An Assessment Of Coping strategies To Reduce Food Insecurity In The Face Of Climate Change: Thecase Of Chakari A1 Resettled Farmers Ward 3,4 And 5

A dissertation submitted in partial fulfilment of the requirements of the Bachelor of Agricultural Science Honour's Degree in Agricultural Economics and Management.

Bindura University of Science Education

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DECLARATION

I hereby certify that the research project, "An assessment of coping strategies to reduce food insecurity in the face of climate change: the case of chakari a1 resettled farmers ward 3,4 and 5," submitted to the Department of Agricultural Economics, Education and Extension of the Bindura University of Science Education, is a record of original work completed by me Simbisai P Moyo under the direction and supervision of Dr E. Zivenge and that this work is submitted in partial fulfillment of the requirement.

DEDICATION

I dedicate this research to my family who helped financially for this dissertation and the rest of my Undergraduate program. May the Lord abundantly bless their fruitful efforts.

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My sincere gratitude goes to my supervisor Dr E. Zivenge for the guidance right from the start up until the end of the dissertation. Thank you for the patience and mentorship skills, your assistance has been so helpful in fine tuning my work and without you the project wouldn't have been such a success.

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ABSTRACT

This study examined how well coping mechanisms reduced food insecurity in the Chakari rural area, Wards 3, 4, and 5, of Zimbabwe's Mashonaland West province. The research strategy was a case study that included residents, and information from 60 participants—60 of whom were respondents was employed. Three data mining tools Focus Group Discussion (FGDs), semi-structured interviews, and observations—were used in the research. Findings showed that food insecurity is on the rise while agricultural production is declining. Preliminary findings showed that rainfall and temperature unpredictability had a detrimental influence on the area under study's residents' livelihoods, leaving many of them dependent on handouts. Three data mining tools Focus Group Interviews (FGDs), semi-structured questionaires, and observations were used in the research. Farmers in Chakari rural area held varied opinions on the causes of climate change. All a1 resettled farmers attributed the problem to human activities such pollution and inadequate environmental management.The research also showed that the homes in Chakari rural area ward 3,4 and 5 employ several coping mechanisms in order to combat climate change and maintain food security. However, many of the tactics they employ are reportedly ineffective because they are not sustainable and instead degrade livelihoods. The study showed that households without assets were having a harder time coping than those with stronger assets. The government was urged to consider the needs of rural areas while formulating its annual plans, and it was suggested that women and rural communities participate in and make decisions on initiatives that will benefit them. Given that they were one of the successful coping mechanisms to lessen food insecurity in the face of climate change, recommendations included income-generating initiatives, water harvesting, and shifting planting dates.

ABBREVIATIONS AND ACRONYMS

CC & V – Climate Change and Variability

GoZ – Government of Zimbabwe

CRiSTAL – Community Based Risk Screening Tool – Adaptation and Livelihoods

LRRP - Land Reform Resettlement Program

GMB - Grain Marketing Board

AMP - Agricultural Marketing Plan

ZIMAsset - Zimbabwe Agenda for Sustainable Socio-Economic Transformation

NGOs - Non-Governmental Organizations

ZFSO – Zimbabwe Food Security Outlook

GDP – Gross Domestic Product

IPCC – International Panel on Climate Change

UNFCCC – United Nations Framework Convention on Climate Change

GHG – Greenhouse Gases

WHO – World Health Organization

FAO – Food and Agriculture Organization

WB – World Bank

SDGs – Sustainable Development Goals

UN – United Nation

ZAPF – Zimbabwe Agriculture Policy Framework

UNDP – United Nations Development Programme

IFPR - International Food Policy Research Institute

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Chapter One

1.0 INTRODUCTION

This chapter provides the study's background, problem statement, objectives, and research questions. It also includes justifications, as well as the limitation of the study.

1.1Background of the study

Global food security has been seriously threatened by climate change, with developing nations bearing the brunt of this impact. The ability of Sub-Saharan Africa to feed itself and use creative coping mechanisms for sustainable development has come under scrutiny as a result of the region's transition from drier to semi-arid climatic conditions. The subtropical regions of Africa have experienced irregular rainfall patterns over the past three decades, which have had a considerable influence on agricultural and food production, Skoufias et al. (2011). Numerous people have been impacted, especially women and children, as a result of crops and cattle failing to swiftly adjust to these challenging climatic circumstances.

Even though rural Africans may not fully comprehend the concept of global warming or climate change, they are affected by its negative consequences. These effects include a significant decrease in precipitation and humidity, rising air temperatures, increased sunlight intensity, and seasonal changes in rainfall patterns. These effects have serious negative consequences for food security particularly in developing countries where many countries like Tanzania, Ghana, Nigeria and Zimbabwe just to mention a few were distressed, and their decades of development have been knocked off. According to Skoufias et al. (2011), the poor are more vulnerable to the effects of climate change and have few assets for resilience. Climate is more important to the poor in Sub-Saharan Africa because they rely heavily on nature-dependent agricultural activities. When the poor and rural farmers lack adequate information about climate change, they are unable to employ innovative coping strategies to mitigate its effects.

Poor people, especially those who live in rural areas, have little or no control over public resources. They also have little or no influence on local or national politics, and their voices are merely empty hollows since no one values them. Since this, they probably to

utilize techniques that leave them more susceptible to numerous shocks or to have less effective coping mechanisms with climate change. Mudimu (2011) pointed out that although marginalized groups make up more than 70% of the population, they have less access to and don't control more than 80% of the resources. This scenario is better described as development in an unequal world. This contributes to their vulnerability due to the negative effects of climate change yet experience has shown that the rural dwellers are central to improving their lives because that is where the majority resides, and therefore they must play a pivotal role in community-based coping initiatives using unique indigenous knowledge.

