To explore the current climate change adaptation strategies in the rural areas

It was mentioned that some entrepreneurs whose businesses are agro-based and rely on water have been making use of wells which they dug. Some have been collecting rain water even though the rainfall had been erratic. When it comes to access to capital. The female entrepreneurs indicated that they were involved in a savings or investment society to which members regularly contribute an agreed amount and from which they receive a lump sum payment. They call this *stokvel* in South Africa.

6. To explore climate change challenges for women's food enterprises

The findings revealed that changes in climate, like extreme weather conditions, significantly affect the supply-demand chain, with a huge effect on food production. Some areas experience extreme temperatures, others to lack rain, and these changes affect the production of agricultural crops.

7. To explore the opportunities associated with climate change challenges for enhancing food entrepreneurship development in the rural area.

Several women do not realise entrepreneurship opportunities when focusing on the difficulties they face in protecting their livelihoods, which are only intensified by climate change. However, the discussions with women do reveal some potential climate-related opportunities. For example, some women are now involved in the sale of hybrid seeds which are drought resistant as a way of generating household income. It was noted that some women were making use of agricultural technologies like drip irrigation to grow cash crops.

8. To suggest a policy framework to enhance South Africa's rural women participation in climate entrepreneurship and other climate risk management practices.

In view of the various factors that can affect livelihoods, including climate and environmental factors, as well as markets, there is a need to promote climate-smart agriculture that encourages the creation of locally tailored adaptation strategies.

Based on the information provided above it can be concluded that all the study objectives were achieved.

5.2 Summary of findings in relation to the research objectives

Results of the study reveal that most participants came from a family where they were involved in farming and selling of their crop yields as a source of income. However, due to the changes in weather patterns they have not been able to get much from farming lately. This has led to a situation where they now must buy the same crops which they use to produce locally from somewhere and sell to sustain their families. Participants used their previous agricultural experiences as the conduit through which the backbone of their businesses was set.

Participants had an understanding that climate change is linked to changes in weather patterns and natural hazards like drought. Several women could not realise entrepreneurship opportunities when focusing on the difficulties they face in protecting their livelihoods, which are only intensified by climate change. Discussions with

participants do show that climate related opportunities do exist. For example, some women are now involved in the sale of hybrid seeds which are drought resistant as a way of generating household income. It was noted that some women were making use of agricultural technologies like drip irrigation to grow cash crops. The majority of rural entrepreneurs in the rural community believe that the government has a significant role to play if entrepreneurship is to grow in rural areas.

The study found that there are major climate-related challenges affecting rural women and households. Understanding and awareness of these climate-related challenges and how they affect livelihoods is high. However, very little understanding was exhibited that these challenges are also associated with opportunities although discussions revealed them. Some of the participants diversified when faced with climate change challenges and opted to sell different products or offer services outside of their niche to make ends meet. Applying a diversification strategy allows them to adopt new opportunities within the market, and to enter into a new market or industry which the organization is not currently in, whilst also creating a new product for the new market.

The food supply bottlenecks presented entrepreneurship opportunities in the transportation and retailing of food to deficit areas at the same time attracting awareness campaigns on climate change mitigation and adaptation strategies. These food supply problems exert cost pressures and food security threats which curtail the survival and thriving of the female food entrepreneurs' businesses.

Table 5-1 shows how the findings of this study align with research on climate change and entrepreneurship elsewhere.

Author(s)	Related Study	Study's Focus	Main findings	Current Study's alignment
Sefer (2020).	A gender- and class-sensitive explanatory model for rural women entrepreneurship in Turkey	The study offered a gender- and class-sensitive framework for research on rural	Attention was drawn at interventions required to be taken at	In this study attention is drawn to the value chain of food enterprises in the

		women entrepreneurship by focusing on the women's agricultural cooperatives in Turkey	cooperative level focusing on lessening inequalities	rural areas were climate change induced food supply bottlenecks can set in motion destructive consequences for the rest of the value chain businesses.
Gurbuz and Ozkan, (2020).	Integrated environmental impact and risk assessment in rural women entrepreneurs	This study explored the extent women entrepreneurs operating in rural areas have been affected by environmental pollution and climate change	Environmental Pollution and climate change complicates the problems of rural entrepreneurs. .	Both studies reveal that climate change is responsible for loss of livelihood in rural communities. The fact that most women cannot recognise opportunities from the climate change challenges is concerning as the level of entrepreneurships in rural women required to mitigate these climate change challenges is still to be attained.
Akinbami et al. (2016)	Qualitative exploration of cultural practices inhibiting rural women entrepreneurship	The study investigated the beliefs, attitude and perceptions of	Awarenes of climate change impact is not a problem for most	Both studies reveal some level of awareness of climate change

	development in selected communities in Nigeria	rural women entrepreneurs about climate change and how these affect their mitigation and adaptive actions	women entrepreneurs but translating it into adaptation strategies is problematic.	and its impact on the environment. There is also awareness of the role that their current right to land ownership plays against growth and their climate change adaptation strategies.
Jaka and Shava, (2018)	Resilient rural women's livelihoods for poverty reduction and financial empowerment in semi-arid regions of Zimbabwe	An investigation on how rural women livelihoods can be implemented while empowering them in a climate change affected semi-arid district.	Lack of access to competitive markets, micro-insure rural women's livelihoods, lack of access to credit facilities, lack of entrepreneurial education and training were found to be impediments to economic empowerment of these entrepreneurs.	The studies are similar in the sense that they indicated the need for educational programmes aimed at teaching about entrepreneurship and training on the impacts of climate change, limited use of technology to stimulate rural women's livelihoods.
Akinbami, (2019)	Exploring opportunities in a climate-related setting and challenges for rural Nigerian women.	An examination of the awareness of women entrepreneurs in different agricultural zones.	Increased awareness of the effects of climate change is established among women farmers in vegetation zones that any other.	The studies are similar in that they have similar objectives but were conducted in different contexts. The women food