A variety of projects have reportedly been launched to improve the coping mechanisms of African communities, according to Mudimu (2011). A good example is the 2011 launch of the community-based Risk Screening Tool-Adaptation and Livelihoods (CRISTAL) tool in Mozambique. The techniques proposed by the tool are thought to improve the environment while boosting people's livelihoods without depleting economic resources or having the potential to worsen it. This model or framework assisted farmers in modifying their planting dates, for example, to correspond with the new rainfall regime, in order to adapt to seasonal changes on the commencement and cessation of rainfall. The Zimbabwean government has introduced a number of plans to enhance the lives of those who live in rural areas in an effort to lessen food insecurity. Some of the new policies are

- More than 350 000 indigenous families were relocated during the land reform and resettlement programme (LRRP) of 2000 using the A1 and A2 models.
- Operation Maguta was a 2005 initiative led by the Zimbabwe Defence Forces (ZDF) and the ministry of finance that aimed to increase agriculture production.
- Aiming to empower farmers by providing them with farming equipment that meets their needs, the Agriculture Mechanization Programme (AMP) was established in 2007.
- The Grain Marketing Board (GMB) coordinated agricultural projects from 2000 to 2011 with the goal of providing new farmers with financing to purchase seeds, fertilizers, machinery, and agrochemicals on a credit basis.

- The Zimbabwe Accelerated Socio-Economic Transformation (ZimAsset) has a 2013–2018 timeframe.

Despite all of these attempts, climate change is still creating chaos on rural communities and stripping them of their material, social, and financial resources. The goal of this research is to assess how A1 resettled farmers copy with different strategies during these times of food insecurity and to develop better coping mechanisms that will maintain living standards and ensure sustainable development, hence assisting in the viability of government initiatives at the household level. Zimbabwe, like the majority of African nations, has seen the consequences of climate change. Since independence, the average annual growth of agricultural output has considerably decreased due to climatic change (Rukuni et al, 2003). As a result, the nation today faces a serious food safety crisis, and many households are presently dependent on nongovernmental organizations (NGO) for their food, leading to reliance syndrome.

Agriculture's contribution to the Gross Domestic Product (GDP) peaked in 2008 at 15–20%, but has since been declining because of the of climate change and variability (Zimbabwe Food Security Outlook, 2013. According to Mudimu (2011), at least 70% % of the general population the nation depends on agriculture for a living, and their resources for coping come from the agricultural sector through saving and investing. The majority of Zimbabwe's unfavourable weather patterns, according to Mortimore and Adams (2001), make the country sensitive to climate change. Zimbabwe's rural livelihoods have been significantly impacted by the unfavourable climate, and better coping mechanisms are required to lessen food insecurity and promote sustainable development.

Climate change, in the opinion of Phiri, Ndlovu, and Chiname (2014), has a mostly harmful impact on rural residents' quality of life. It is difficult to bear the complex environmental and agricultural crises that these people are experiencing as a result of climate change. Reduced food supplies, scarce water supplies, and dwindling animals affect everyone in rural communities, but women and children are most handicapped. Massive male migration is a problem for women and children as well because it increases their household work.

There have been initiatives to help rural residents better adapt to the effects of climate change. People in Tsholothso, for instance, have adjusted to the adverse rippling effects of the climate by taking a number of steps, including growing drought-

resistant crops, contour ploughing, and crop rotation among others (Phiri et al., 2014). Protecting the underprivileged from the negative consequences of climate change requires effective climate change adaptation. However, such coping strategies and endeavours frequently exhibit fragmented, unplanned, insufficient, and unproductive behaviour.

In light of the aforementioned studies, it is necessary to develop strategies to help farmers and locals in rural areas adapt to climate change. Therefore, this study aims to investigate the efficacy of coping mechanisms employed by the A1 farmers in Chakari rural region under Sanyati district to lessen the incidences of food insecurity in the face of climate change.

1.2 Statement of the problem

The majority of discussions regarding climate change have focused on its effects rather than how individuals should handle to the shocks from climate change crease food insecurity. Almost 90% of the rural developing country households experience severe food insecurity, particularly in the time after harvest (Phiri et al. 2014). It is important to develop coping mechanism to lessen lack of access to food in the face of climate change because Most locals in these areas rely on rain-fed agriculture for food a living and more than two thirds of Zimbabwe is made up of arid and semi-arid terrain. Climate change has a negative influence on the capacity of the rural people to feed oneself. Mahiya and Gukurume's (2014) argument, low agricultural output, which is exacerbated by Variability and climate change, is directly related to pervasive poverty and food insecurity in African nations. As a result, there is a lot of unpredictability surrounding the agricultural sector in many rural areas like Chakari since the effects of climate change are already evident. The food insecurity is caused by climate change which has a detrimental effect on meal frequency and everyone in the household, especially children under five, is particularly noteworthy. This reality traps numerous homes stuck within a cycle of poverty and undoes decades of progress. Therefore, the purpose of this study is to assess how A1 resettled farmers copy with different strategies during time of food insecurity to examine the efficiency of their coping mechanisms and to identify the coping mechanisms that should be prioritized so as to guarantee the household's food security and the sustainability of development.

1.3 Research Objectives

- The main purpose of this study is to assess how A1 resettled farmers of Chakari rural area copy with different strategies during time of food insecurity

Below are the specific objectives which will guide the study:

- To assess food security status
- To identify missing food groups of A1 resettled farmers of Chakari rural area.
- To identify the copping strategies employed by A1 resettled farmers in Chakari in the face of climate change
- To explore the effectiveness of coping strategies used in sustaining livelihoods and ensur food security in Chakari rural area

1.4 Research questions

The study aims to address the following questions.

1. What is the current food security status of A1 resettled farmers in Chakari?
2. What food groups are missing or lacking in the diets of A1 resettled farmers?
3. What strategies do A1 resettled farmers use to cope with food shortages or insecurity?
4. How effective are the coping strategies used by A1 resettled farmers in dealing with food insecurity and sustaining their livelihoods?

1.5 Justification of the study

Rural households clearly need to be capable to comprehend and manage the effects of global warming. The principal aim of the investigation was to ascertain how to make rural livelihoods sustainable so that they will benefit the next generation, especially in light of mounting evidence of climate change's negative effects. Understanding and controlling climate change shocks is clearly necessary Because it drives many homes to. consider with conscience the multidimensional nature of global climate change and its local level implications, this awareness helps to open up chances for improving overall vulnerability.

In terms of the information gap, there is currently a dearth of study on the impact of climate change at the local community level, notably in Southern Africa. The study's findings are expected to add to a body of information that will give academics, global decision-makers, local government officials, and planners a thorough grasp of the dynamics of local livelihoods in relation to climate change consequences. The effective development of intervention strategies to address specific difficulties in ways relevant to the regional conditions depends on having a thorough grasp of the local challenges and resulting livelihoods.

In order to help peasant communities and policymakers in low-income countries like Zimbabwe improved land, environmental, and food security management, the study looks for scientifically based strategic solutions. These solutions will help to improve the ability of rural land use systems, in order to adapt to climate change. Future researchers and professionals working in the fields of local climate change and associated effect patterns are expected to use it as a starting point and point of reference.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The research on coping mechanisms to lessen food insecurity in the context of climate change is thoroughly reviewed in this chapter. The chapter starts with a definition of the key terms used in the study, followed by an evaluation of the state of global food security. The following sections of the chapter look at the missing food groups and the gaps of the study.

2.1 Definition of key Terms

2.1.1 Food security

When a person has access to enough, safe, and nourishing food at all times to suit their dietary needs and food preferences for an active and healthy life, they are said to be in a state of food security. Food availability, accessibility, use, and stability are its four key constituents. In other words, having access to enough nutritious food that is safe to consume and having the resources to do so is food security (FAO, 2018).

2.1.2Food insecurity

It describes a scenario in which people lack access to sufficient food supplies because of a variety of factors, such as poverty, political unrest, natural disasters, and climate change. Malnutrition, hunger, and other health issues are all consequences of food insecurity, particularly for vulnerable groups like children and expectant mothers (FAO et al., 2019).

2.1.3 Climate change

The term "climate change" describes the long-term modifications to the Earth's climate, such as variations in temperature, precipitation, and weather patterns, brought on by human activities like the combustion of fossil fuels and deforestation. Agriculture, food security, human health, and other aspects of human societies as well as the environment, ecosystems, and the former are all significantly impacted by climate change. One of the most important international problems we currently face is climate change (IPPC, 2014).

2.1.4 Coping

The act of handling stress, hardship, or challenging circumstances is referred to as coping. Coping mechanisms can either be problem-focused, in which case they deal with the stressor's origin, or emotion-focused, in which case they deal with the stressor's emotional impact. Depending on how effectively they work in lowering stress and fostering wellbeing, coping mechanisms might be considered adaptive or maladaptive. Maladaptive coping techniques include avoidance, substance abuse, and denial. Adaptive coping techniques include asking for social support, problem-solving, and positive appraisal (Folkman & Lazarus,2021).

2.1.5 Vulnerability

According to Quisumbing, (2003) there were two basic approaches to household vulnerability put forth in the economic research. According to the initial method, vulnerability is characterized as a drop-in consumption that can be linked to insured risk exposure or, more broadly, to a lack of efficient coping strategies.

The second strategy examines the decrease in living standards below a predetermined level, such as the poverty line. Vulnerability in both strategies shows a downward trend in living standards. According to Drowning's (2008) research, both of all of these methods share a belief that the poor are the most sensitive to and affected by environmental change. The major factors of vulnerability, according to definitions of vulnerability, are stressors, to which the populations in wards 3, 4, and 5 of the Chakari rural region are exposed. The study's definition of vulnerability is how vulnerable families are to food insecurity caused by climate change and climate variability.

2.2 Assessment of food security status

Throughout the last decades, a lot of study has been conducted on the assessment of food security status. In 2006, Coates, Maxwell, and Caldwell both highlight the importance of creating and improving methodologies to quantify food security, identify vulnerable populations, and monitor changes over time. A combination of the Coping Strategies Index (CSI) and the Household Food Insecurity Access Scale (HFIAS) was used, for instance, by Sultana et al. (2020) in Bangladesh to evaluate the state of household food security in the face of climate-related disasters. Their research showed that most households in the study area experienced food insecurity and were extremely vulnerable to the effects of climate change.

Similarly, to this, Mavhura et al. (2017) used the Livelihood Vulnerability Index (LVI) to evaluate the state of rural families' food security in the face of climat0 change in Zimbabwe. The necessity for programs that address bot food security and climate change adaptation was highlighted by the study's finding that households in the most food insecure regions also had the highest sensitivity to the effects of the latter. However, a similar study done in Kenya which was conducted by Njenga et al. (2020) found that food insecurity was widespread among farmers in smallholdings that depend on rain-fed0agriculture for their livelihoods.

2.3 Identifying missing food groups

Identifying missing food groups is very essential for understanding the nutritional gaps that contribute to food insecurity. In addition to insufficient quantities of food, food insecurity is characterised by lack of the variety of foods consumed worldwide in many countries, the diets of many poorest people consist mainly in food mainstays like rice, wheat, and corn the little access to animal products, fruits and vegetables (FAO, 2021).In regard to this, many studies have been conducted in different countries for example in Bangladesh, Ruel et al. (2018) discovered that poor households' diets were dominated by rice, with low intake of other food groups such fruits, vegetables, and animal products. Similar findings were made by Gelli et al. (2019) in Ethiopia, who discovered that few other food groups were consumed in rural households' diets, which were dominated by grains.

2.4 Coping strategies employed by smallholder farmers in the face of climate change

The availability of natural resources, crop yields, and water supply are all impacted by climate change, which poses a serious danger to global food security. Developing nations, where most of the population depends on agriculture for a living, are particularly hard hit by the effects of climate change. In an effort to lessen the impacts of global warming on their food security, people have created a variety of coping mechanisms. The use of irrigation systems, conservation agriculture methods, adopting crop varieties resistant to drought, and diversifying crop types are a few of these strategies (IPCC, 2021).

According to research studies have shown that, coping mechanisms are crucial in lowering insufficient access to food due to climate change. For instance, a research conducted in Ethiopia by Arslan et al. (2018) indicated that farmers who used conservation agriculture methods produced and earned more crops than those did not. In a similar vein, a study

conducted in Kenya by Njenga et al. (2020) discovered that farmers who varied their crop yields had greater food security than those who did not.

2.5 Exploring the effectiveness of coping strategies in sustaining livelihoods and ensuring food insecurity

An important field of study is with how well coping mechanisms work to maintain livelihoods and provide food security in view of climate change. Its efficiency in various coping mechanisms in preserving food security among pastoralist groups was examined in Kenya by Mutisya et al. (2016). In spite of the fact that migration and livestock diversification helped maintain food security in th near term, the study indicated that due to increasing number and intensity of climate related shocks, these coping mechanisms were frequently insufficient to maintain livelihoods over the long run.