				entrepreneurs showed a high level of knowledge of climate change impact on their livelihoods.
Ajani and Igbokwe, (2012).	Promoting Entrepreneurship and Diversification as a Strategy for Climate Change Adaptation among Rural Women in Anambra State, Nigeria	The study identified enterprises carried out by rural women.	The study found out that appropriate measures should be taken to develop capabilities in order to empower rural women economically to cope with challenges of climate change. This will help to reduce poverty and vulnerability among rural women as well as enhance rural development.	Both studies indicate the need to come up with appropriate measures to develop capabilities in order to empower rural women economically to cope with challenges of climate change.
Meyiwa, (2014)	Women in selected rural municipalities: Resilience and agency against fragility to climate change.	The study investigated the meaning of climate change as ascribed to by a rural community and how it affects the rural dwellers	Scarcity of water emerged as one of the social problems exposing girls to gender based violence as they travel longer to fetch water.	Both studies Focused on how climate change is viewed; it's impact on the livelihood of people in rural areas and how they response to the effects, especially women

				entrepreneurs. experienced by the women in the communities.
--	--	--	--	--

The current study fits well among related studies adding to the body of knowledge the perspective and perceptions of food entrepreneurs on limits related opportunities and challenges in a rural community in South Africa.

5.3 Limitations of the study

The following are acknowledged:

- The qualitative study's utility is limited to a group with similar characteristics hence is contextual, findings cannot be generalised to the population or any other settings.
- A small group of female food entrepreneurs in a single rural location may not be representative of the entire sector.

5.4 Conclusion of the study

This study reveals that women in South Africa are highly aware of changes in their environment and can identify variability on their livelihoods due to climate change. Women are aware of the obstacles related to resources that hinder their capacity to take risks and the dependency culture on government action. Research shows some potential opportunities for women to participate in entrepreneurial activities given the necessary resources and facilitation offered. The findings of the study reaffirm the complex interrelationship between the environment (e.g. shifting climate patterns, depletion of forest resources, etc.) and the sensitive and active activities of human livelihoods. The growing effects of climate impact on women's livelihoods and the broader community in this area clearly indicate the need for additional support to help these women resolve the challenges they face and to take advantage of potential opportunities that may emerge as a result of changing contexts, new growth and climate finance flows.

This study is an assessment of key climate related opportunities and challenges associated with a changing environment which in turn is generating additional pressures on local livelihoods while adversely affecting women. Discourse in rural development have too often viewed women as 'passive actors' but acknowledging women's organizations' ability to participate in adaptation strategies and collective action as well as identifying the unique gender-related challenges they face including intersecting identity-based and wealth-based discrimination is crucial. Adaptation strategies can create and strengthen the resilience of people living in societies which are most vulnerable to climate change but it is absolutely critical to be gender-sensitive to such adaptation approaches.

A study by (van Riet, 2012) indicates that undertaking basic water harvesting through catching and saving water in baskets, pots and bowls, in order to be prepared for times of drought. Using traditional knowledge as a drought-coping mechanism, for example cutting down a *Motopi* tree, grinding it and feeding it to their cattle or consulting the lunar cycle and stars in order to determine seasonal patterns. Other strategies reported include eradicating foreign shrubs, taking water to the cattle instead of making them walk long distances, keeping cattle clean and rotating grazing fields.

However, one may easily explain this by drawing on a political economic mode of analysis, rather than simply ascribing it to ignorance on the part of farmers. As Hudson (2002) states, field rotation directly relates to the availability of boreholes. Commercial (also read historically advantaged and more wealthy) farmers typically have many more boreholes on their farms, making it easier to provide cattle with drinking water in various camps. Communal farms often have only one or two boreholes, making this much more difficult. This generally results in land degradation around existing watering points (van Riet, 2012).

It will be important to include local authorities and community-based organizations in implementing such strategies for gender-sensitive adaptation, as well as to respond across scales (for example including governments and private sector actors). There are wide varieties of opportunity among rural women to create adaptive ability. These range from emerging technologies, infrastructural growth and institutional developments, all of

which can create women's livelihood assets and household resilience if effectively enabled by a participatory approach, catalysing greater risk appetite and ability to engage in entrepreneurial activities and eventually leading to a low-carbon, more vibrant rural economy.

Conclusively, climate change is increasingly impacting people's livelihoods, and vulnerable people are experiencing particularly negative effects because of their lack of capacity to plan for and cope with the effects of climate change. The research clearly shows that there are major climate-related impacts affecting rural women and households in the North West Province. Among the women interviewed, understanding of these climate-related changes and how they affect livelihoods is high. Several of the adaptation methods used by rural women seem to be mainly coping strategies rather than adaptation strategies that can build up livelihoods and thereby improve resilience. Moreover, the challenges that impede business growth are significant, including lack of access to finance and skills. According to the human ecology theory human beings are part of the ecosystem and it is imperative to have a better understanding of the link between human social systems and the rest of the ecosystem.

5.5 Implications of the study findings

Self-employment will become a more noticeable and credible choice for women in rural areas as climate change takes a permanent root. These women have traditionally been excluded from the mainstream economy and unemployment continues to be a major issue affecting them so far. In order to bring socio-economic progress to the people of South Africa, government should capitalize on high levels of entrepreneurial interests within these societies.

5.6 Summary

This chapter concluded the research. The investigator sought to establish that the research had satisfied its objectives and draw conclusions based on the study's results. It is clear that the investigator achieved all the objectives of the study and ensured that quality management procedures were in place. The researcher also used reliable

strategies to ensure that the study results are trustworthy Recommendations were also formulated based on the findings from the study and are presented in the next section.

5.7 Practical applications and recommendations for future researchers

There is a gap in literature on female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa. For years' entrepreneurship among rural women was difficult due to their exclusion from the mainstream economy.