2.6 Research gap

Despite the growing interest adaptation techniques to lessen food poverty in the face of climate change, there are still significant gaps in the literature. First there is a lack of empirical evidence on the effectiveness on the coping strategies, particularly in developing nations when there is food shortages mostly prevalent (FAO et al., 2020). Second there is need for more research on the social and cultural aspects of coping strategies.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

In this chapter the researcher gives a description of the research region used as a study site. The target population's sample size is established and the sampling process is also explained. Tools used to gather data are described in the section of data collection methodology the research's data display techniques and analytical approach.

3.1 Research study area

In Zimbabwe's Mashonaland West region is where the mining community of Chakari is. It is located around 38 kilometers north of Kadoma and 33 kilometers west of Chegutu. According to the 2022 Population Census, the village is home to 8,415 people. One of Zimbabwe's biggest gold producers, the Dalny Mine, continues to produce gold today. In the region, crops like cotton, wheat, sorghum, barley, and maize are all farmed. This location's red soil has a significant mineral content. The area is characterised by extreme heat in the range of 18 to 36 degrees Celsius. The amount of rain that falls is medium to low, averaging +/- 450mm annually. Mining is the main sources of income of the 40% of the population in the study area and the remaining 60% depend on seasonal agriculture. The study was place specifically in wards 3,4 and 5out of the 16 district wards. The following map is showing where the study area is located at.

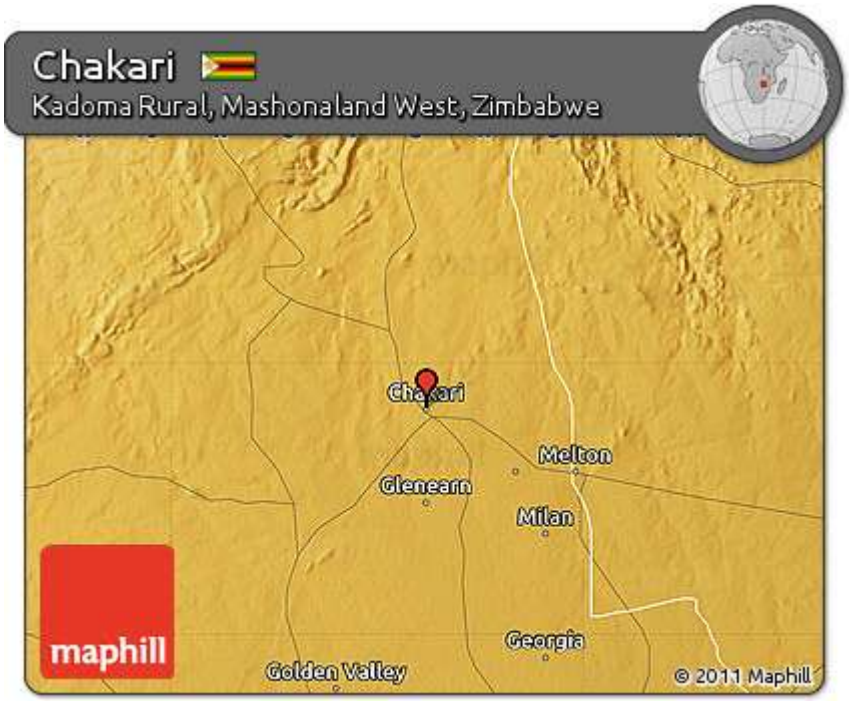

Figure 1 Map of Chakari

3.3 Research Design

A1 resettled famers in Chakari rural area were the study's target audience. The researcher made the decision to select the farmers she felt would contribute to the topic under inquiry. This sampling method is judgemental in its approach. The convenience sampling technique was used to choose the respondents after the purposive technique. Responses were chosen from respondents based on their expertise and experience in living in Chakari as A1 resettled farmers. Convenience sampling was employed because there is a good chance of choosing people who have information that is extremely pertinent to the subject being studied. Secondly, using basic random sampling, 15 farmers from each ward 3,4 5, and 6 were chosen at random, resulting in a final sample of 60 farmers who were interviewed. Both primary and secondary data were gathered and utilized. A selected sample of the targeted A1 resettled farmers was taken, and primary data were gathered using a well-structured questionnaire.

3.4Data collection methods

Depending on the sort of study being conducted and the methodology chosen, a variety of data collection techniques might be used. Focus group interviews, in-person interviews, and

documentary analysis were the three primary data collection methods employed in this study, as it was directed by the mixed research design.

3.4.1 Focus group discussion (FGDs)

The focus groups that were chosen as an efficient means of gathering data. According to Catterall et al. (1997), FGDs employed because it gives a broad swath of the population viewpoints on coping mechanisms to lessen a lack of food security due to climate change, which would provide information from various angles. Focus groups also provided the researcher with direct access to the experiences of the community, which reflected the social reality of that group's particular culture and helping her grasp views and ideas about its members' sustainability coping mechanisms. Focus groups enable observation and comprehension of how information and ideas both arise and act within a cultural framework, even though they "may not simply provide access for the researcher into individual biographies" (Kitzinger, 2007). Elders and other A1 resettled farmers from the community who were chosen as study respondents took part in the focus group talks. Focus groups are useful because they extend the range of responses, aid in the recall of forgotten details by other participants, and help participants let go of any inhibitions that would prevent them from disclosing information about coping methods, climate change, food shortages, and livelihoods according to Kitzinger (2007). Because of this advantage, the researcher decides to use focus groups as one of the data minin tools.

Although some group members in focus groups are inclined to speak up more than others, the researcher encouraged individuals who weren't taking part to accomplish this using the research support. The further queries were directed at those who had not directly participated in answering or contributing to the initial round of questions in order to involve all group members. Focus groups, in accordance with Kitzinger (2007), aid those who do not actively participate in the discussion in memorization for the subsequent session. Focus groups have a chance to exchange ideas on rainfall patterns, project them, and discuss additional actions done over the course of a year in relation to agricultural productivity together with several non-farm activities to reduce insecurity and remind one another of sustainable livelihoods.

3.4.2 Interviews

They were employed to interview people in person for information. The interviews with the key informants in this study included all A1 registered farmers in the community. They were chosen based on their expertise and knowledge of the communities' people' way of life, their coping mechanisms, and whether or not those mechanisms were sustainable.

Although the interview questions for this study were predetermined, the interviewer was able to explore further to obtain additional details and justifications for the positive research findings, these sorts of interviews let respondents speak more freely than the standardized interview does. As a result, a space was provided for each interviewee to ask further questions and gather more information to provide clarity and address the research questions.

The study employed semi structured interviews because they are a popular way for acquiring data that works especially well with groups who are illiterate, Kitzinger (2007).As a result, they facilitated the researcher's work to collect data from people with varied educational backgrounds.

3.4.3Observations

The study used observations because according to Bernard and Russell (1994), who agreed that the researcher thought that direct observation was a reliable approach to find out what resources were available to the communities, and that it was a good way to find out what resources were available to the villages and communities under study. As part of the observation process, it was determined how communities prepare their land, use resources, store their maize, locate water sources, raise livestock, and generate money.

3.5 Data analysis

Table 1: Data analysis methods

Objective	Data analytical tool
To assess food security status	Diet intake assessment
To identify missing food groups	Household dietary diversity score (HDDS)
To identify the copping strategies employed by A1 farmers	Copping strategy index
To explore the effectiveness of copping strategy employed	Coping self efficacy scale

3.6 Objective 1: To assess food security status of A1 resettled farmers in chakari rural area

3.6.1: Diet intake assessment

To assess dietary consumption, a variety of techniques are generally employed, such as the recall method (24-hour, 7-day, or 30-day recall), meal frequency questionnaires, and food records (either kept by the participant or by an observer) (Smith,2019). Research on evaluating food security frequently employ these approaches (Jones, 2018). Recalls and food frequency questionnaires are two techniques that rely on participant memory, whereas food records depend on the recording of data on food consumption (Ahamed,2017). The estimates are based on respondents' memories, but weighted values can also be used for foods consumed before and after. The nutritional intakes are estimated using these corrected estimates. This method was employed by researcher in order to measure food consumption directly, not the food availability (Ahamed, 2017).

3.7 Objective 2: To identify missing food groups

3.7.1 Household Dietary Diversity Score (HDDS)

The Household Dietary Diversity Score (HDDS), a population-level index of household food access, was released as part of the FANTA II Project in 2006. The number of food groups a household consumes throughout a specific reference period is recognized as a significant indication of household dietary variety. According to Swindale and Bilinsky (2006), a more diversified food in the home is linked to a sufficient consumption of calories and protein, a larger percentage of protein from animal sources, and a higher level of household income. Based on the last 24 hours, the HDDS indicator gives a peek of a household's socioeconomic situation and capacity to get food (Kennedy et al., 2011).

The researcher calculated the average household dietary diversity scores (HDDS) in a region by surveying households about the types of foods they consumed. The HDDS represents the sum of 12 food groups consumed by each household:

Food Group A: Grains

Food Group B: Starchy roots and tubers

Food Group C: Vegetables

Food Group D: Fruits

Food Group E: Meat, poultry, organ meats

Food Group F: Eggs

Food Group G: Fish and seafood

Food Group H: Legumes, nuts, seeds

Food Group I: Milk and dairy

Food Group J: Oils and fats

Food Group K: Sugars and honey

Food Group L: Other miscellaneous foods, to calculate the average HDDS, the researcher summed the number of food groups consumed by each household and divided that sum by the total number of households surveyed. The resulting average HDDS indicated which types of food groups were lacking or under-consumed in the region. The researcher hoped this information could then be used to help improve dietary diversity and nutrition.

3.8 To identify the copping strategies employed by A1 resettled farmers of Chakari in the face of climate change

3.8.1 Copping strategy index

An instrument called the Coping Strategies Index (CSI) tracks what people do when they don't have access to enough food (Kennedy et al., 2011). It consists of a series of questions about how households deal with a shortage of food for consumption and yields a straightforward numerical score. The foundation of the CSI is the many of responses to the question, "What do you do when you don't have enough food and don't have the money to buy any? The coping strategy index was calculated for the food insecure household in order to identify the strategies that they employed during food insecure in the face of climate change.

3.9 To explore the effectiveness of coping strategies used in sustaining livelihoods and ensure food security in chakari rural area

3.9.1 Coping self-Efficacy Scale (CSES)

The CSES is a 26-item assessment of one's comfort level in using coping mechanisms when confronted with problems in life. It measures how often problem-focused coping is used, how much social support is received, and how often negative feelings and ideas are suppressed (Nyamapfene, 2013). The researcher utilized this scale to evaluate the efficacy of coping

mechanisms employed to maintain a means of living and guarantee access to food insecurity in Chakari rural settlement. The effectiveness were determined using a two point coping self-efficacy scale. On a two-point numerical rating scale, one key informant was asked to evaluate how successful these strategies employed by A1 resettled farmers in the interview guide:

1= Greater extent

2= lesser extent

The key informant was expected to use a ranking numeric according to the scale against each strategy in the given table of the listed copping strategies

3.8 Conclusion

The researcher provided a thorough explanation of the methods used in the study, including the framework, sampling process, data collection, tools for data collection, and method of data analysis.

CHAPTER0FOUR: DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1 INTRODUCTION

This chapter covers the0presentation, analysis and discussion of the project's results. In order to examine the descriptive data, percentages and frequency distribution were used. This section of the chapter is partitioned into five parts, with the initial section focusing on examines the demographic data of A1 resettled farmers of Chakari rural area, the second examines the assessment of food security status and was evaluated using diet intake assessment, the third examines the missing food groups in Chakari rural area and was evaluated using household dietary diversity score (HDDS), the fourth examines the coping strategies employed by A1 resettled farmers of Chakari rural area using Coping strategy index (CPI) and fifth examines the effectiveness of the coping strategies employed and it was evaluated using the Coping self-efficacy scale (CSES) .

4.2Household demographic and characteristics

The study's findings demonstrate that every farmer in the sample was an A1 resettled farmer, with a gender distribution of 41.66% men and 58.34% women. Farmers aged 41 and older made up 56.7% of the total, while those under 40 made up 43.3%. 36.67% of farmers were

single, compared to 63.33% of farmers who were married. The vast majority of farmers (78.3%) had households with five or fewer members, while the remaining 21.7% had six or more. 65% of farmers claimed having no formal education, 26.67% having finished basic school, and 5% having finished university education. All farmers also reported being in good health. 71.7% of farmers possessed lands that were five acres or larger while 28.3% had land sizes of six or more hectares.