- The government needs to create platforms that encourage and aim at developing small businesses owned and run by women in rural areas.
- Institutions providing economic assistance and training support to entrepreneurs must be visible and accessible to rural women. There are many institutions that offer this, but because of lack of knowledge, many women in rural areas are not aware of this. All this can be done through workshops and seminars.
- For entrepreneurs to succeed in this age of business globalization, female food entrepreneurs must be trained to cope with changes in technology and leverage the use of information that is available in their fingertips and take advantage of the advancing technology. Further studies should try to compare female food entrepreneurs' perceived climate-related opportunities and challenges in both rural and urban communities in South Africa. The use of social media marketing has proved to be very beneficial to a lot of online stores. Learning this new skill and how to use their social media pages like WhatsApp, Facebook, Twitter, Instagram, LinkedIn can benefit them greatly and improve their customer service were necessary.
- Clear policies and visibility of organization in rural areas aimed at promoting women entrepreneurs.
- Mentoring done through offering programmes aimed at supporting emerging entrepreneurs in rural areas. The department of trade and industry can implement a mentorship programme with experienced entrepreneurs, and

follow-up meetings should be done on a monthly basis to monitor progress or any other areas that still require improvement and support.

- In view of the various factors that can affect livelihoods such as climate, other environmental factors and markets, promoting climate-smart agriculture encourages the creation of locally tailored strategies to help with adaptation strategies.

5.7.1 Action plan for recommendations raised above

Recommendations	Action Plan
Government intervention and support for small businesses owned by women.	<ul style="list-style-type: none"> • This can be achieved through seminars and workshops offered for free for the target market. Experienced women entrepreneurs can share their experiences and offer business advice. • Effective and efficient programmers that respond to real needs faced by these food entrepreneurs.
Accessibility of funding	<ul style="list-style-type: none"> • Registering of these businesses to databases and systems to promote access. • Registering of business accounts with registered banks. A track record of bank accounts and statements can thus be retrieved electronically. • Enhance accessibility of funds and information that could be

	<p>beneficial to their needs.</p> <p>Transfer of information can be done through workshops and through local radio stations.</p>
Training and development	<ul style="list-style-type: none"> • Most business schools offer short learning programmes aimed at teaching business owners the required skills and knowledge to adapt in the changing business environment. With the effects resulting from Covid, this could be beneficial for the business owners to adapt and be agile.
Clear policies	<ul style="list-style-type: none"> • Presentation of policies in all the official languages and, or, the official language of the study area that the study population will be able to relate with.
Mentorship programmes	<ul style="list-style-type: none"> • Experienced and successful women entrepreneurs to offer this. A monthly follow-up meeting to review and monitor progress.
Adaptive Strategies	<ul style="list-style-type: none"> • Using traditional knowledge that have worked in the past and improving upon them.

CONCLUSION

Chapter 5 concluded the study by presenting discussion on how the research objectives were satisfied consequently answering the research questions. The research findings are also presented and placed in the context of other studies in the same area. Recommendations of the study and for future studies are then presented as conclusion to the chapter.

REFERENCES

- Agovino, M., Casaccia, M., Ciommi, M., Ferrara, M., & Marchesano, K. (2019). Agriculture, climate change and sustainability: The case of EU-28. *Ecological Indicators*, 105, 525-543.
- Ajani, E. N., & Igbokwe, E. M. 2012. Promoting entrepreneurship and diversification as a strategy for climate change adaptation among rural women in Anambra State, Nigeria. *Journal of Agricultural Extension*, 16(2), 68-80.
- Akinbami, C. A. O., Olawoye, J. E., Adesina, F. A., & Nelson, V. 2019. Exploring potential climate-related entrepreneurship opportunities and challenges for rural Nigerian women. *Journal of Global Entrepreneurship Research*, 9(1):1-28.
- Akinola, A. O. (2018). Women, culture and Africa's land reform Agenda. *Frontiers in psychology*, 9, 2234.
- Akrong, S. S. 2013. *The effectiveness of the Khula Enterprise Finance Ltd's credit guarantee scheme* (Doctoral dissertation, Stellenbosch University).
- Althor, G., Watson, J. E., & Fuller, R. A. (2016). Global mismatch between greenhouse gas emissions and the burden of climate change. *Scientific reports*, 6, 20281.
- Anand, R., Kothari, S., & Kumar, N. 2016. South Africa: labour market dynamics and inequality. International Monetary Fund.
- Anríquez, G. 2010. Demystifying the Agricultural Feminization Myth and the Gender Burden. Background paper prepared for The State of Food and Agriculture 2011.
- Asante, F. A., & Amuakwa-Mensah, F. 2015. Climate change and variability in Ghana: Stocktaking. *Climate*, 3(1), 78-99.
- Assan, E., Suvedi, M., Schmitt Olabisi, L., & Allen, A. 2018. Coping with and adapting to climate change: A gender perspective from smallholder farming in Ghana. *Environments*, 5(8), 86.
- Ayandibu, A. O., & Houghton, J. 2017. The role of Small and Medium Scale Enterprise in local economic development (LED). *Journal of Business and Retail Management Research*, 11(2).
- Basias, N., & Pollalis, Y. (2018). Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business and Economics Research*, 7, 91-105
- Beyene, E. A. (2016). Impact of climate change and anthropogenic activities on livelihood of fishing community around Lake Tana, Ethiopia. *EC Agriculture*, 3, 548-557.
- Biyase, M., & Zwane, T. 2018. An empirical analysis of the determinants of poverty and household welfare in South Africa. *The Journal of Developing Areas*, 52(1), 115-130.

- Blasing, T. J., & Smith, K. 2016. Recent greenhouse gas concentrations.
- Boetto, H., & McKinnon, J. 2013. Rural women and climate change: A gender-inclusive perspective. *Australian Social Work*, 66(2), 234-247.
- Brand South Africa. 2017. State of Entrepreneurship in South Africa. Accessed 4 November 2018 from <https://www.brandsouthafrica.com/investments-immigration/state-of-entrepreneurship-in-south-africa>.
- Carnes, C. M., Gilstrap, F. E., Hitt, M. A., Ireland, R. D., Matz, J. W., & Woodman, R. W. 2019. Transforming a traditional research organization through public entrepreneurship. *Business Horizons*, 62(4), 437-449.
- Chavan, V. M., & Murkute, P. A. 2016. Role of women entrepreneurship in Indian economy. *International Journal of Science Technology and Management*, 5(3), 604-612.
- Chikaraishi, M., Fujiwara, A., Kaneko, S., Poumanyong, P., Komatsu, S., & Kalugin, A. (2015). The moderating effects of urbanization on carbon dioxide emissions: A latent class modeling approach. *Technological Forecasting and Social Change*, 90, 302-317.
- Chinyamurindi, W. T. (2018). Narratives of a sense of belonging: Perspectives from a sample of international students in South Africa. *South African Journal of Higher Education*, 32(3), 209-225.
- Cobbinah, C., & Chinyamurindi, W. T. (2018). Motivational factors for engaging in dirty work entrepreneurship among a sample of African immigrant entrepreneurs in South Africa. *SA Journal of Human Resource Management*, 16(1), 1-9.
- Dallas, H. F., & Rivers-Moore, N. (2014). Ecological consequences of global climate change for freshwater ecosystems in South Africa. *South African Journal of Science*, 110(5-6), 01-11.
- Dankelman, I. (2002). Climate change: Learning from gender analysis and women's experiences of organising for sustainable development. *Gender & Development*, 10(2), 21-29.
- de Groot, J., Mohlakoana, N., Knox, A., & Bressers, H. (2017). Fuelling women's empowerment? An exploration of the linkages between gender, entrepreneurship and access to energy in the informal food sector. *Energy Research & Social Science*, 28, 86-97.
- Davidsson, P., 2004, *Researching Entrepreneurship*, vol.5, Springer, New York, NY.
- Eastin, J. (2018). Climate change and gender equality in developing states. *World Development*, 107, 289-305.
- FAO IFAD IOM WFP. 2018. The Linkages between Migration, Agriculture, Food Security and Rural Development. Rome. 80pp. (<http://www.fao.org/3/CA0922EN/CA0922EN.pdf>). Licence: CC BY-NC-SA 3.0 IGO

- Flandroy, L., Poutahidis, T., Berg, G., Clarke, G., Dao, M. C., Decaestecker, E., & Sanz, Y. (2018). The impact of human activities and lifestyles on the interlinked microbiota and health of humans and of ecosystems. *Science of the total environment*, 627, 1018-1038.
- Flatø, M., Muttarak, R., & Pelsler, A. (2017). Women, weather, and woes: The triangular dynamics of female-headed households, economic vulnerability, and climate variability in South Africa. *World Development*, 90, 41-62.
- Friedman, R., Hirons, M. A., & Boyd, E. (2019). Vulnerability of Ghanaian women cocoa farmers to climate change: a typology. *Climate and Development*, 11(5), 446-458.
- Gabriel, M. 2017. An Assessment of the Challenges and Opportunities of Empowering Women Entrepreneurs in the Tourism Sector in KwaZulu-Natal Province.
- Gandure, S., Walker, S., & Botha, J. J. (2013). Farmers' perceptions of adaptation to climate change and water stress in a South African rural community. *Environ. Dev.* 5, 39e53.
- Gurbuz, I. B., & Ozkan, G. (2020). Integrated environmental impact and risk assessment in rural women entrepreneurs. *Environmental Science and Pollution Research*, 1-12.
- Guzman, J., and Kacperczyk, A. O. (2019). Gender gap in entrepreneurship. *Res. Policy* 48, 1666-1680. *Doi: 10.1016/j.respol.2019.03.012*
- Hitt, M. A., & Duane, R. (2019). The essence of strategic leadership: Managing human and social capital. *Journal of Leadership & Organizational Studies*, 9(1), 3-14.
- Hoddinott, J. (2014). Looking at development through a resilience lens. *Resilience for food and nutrition security*, 19.
- Hosseini, G., & Ramezani, A. (2016). Factors influencing sustainable entrepreneurship in small and medium-sized enterprises in Iran: A case study of food industry. *Sustainability*, 8(10), 1010.
- Hussain, A., Rasul, G., Mahapatra, B., & Tuladhar, S. (2016). Household food security in the face of climate change in the Hindu-Kush Himalayan region. *Food Security*, 8(5), 921-937.
- Iwasaki, S., Razafindrabe, B. H. N., & Shaw, R. (2009). Fishery livelihoods and adaptation to climate change: a case study of Chilika lagoon, India. *Mitigation and Adaptation Strategies for Global Change*, 14(4), 339-355.
- Iwu, C. G., & Nxopo, Z. (2015). Determining the specific support services required by female entrepreneurs in the South African tourism industry. *African Journal of Hospitality, Tourism and Leisure*, 4(2), 1-13.
- Jaka, H., & Shava, E. (2018). Resilient rural women's livelihoods for poverty alleviation and economic empowerment in semi-arid regions of Zimbabwe. *Jàmbá: Journal of Disaster Risk Studies*, 10(1).