Table 2:Household demographics and characteristics

farmer background	Frequency	Percentage
TYPE OF FARMER		
AI	60	100%
A2	0	0
GENDER		
MALE	25	41.66%
FEMALE	35	58.34%
AGE		
41 AND ABOVE	28	56.7%
40 AND BELOW	32	43.3%
MARITAL STATUS		
SINGLE	22	36.67%
MARRIED	38	63.33%
POPULATION		
5 AND BELOW	47	78.3%
6 AND ABOVE	13	21.7%
HEALTH STATUS		
BED RIDDEN	0	0
BAD HEALTH	0	0
GOOD HEALTH	60	100%
LEVEL OF EDUCATION		
NO FORMAL EDUCATION	39	65%
PRIMARY	2	3.33%
SECONDARY	16	26.67%

TERTIARY	3	5%
LAND SIZE		
5 AND BELOW	41	71.7%
6 AND ABOVE	19	28.3%

Source: Author's Field survey 2023

The demographic and personality features of smallholder farmers have been compared in studies from different nations. For instance, a study done in Ethiopia discovered that smallholder farmers had a majority of males, had a mean age of 44, and had a mean household size of six people (Alemu et al., 2017). Similar findings were made by a study carried out in Malawi, where smallholder farmers had a majority of female members and had an average household size of six people and a mean age of 45 (Chiputwa et al., 2018).

4.3 Food security status of Chakari rural area

4.3.1 Diet intake assessment

The food consumption of 60 households in the rural area of Chakari was studied. Over a 24-hour, 7-day, or 30-day recall period, this information encompassed the frequency and variety of foods consumed. In chapter 3.6.1, section 3.6.1 describes the formula used to calculate the DIA (diet intake assessment). Based on DIS calculations from a sample of 60 questioned homes in the rural Chakari area, the findings of classifying households into food consumption groups are shown in the table below.

Table 3:Food consumption groups by items (Food groups weekly consumption)

Food consumption groups	Pop (%)	Tubers & Cereals	Pulses	Vegetables	Fruits	Animal Prot	Oils	Sugars	Milk	Diet Intake assessment score
Poor Food consumption	12.5	5.1	2.2	2.1	0.5	0.1	0.3	0.2	0	19.9
Borderline food consumption	33.4	6.2	4.1	4.1	1.2	0.7	1.7	0.5	0.5	34.8
Acceptable food consumption	54.1	7	5.1	4.4	3.4	2.9	4.7	3.1	3.1	61.5

Source: Author survey 2023

According to an analysis of the diet intake in the rural Chakari area, 12.5 percent of households eat poorly, 33.4 percent consume in a borderline manner, and 54.1 percent

consume food that is appropriate. Households with low consumption levels are deemed to be food insecure, while those with borderline consumption levels are deemed to be somewhat insecure and those with adequate consumption levels are deemed to be secure. A lack of pulses, vegetables, meat, fish, milk, oil, sugar, and fruits could lead to a lack of protein and micronutrients, according to the investigation, which revealed that households with poor consumption relied primarily on staple foods such cereals and tubers for five days.

Comparatively, households with borderline consumption made some dietary improvements by eating more pulses, oil, and vegetables on four days each week, as well as tubers and cereals for longer than six days. They continued to consume very little fruit, milk, fish, and meat, which suggests a deficiency in vitamins and protein. There was no scarcity of protein and micronutrients in the households with appropriate intake, which consumed all food groups in large amounts each week, including milk and animal proteins, for an average of three days.

4.3.2 Food sources

Households were asked during the study where they obtained their food items. The findings showed that the sources varied, with the majority of households getting their food from their own domesticated livestock, purchases, and grown crops. The comparison of food sources based on consumption groups is shown in the pie chart 4.3.2.

Food sources based on consumption categories (Source field survey 2023)

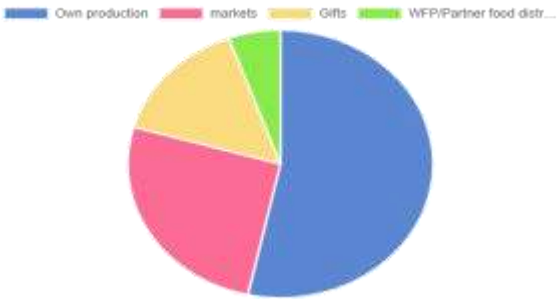

Figure 2 Pie chart shows food sources

Table 4:Food Sources

Source	Frequency	Percentage (%)
Own Production	39	65
Markets	19	31.67

Gifts	11	18.33
WFP/Partner food distribution	4	6.67

According to the data, households that are food secure generally rely on their own food production, which supplies them with 65% of the food they consume, mostly basics. While this group tends to buy solely non-homegrown commodities like salt, sugar, and oil, 31.67 percent of the food they consume comes from market places. Therefore, 18 percent of food consumed by these people were the gifts, this is because some people from this area were given food as gifts from their relatives and friends hence it become their source of their food. Furthermore 6.67 percentage of the food consumed is from WFP/Partner distribution, this is because in Chakari rural there are some other elders which receive food from different world food programmes which only target the eldest people.

The fact that many farm households in Chakari's rural area struggle with the lack of arable land is the cause of the area's significant dependency on food purchases or other sources of food. As a result, in order to buy food, they heavily rely on their farm produce, which has low yields, and to some extent, remittances.

4.3.3 Constraints to agriculture

Table 5:shows Constraints to agriculture faced by A1 resettled farmers of Chakari rural area for the past six months

Constraint	**Frequency**	**Percentage (%)**
I do not hav adequate seeds and tools	**37**	**61.67**
l do not have sufficient household labour	**28**	**46.67**
Sickness	**17**	**28.33**
No constraints	**9**	**15**
The land is infertile/marginal	**8**	**13.33**
Drought/ law rainfall	**8**	**13.33**
Insecurity	**7**	**11.67**
Land conflicts	**5**	**8.33**
We are not agriculturalist	**1**	**1.67**

The household were asked to provide information on the constraints that affect their agriculture. From the above constraints, the results show that A1 resettled farmers of chakari rural area face different constraints to agriculture, hence these constraints affect their food security status. From the above results 61.67 percent were not have adequate seed and tools, 46.67 percent they were not have sufficient family/household labour, 28.33 their constraint was sickness or physical inability, 15 percent have no constraints,13.33 percent their land was infertile,13.3 percentage were facing drought /law rainfall, 11.67 percentage were insecurity, 8.33 percentage were having land conflicts and 1.67 percentage was not an agriculturalist. These constraints were illustrated on the below bar graph.