- Jegade, D. (2019). Challenges facing the administration of ICT infrastructural facilities in public primary schools in Nigeria. *Electronic Research Journal of Engineering, Computer and Applied Sciences*, 1(2019):30-40.
- Jost, C., Kyazze, F., Naab, J., Neelormi, S., Kinyangi, J., Zougmore, R., ... & Nelson, S. (2016). Understanding gender dimensions of agriculture and climate change in smallholder farming communities. *Climate and Development*, 8(2), 133-144.
- Kasarda, J. D., & Bidwell, C. E. 2019. A human ecological theory of organizational structuring. In *Sociological Human Ecology* (pp. 183-236). Routledge.
- Kasarda, J. D., & Bidwell, C. E. (2019). A human ecological theory of organizational structuring. In *Sociological Human Ecology* (pp. 183-236). Routledge.
- Laris, P., Caillault, S., Dadashi, S., & Jo, A. (2015). The human ecology and geography of burning in an unstable savanna environment. *Journal of Ethnobiology*, 35(1), 111-139.
- Lawson, E. T., Alare, R. S., Salifu, A. R. Z., & Thompson-Hall, M. (2019). Dealing with climate change in semi-arid Ghana: understanding intersectional perceptions and adaptation strategies of women farmers. *GeoJournal*, 1-14.
- Lentswane, M. P. (2013). *The impact of development funding on community development: a case study of the National Development Agency in Makhuduthamaga Municipality in the Limpopo Province* (Doctoral dissertation, University of Limpopo (Turfloop Campus)).
- Littlewood, D., & Holt, D. 2018. Social entrepreneurship in South Africa: Exploring the influence of environment. *Business & Society*, 57(3), 525-561.
- Maja, T. N. (2019). *Livelihood diversification and poverty among rural households in Capricorn District, Limpopo Province, South Africa* (Doctoral dissertation).
- Mamabolo, M. A., Kerrin, M., & Kele, T. (2017). Entrepreneurship management skills requirements in an emerging economy: A South African outlook. *The Southern African Journal of Entrepreneurship and Small Business Management*, 9(1), 1-10.
- MacGregor, S. (2010). 'Gender and climate change': from impacts to discourses. *Journal of the Indian Ocean Region*, 6(2), 223-238
- Mahmoud, S. H., & Gan, T. Y. (2018). Impact of anthropogenic climate change and human activities on environment and ecosystem services in arid regions. *Science of the Total Environment*, 633, 1329-1344.
- Mayala, B. K., Fahey, C. A., Wei, D., Zinga, M. M., Bwana, V. M., Mlacha, T., ... & Mboera, L. E. (2015). Knowledge, perception and practices about malaria, climate change, livelihoods and food security among rural communities of central Tanzania. *Infectious Diseases of Poverty*, 4(1), 1-9.

- Masipa, T. S. 2017. The impact of climate change on food security in South Africa: Current realities and challenges ahead. *Jàmbá: Journal of Disaster Risk Studies*, 9(1), 1-7.
- Mastrorillo, M., Licker, R., Bohra-Mishra, P., Fagiolo, G., Estes, L. D., & Oppenheimer, M. (2016). The influence of climate variability on internal migration flows in South Africa. *Global Environmental Change*, 39, 155-169.
- Masumbe, S. L. (2018). *Rural entrepreneurs require interventions to increase their success rate in addressing the challenges they face* (Doctoral dissertation, University of Pretoria).
- Meyiwa, T., Maseti, T., Ngubane, S., Letsekha, T., & Rozani, C. (2014). Women in selected rural municipalities: Resilience and agency against vulnerabilities to climate change. *Agenda*, 28(3), 102-114.
- Mersha, A. A., & Van Laerhoven, F. (2016). A gender approach to understanding the differentiated impact of barriers to adaptation: responses to climate change in rural Ethiopia. *Regional Environmental Change*, 16(6), 1701-1713.
- Miles, M. P., & Morrison, M. (2020). An effectual leadership perspective for developing rural entrepreneurial ecosystems. *Small Business Economics*, 54(4), 933-949.
- Mugambiwa, S. S. (2018). Adaptation measures to sustain indigenous practices and the use of indigenous knowledge systems to adapt to climate change in Mutoko rural district of Zimbabwe. *Jàmbá: Journal of Disaster Risk Studies*, 10(1), 1-9.
- Network, H., Product, G. G. D., & Monitor, G. G. E. AEGIS Advancing Knowledge-Intensive Entrepreneurship and Innovation for Economic Growth and Social Well-Being in Europe BFTB Bang for the buck BRICS Brazil, Russia, India, China, South Africa.
- Nieman, G. (2001). Training entrepreneurs and small business enterprises in South Africa: a situational analysis. *Education+ Training*.
- Noya, I., González-García, S., Bacenetti, J., Fiala, M., & Moreira, M. T. (2018). Environmental impacts of the cultivation-phase associated with agricultural crops for feed production. *Journal of Cleaner Production*, 172, 3721-3733.
- Nyahunda, L., Makhubele, J. C., Mabvurira, V., & Matlakala, F. K. 2020. Vulnerabilities and Inequalities Experienced by Women in the Climate Change Discourse in South Africa's Rural Communities: Implications for Social Work. *The British Journal of Social Work*.
- Oduwole, O. A. (2018). The significance of innovative entrepreneurship policy formulation in achieving developmental goals in emerging economies: a case of South Africa informal economy. *International Journal of Research in Business, Economics, and Management*, 2(5), 142-156.

- Otto, I. M., Reckien, D., Reyer, C. P., Marcus, R., Le Masson, V., Jones, L., ... & Serdeczny, O. (2017). Social vulnerability to climate change: A review of concepts and evidence. *Regional environmental change*, 17(6), 1651-1662.
- Owens, T., Hoddinott, J., & Kinsey, B. (2003). Ex-ante actions and ex-post public responses to drought shocks: Evidence and simulations from Zimbabwe. *World Development*, 31(7), 1239-1255.
- Pearse, R. (2017). Gender and climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 8(2), e451.
- Pinkovetskaia, I. S., Nikitina, I. N., & Gromova, T. V. (2018). The role of small and medium entrepreneurship in the economy of Russia. *Montenegrin Journal of Economics*, 14(3), 177-188.
- Poston, D. L., Frisbie, W. P., & Micklin, M. (2019). Sociological human ecology: Theoretical and conceptual perspectives. In *Sociological Human Ecology* (pp. 91-123). Routledge.
- Pinkovetskaia, I. S., Nikitina, I. N., & Gromova, T. V. (2018). The role of small and medium entrepreneurship in the economy of Russia. *Montenegrin Journal of Economics*, 14(3), 177-188.
- Pittock, J. (2019). Are we there yet? The Murray-Darling Basin and sustainable water management. *Thesis Eleven*, 150(1), 119-130.
- Poston, M. J., Miller, M. A., Green, S. T., McCleney, A. B., Retherford, K. D., & Raut, U. (2019). Gas Storage Systems for In Situ Resource Utilization. *LPICo*, 2152, 5091.
- Poston, D. L., Frisbie, W. P., & Micklin, M. (2019). Sociological human ecology: Theoretical and conceptual perspectives. In *Sociological Human Ecology* (pp. 91-123). Routledge.
- Puupponen, A., Kortetmäki, T., Paloviita, A., & Järvelä, M. (2015). Social Acceptance of Climate Change Adaptation in Farms and Food Enterprises: A Case Study in Finland. *International Journal of Sociology of Agriculture and Food*, 22.
- Rao, N., Lawson, E. T., Raditloaneng, W. N., Solomon, D., & Angula, M. N. (2019). Gendered vulnerabilities to climate change: insights from the semi-arid regions of Africa and Asia. *Climate and Development*, 11(1), 14-26.
- Rogelj, J., Den Elzen, M., Höhne, N., Fransen, T., Fekete, H., Winkler, H., ... & Meinshausen, M. (2016). Paris Agreement climate proposals need a boost to keep warming well below 2 C. *Nature*, 534(7609), 631-639.
- Sapkota, P., Keenan, R. J., Paschen, J. A., & Ojha, H. R. (2016). Social production of vulnerability to climate change in the rural middle hills of Nepal. *Journal of Rural Studies*, 48, 53-64.

- Sekhampu, T. J. 2013. Determinants of poverty in a South African township. *Journal of Social Sciences*, 34(2):145-153.
- Sharaunga, S., & Mudhara, M. (2020). Analysis of Livelihood Strategies for Reducing Poverty Among Rural Women's Households: A Case Study of KwaZulu-Natal, South Africa. *Journal of International Development*.
- South Africa. Department of Co-operative governance. *Disaster Management Act, 2002: Amendment of regulations issued in terms of section 27(2)*.
- Sonjani, N. B. (2020). *Exploring the entrepreneurial interest among black women in an urban community* (Doctoral dissertation, North-West University (South Africa)).
- Spaull, N. (2018). South Africa's education crisis: The quality of education in South Africa 1994-2011 (Report commissioned by CDE). Johannesburg, South Africa: Centre for Development and Enterprise (CDE).
- Statistics SA (Statistics South African). 2018. Population characteristics <http://www.statssa.gov.za/?cat=15> Date of access: 16 October 2020
- Statistics South Africa. 2018. Youth employment still high in Q 1. Pretoria: Statistics South Africa. <http://www.statssa.gov.za/?p=11129>. Date of access: 16 October 2020.
- Su, H. N., & Moaniba, I. M. (2017). Does innovation respond to climate change? Empirical evidence from patents and greenhouse gas emissions. *Technological Forecasting and Social Change*, 122, 49-62.
- Sefer, B. K. (2020). A gender-and class-sensitive explanatory model for rural women entrepreneurship in Turkey. *International Journal of Gender and Entrepreneurship*
- Vaghefi, N., Shamsudin, M. N., Radam, A., & Rahim, K. A. (2016). Impact of climate change on food security in Malaysia: economic and policy adjustments for rice industry. *Journal of Integrative Environmental Sciences*, 13(1), 19-35.
- Van Riet, G., 2012, 'Recurrent drought in the Dr Ruth Segomotsi Mompati District Municipality of the North West Province in South Africa: An environmental justice perspective', *Jàmbá: Journal of Disaster Risk Studies* 4(1), Art. #52, 9 pages. <http://dx.doi.org/10.4102/jamba.v4i1.52>
- Vetter, S. H., Sapkota, T. B., Hillier, J., Stirling, C. M., Macdiarmid, J. I., Aleksandrowicz, L., & Smith, P. (2017). Greenhouse gas emissions from agricultural food production to supply Indian diets: Implications for climate change mitigation. *Agriculture, ecosystems & environment*, 237, 234-241.
- Watts, M. (2017). On the poverty of theory: natural hazards research in context. In *Environment* (pp. 57-88). Routledge.
- Wiebe, K., Lotze-Campen, H., Sands, R., Tabeau, A., van der Mensbrugge, D., Biewald, A., & Müller, C. (2015). Climate change impacts on agriculture in 2050 under a range of plausible socioeconomic and emissions scenarios. *Environmental Research Letters*, 10(8), 085010.

Worku, Z. (2016). The impact of over-regulation on small enterprises. *Risk Governance and Control: Financial Markets and Institutions*, 6(3):2-19.

Xavier, S.R., Kelly, D., Kew, J., Herington, M., Vorderwulbecke, A., 2012, Global Entrepreneurship Monitor, 2012 Global Report

ANNEXURES

Annexure A: Data collection tool

Female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa

Participant Name _____

Date: ___/___/___

INTRODUCTION/OPENING

My name is Bophelo Hobe, I am a Masters Student at the North-West University, Potchefstroom Campus. As a Master student in Business Administration, I am conducting a research which has been approved by the Ethics Committee of the North-West University. The aim of my research is to explore female food entrepreneurs' perceived climate-related opportunities and challenges in a rural community in South Africa

(Purpose) I would like to ask you some questions about entrepreneurship and climate change

(Motivation) I hope to use this information to inform policy makers, organisations promoting entrepreneurship and female entrepreneurs in rural South Africa.

(Time, confidentiality, tape recorder) The interview should take about 15 minutes. If you agree I would like to tape the interview in order not to lose any information. There are no right or wrong answers. Everything that you tell me will be handled confidential. Your participation is voluntary and you can withdraw at any given time. Are you available to respond to some questions at this time?

(Questions) Do you have any question before we begin the interview?

INTERVIEW GUIDE

Section A: Demographic Profile of Participants

1. Please tell me your age.
2. Tell me something about your background.
3. Please give me information on your education and qualifications you have achieved?
4. How long have you been involved in food entrepreneurship?