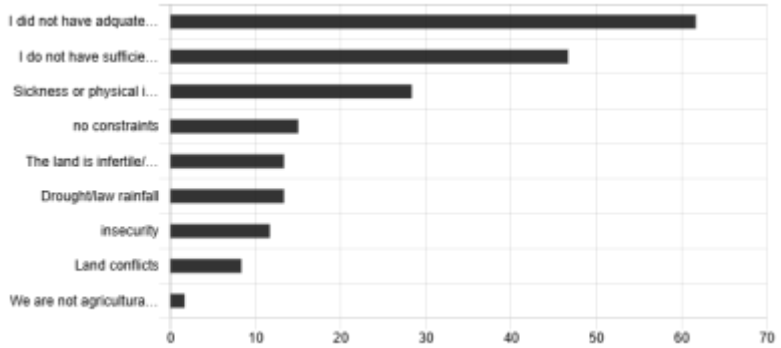

Figure 3Agriculture constraints (Source: field survey 2023)

4.4 Missing food groups in Chakari rural area

This section addresses the second objective of the study which is on identifying the missing food groups of A1 resettled farmers in Chakari rural area. Among a sample size of the 60 household, each and every household was asked if he/she purchased different food groups from the listed food group so as the researcher can determine which were the missing food groups in Chakari rural area.

Table 6:shows list of 12 food groups which were used by the researcher to identify which were the missing food groups in the study area.

Food group	Frequency	Percentage (%)

Cereals (maize, rice, sorghum, wheat, bread)	59	98.33
Sugar/salt	55	91.67
Tubers (sweet potatoes, cassava)	43	71.67
Pulses (beans, peas, groundnuts)	35	58.33
Tea/Coffee	23	38.33
Fish, Meat, Eggs, Poultry	16	26.67
Fruits and vegetables	13	21.67
Oil, Fat, Butter	7	11.67
Milk and Milk products (cheese, yogurt)	2	3.33
Other meals / snacks consumed outside the home	12	20

Using the Household dietary diversit score (HDDS) cuts-off, the findings indicate that the highest food group consumed by the household its cereal which had 98.33 percent and a frequency of 59 household out of 60 interviewed household, while sugars/salts have 91.67 percent, tubers have 71.67 percent, pulses have 58.33 percent, tea/coffee have 38.33 percent, fish/meats/poultry have 26.67 percentage, fruits/vegetables have 21.67 percentage, oil/fat/butter have 11.67 percent, milk and milk products have 3,33 percentage and other meals/snacks consumed outside the home have 20 percent.

The study's findings show that there are several missing food groups in the diet of A1 resettled farmers in Chakari ward 3,4 and 5. Fruits and vegetables, oil/fat/butter, and milk/milk products were consumed by a small percentage of participants, with only 21.67%, 11.67%, and 3.33% respectively reporting consumption of these food groups. This suggests a potential lack of access to these food groups, which are important sources of essential nutrients.

Research from other countries has also demonstrated that access to diverse and nutritious foods is a challenge for rural populations. For instance, a research conducted in Kenya discovered that rural residents had limited access to fruits and vegetables due to high prices and limited availability (Gladys et al., 2019). Similarly, a study in India found that rural households had limited access to milk/milk products due to high prices and inadequate supply chains (Sinha et al., 2016). The results are illustrated below

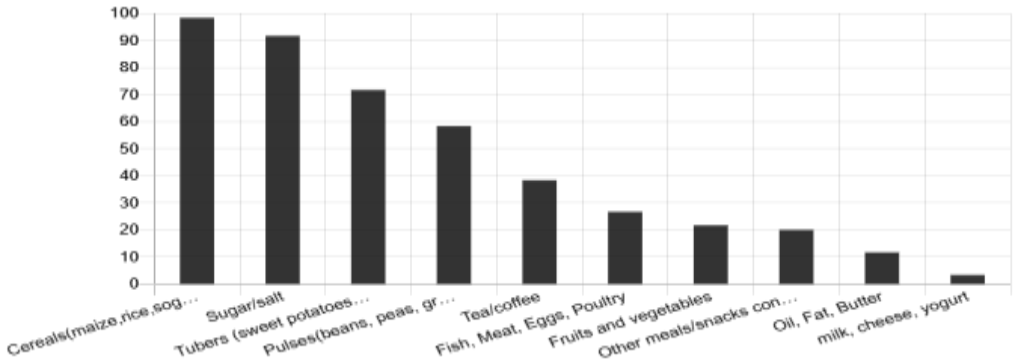

Figure 4 missing food groups **(Source: Field survey 2023)**

4.5 Coping strategies employed by A1 resettled farmers of Chakari rural area in the face of Climate Change

The third goal of the study is to identify the coping mechanisms used by households in the Chakari Rural region to manage food insecurity. Out of the 60 households surveyed, every single one of them claimed to be suffering from food insecurity as a result of numerous shocks such a lack of suitable land for food production, droughts, floods, erosion, and pest damage to crops before harvest. These households therefore employ one or more coping mechanisms in order to handle these shocks. As stated by Mardiharini (2000), households that are highly exposed to dangers and lack appropriate coping mechanisms for food insecurity are more susceptible to this issue.