Section B: Research Questions

5. How would you define the view of Entrepreneurship in rural South Africa?
6. Can you please explain to me what you understand about climate change?
7. How has climate change affected you (challenges) as a food entrepreneur?
8. Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?
9. How have you managed to cope with the changes in climate over the years?
10. Is support from the government or your municipality necessary to succeed as an entrepreneur? Explain.

CLOSING

(Summary and clarification) Well, it has been a pleasure finding out about entrepreneurship, climate change challenges and opportunities. Let me briefly summarise the information that I have recorded during our interview.

(Maintain rapport) I appreciate the time you took for this interview. Is there anything else you think would like to add?

(In case of follow-up) I should have all the information I need. Would it be alright to call you at home if I have any more questions? If yes, please provide your contacts: +27 (0)_____

Annexure B: INTERVIEW TRANSCRIPTS

Participant 1:

Re 01: Good morning

Pa 01: Good morning, how are you.

Re 02: Thank you for participating in this study. Are you ready to begin?

Pa 02: Yes, I am.

Re 03: Please tell me your age

Pa 03: I am 33 years old.

Re 04: Please tell me something about your background?

Pa 04: I grew up in Pudimoe village. I am the first born child, and I have a younger brother and sister. My father passed away when I was in Std 11 (Grade 11). I needed to look for a job after Matric so I can help out in the family. My mother was a domestic worker she didn't have enough salary to cover for everything. I worked in KFC until I decided to start my own small business, doing this and that.

Re 05: How long have you been involved in food entrepreneurship?

Pa 05: Err, three years.

Re 06: How would you define the view of entrepreneurship in rural South Africa?

Pa 06: For us entrepreneurship is all about earning a living. Making money to survive and to be better people in the community.

Re 07: Can you please explain to me what you understand about climate change?

Pa :07: It's when it rains a lot, or it's too hot, and it affects the crops and our livestock. Climate change is an increase in temperature, and this affects our crops and our animals. It also causes a lot of diseases. It is affecting everyone in the country.

Re 08: How has climate change affected you (challenges) as a food entrepreneur?

Pa 08: When there is no rain, my business suffers a lot because my vegetables need water. I end up not ploughing back enough and my income gets less.

Re 09: Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?

Pa 09: It is difficult, so I end up exploring other types of businesses that will bring me money. My main line of business is selling fresh produce like vegetables, but when my crop is low, I end up baking cakes to sell in the community.

Re 10: How have you managed to cope with the changes in climate over the years?

Pa 10: It is not easy; hence I end up doing other businesses when things are difficult. I save money with other ladies in the community and it helps when things are rough.

Re 11: Is support from the government or your municipality necessary to succeed as an entrepreneur? Explain.

Pa 11: Sometimes it's not easy to grow our businesses because of not having enough money. Even the banks don't want to help us. We do not have the required papers for us to get the loans and its only people who are working who have access to loans because they have a salary and papers from their employers.

Re 12: Thank you so much for taking part. I appreciate your contribution.

Pa 12: Thank you sis Bophelo.

Participant 2:

Re 01: Hello, how are you?

Pa 01: Hello, I am good thanks, how are you?

Re 02: Great thanks, let's start.

Pa 02: Ok.

Re 03: Please tell me your age?

Pa 03: I am 41 years old.

Re 04: Please tell me something about your background?

Pa 04: I am the last born in my family. My father used to work in a farm herding cattle and sheep. My older brothers worked in the same farm, and I also developed interest in cattle farming and milking. I used to work in the farm during weekends, but my father wanted me to go to school and get a better education. After my matric, my father managed to buy a few cattle of his own, and sold a few to take me to college where I study business administration. My love for cattle farming never died. I eventually came back home and started running my father's business. My education helped with running the finances of the family business.

Re 05: Please give me information on your education and qualifications you have achieved?

Pa 05: I have a matric, and managed to complete my Diploma in Business Administration.

Re 06: How long have you been involved in food entrepreneurship?

Pa 06: I left my job as an admin clerk 5 years ago and came back home to run my family. I enjoy it very much and I love cattle and farming.

Re 07: How would you define the view of Entrepreneurship in rural South Africa?

Pa 08: Entrepreneurship is all about running your business and being the manager of your own business. Being your own boss, growing and eventually employing a person or two as it grows.

Re 09: Can you please explain to me what you understand about climate change?

Pa 09: Climate change involves the change in weather patterns, it can be extreme or less than usual.

Re 10: How has climate change affected you (challenges) as a food entrepreneur?

Pa 10: With our cattle, when there is less rain, there is less water and grass for the cows to eat. We needed to find alternative ways to give them water.

Re 11: Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?

Pa 11: The opportunities are there, but lack of funding possess a challenge. Our plan is to open a butchery, but we will need funding to get it up and running.

Re 11: How have you managed to cope with the changes in climate over the years?

Pa 11: As women, we organise ourselves into groups where each member contributes an agreed amount of money, that money we use it as a loan for our businesses. We call it stokvel. Some of us don't have access to banks to get a loan or money and we cannot afford one and we cannot also wait for the government to help us. So our savings help us to cope when things are not looking good.

Re 12: Is support from the government or your municipality necessary to succeed as an entrepreneur?

Pa 12: Yes, it is very important. Rural entrepreneurship in South Africa is growing despite the challenges that we face in the country. Here in rural areas, we have enough land or space but we face a lot of challenges. Otherwise, we have the potential to grow our businesses. Financial and leadership support can be very beneficial.

Re 13: Thank you so much for taking part in this interview.

Pa 13: Pleasure, I hope I am able to help.

Participant 3:

Re 01: Morning, how are you?

Pa 01: Good morning, I am doing well thanks, how are you?

Re 02: I am great thanks, can we start.

Pa 03: Yes, I am ready.

Re 04: Please tell me your age?

Pa 04: I am 33.

Re 05: Please tell me a bit about yourself and your background?

Pa 05: I am born and bred in Morokweng. I grew up a very active and inquisitive child. I struggled a bit in school, which led me to repeat two grades. That never stopped me to dream and aspire for more in life. I am hardworking and very dedicated. I shows in everything that I do.

Re 06: Please give me information on your education and qualifications you have achieved?

Pa 06: Unfortunately, I never managed to pursue my studies further, I only have a matric certificate.

Re 07: How long have you been involved in food entrepreneurship?

Pa 07: I am a former farmworker who has been involved in farming from a very young age and never imagined one day owning a successful business. It was only when I was discovered and acknowledged for my passion for buying and selling, that I realised that in fact, I am a businesswoman. I have always been involved in food business, but I have been actively running my own business since the last two years.

Re 08: How would you define the view of Entrepreneurship in rural South Africa?

Pa 08: Using what you have around you to make money. Supplying the needs to the people in our community.

Re 09: Can you please explain to me what you understand about climate change?

Pa 09: When the weather conditions worsen and affect the crops and our lives. Re 10: How has climate change affected you (challenges) as a food entrepreneur?

Pa 10: When there is no rain, we all suffer. Cows suffer, crops suffer, we also suffer as human, because there is no income, there is no food. It is difficult with this change in temperatures, our crops are drying and we have to really make a plan. We sometimes check on the internet to see how others are coping in other countries, which technologies are being used to ensure that we do not lose our crops or livestock due to climate change.

Re 11: Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?

Pa 11: If only we can get land to expand our businesses it will be better. Land in rural areas is cheaper and it an opportunity for us as women to make use of this land and if we can have the same rights as men then we can do better in our businesses. I feel like men get more opportunities than us as women, and we can also do well like them.

Re 12: How have you managed to cope with the changes in climate over the years?

Pa 12: Planning ahead always helps, for rainy days.

Re 13: Is support from the government or your municipality necessary to succeed as an entrepreneur? Explain.

Pa 13: Yes, the government must give us women more and equal opportunities as men. We are also capable like men in the farming business. We also need a central place where we can sell our products and it has to be close to us, just like it is in the big cities,

you find people go and sell their products at a central place and by going there you also learn and get ideas from those with established businesses.

Re 14: Thank you so much for taking part in the interview and sharing your insight.

Pa 14: Thank you, I am available anytime you need me for more questions.

Re 15: Thank you

Participant 4:

Re 01: Good evening, how are you?

Pa 01: Hello, I am well thanks, how are you?

Re 02: Great, thanks for asking. Thanks again for agreeing to take part in this interview, can we start.

Pa 02: Yes, we can.

Re 03: Please tell me your age?

Pa 03: 33

Re 04: Please tell me about your background?

Pa 05: I am the only child in the family. I grew up having many dreams and goals. I used to look at all the beautiful women in the magazines and TV and wish to be like them one day.

Re 05: Please give me information on your education and qualifications you have achieved?

Pa 05: I have a diploma in business studies.

Re 06: How long have you been involved in food entrepreneurship?

Pa 06: At school, I used to like business studies and I passed it during my matric, I have always been interested in starting my business, but I was not sure which one. I was introduced to this food business by my friend who also has a shop and is doing well. Here I am selling fast food and we buy our stock cheaper from whole sellers and make profit.

Re 07: How would you define the view of Entrepreneurship in rural South Africa?

Pa 07: Entrepreneurship is all about starting your own thing like a small business and running it, and making profit,

Re 08: Can you please explain to me what you understand about climate change?

Pa 08: Climate change involves the changes in weather.

Re 09: How has climate change affected you (challenges) as a food entrepreneur?

Pa 09: When there is no rain, the food prices go up. I think it contributes so much to reduced crop production and income for us who depend on agriculture for survival. Our businesses are affected because prices go up everywhere. Then I am forced to increase my food prices and some customers complain.

Re 10: Do you perceive any opportunities for you for entrepreneurship to develop amidst these challenges?

Pa 10: I try to make money in other ways. When I go to order my stock I also go with other people or carry their things with my car and I get some money for transporting their goods. I also sell some grains that I buy from places like free state and many other places.

Re 11: How have you managed to cope with the changes in climate over the years?

Pa 11: I run specials in my shops for stock to move. I give my trusted clients credit and they pay month end.

Re 12: Is support from the government or your municipality necessary to succeed as an entrepreneur? Explain.

Pa 12: Yes, the government must provide training opportunities on how to be an entrepreneur, as some of us had to learn for ourselves and it is not easy and we know they are running some training and they don't include us people from the rural areas.

Re 13: Thank you so much for your valuable inputs.

Pa 13: Pleasure, I am happy I can help.

Annexure C: Language Editing Certificate



ADDRESS

WEST END BUILDING
3RD FLOOR, OFFICE 30310
61 LEASK STREET
KLERKSDORP, 2570

CONTACTS

C: 073 700 0192
D: 083 536 6821
E: MAKETSEMUC@YAHOO.CO.UK
W: WWW.CALLINKINVESTMENTS.CO.ZA

Friday, 19 March 2021

CERTIFICATE OF ENGLISH EDITING

To whom it may concern

This is to certify that the dissertation with the title **Exploring perceptions of female food entrepreneurs in a rural community in South Africa**, to be submitted by HAWA BOPHELO HOBE (24138797) to the UNIVERSITY OF NORTH WEST has been edited for language by ABC Solutions, a division of Cal Link Investments. Neither the research content nor the author's intentions were altered in any way during the editing process.

ABC Solutions guarantees the quality of English language in this paper, provided our editor's changes are accepted and further changes made to the paper are checked by our editor. The referencing and sources were checked, as far as was possible, as per the university's referencing guidelines.

The final corrections and adjustments remain the responsibility of the author.

Callen W Maketshemu (MBA, DME, MACP)

Lead Academic and Business Coach, ABC Solutions

Cell: +27 73 700 0192/ +27 66 237 0561

Mail: maketshemuc@yahoo.co.uk