B*ar graph 4.5. shows coping strategies employed is by A1 resettled farmers of Chakari rural area*

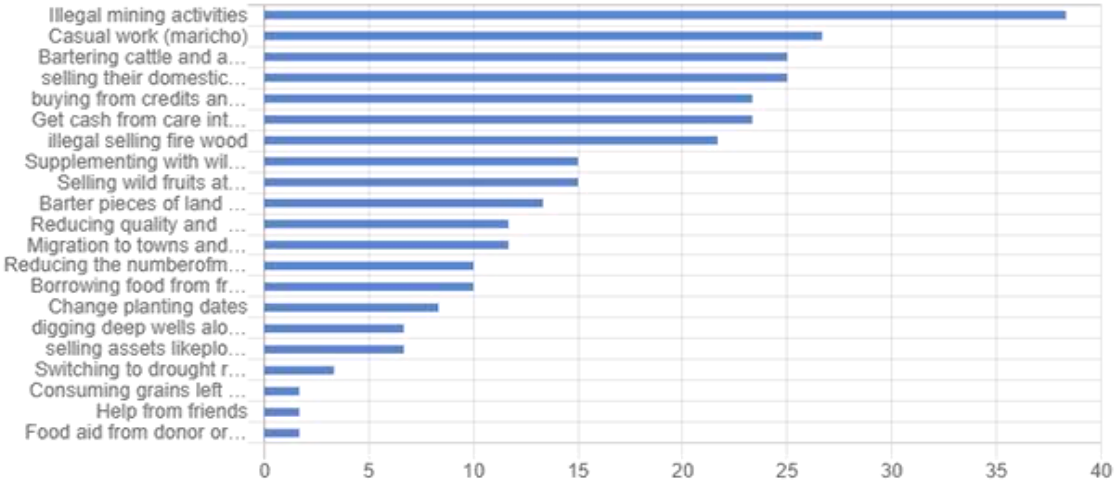

Figure 5 shows coping strategies employed

The graph displays the percentages of various coping mechanisms adopted by people to deal with food insecurity. A sizable portion, around 26.67%, relied on casual work or temporary

jobs for income to afford food. Half of the people coped by selling their livestock or other assets to buy food. About 38.33% engaged in illegal mining activities to earn money for food. Some coping mechanisms involved assistance from others. Around 11% received food aid from friends, relatives, government or non-governmental organizations. Others adjusted their food consumption, such as eating smaller portions, prioritizing children's needs, choosing cheaper foods or skipping meals. This was adopted by 5% of the people. A few coping strategies involved changing agricultural practices. About 8.33% altered their planting schedules while 3.33% switched to growing more drought-resistant crops. Around 15% gathered and sold wild fruits to food outlets and markets to earn money for food. In summary, the key coping mechanisms were temporary jobs, selling assets, illegal mining, receiving assistance, adjusting food intake, changing planting methods and selling wild fruits. The percentages of people adopting these strategies ranged from 3.33% to 50%. Overall, these coping mechanisms highlight the desperate measures people took to deal with lack of food.

This demonstrates that residents of the rural Chakari area used various coping mechanisms according to the social, economic, or physical resources that were accessible. According to a study conducted in Canada by Bryant (2000), farmers' reactions can differ even when they are exposed to the same stimuli in the same region. So, the use of various coping mechanisms by the people of Chakari's rural area to lessen food insecurity is not new. They had varied resources, thus they had to use various coping mechanisms. Yet, the study revealed that at least some of the Chakari rural area households were employing coping mechanisms to lessen their food insecurity, and that they did so each time they had a shock.

Similar coping strategies have been reported in studies conducted in other countries facing food insecurity due to climate change. For instance, a study conducted in Ethiopia found that households employed various coping strategies such as lowering the quantity and quality of meals, borrowing food, and relying on wild foods during times of food insecurity (Belachew et al., 2015). Similarly, a study conducted in Malawi found that households resorted to casual labour and selling assets to cope with food insecurity (Jones et al., 2019).

4.6 Effectiveness of the Coping strategies Employed

To see the efficiency of the coping mechanism employed by A1 resettled farmers of Chakari rural area, households were asked if these strategies were effective using the coping self-efficacy scale. From the research findings, the results indicated that, ward 3 households said

that shifting planting dates was effective because it also affected when they got their first rains. With a contrasting viewpoint that the approach would be successful if early maturity drought resistant crops were used, other households from ward 4 agreed with the standpoint of modifying planting dates. Ringler et al varieties (2011) study in Ethiopia also discovered that households there were adapt by using different crop and different planting dates. Gbetibou (2009) for IFPRI came to the same conclusion, indicating that one of the coping mechanisms used by farmers in South Africa's Limpopo basin is switching planting dates from November to December. Hence, it was determined by Ringler (2011) and Gbetibou (2009) that this tactic was more effective when used in the Limpopo basin and Ethiopia, respectively.

Digging deep wells along the flood plains and inside the already-dry dams was beneficial in providing water for home consumption, according to all residents. According to household reports, water from these wells is used to water cattle and irrigate vegetables planted along flood plains. Ngigi (2008) predicted this when he indicated that hand-dug wells along the flood plains could be a feasible coping mechanism for rural development to make up for the water shortage during the dry season for irrigation, livestock, and residential usage. He added that rural households in Ghana, Burkina Faso, and Mali employed the same coping mechanisms and found them to be effective.

Both households claimed that expanding the area under cultivation was successful. The households made it quite evident that those who had planted big tracts of land in their villages fared better than their competitors. Paul (2008) illustrated this viewpoint when he stated that during the Bangladeshi droughts of 1994–1995, individuals who had larger tracts of land under cultivation produced higher yields than those who had smaller piece of land.

All of the households claimed that obtaining food on credit and borrowing it from their neighbours were ineffective because doing so would only lead to conflict and hostility when the borrower failed to return the food on schedule. Gbetibouo (2009) concluded that using credit to buy food and borrow money could work well if done appropriately and in a way that is advantageous. Nonetheless, the households made it very evident that when selling on credit, store owners double the prices, disadvantaging people. These results contrasted with those of a collaborative study by Munhande et al. (2013), which found that 9.3% of the Chakari households surveyed reported being able to borrow food from others without experiencing any issues.

On the issue of casual work (maricho), every family asserted that it is a horse and rider situation. Many households claimed that employers gain a lot because sometimes workers only work to obtain food to eat. This made it quite evident that they are the net losers. The home claimed that they are routinely taken advantage of by their employers, who occasionally provide them uncultivated or improperly cultivated regions to clear weeds from fields. While both households shared the belief that employers profit more than employees does. Nhemachena and Hassan's (2007) research study came suggests that households with limited financial resources tended to prioritize strategies that ensured their survival, while households with greater wealth tended to prioritize strategies that maximized their profits, even if it came at the expense of poorer households, this was noted in their conclusion. Bryant's (2000) study in Canada concluded that some households chose casual work as a coping mechanism when they encountered a shock, but it made no mention of the implications. Nonetheless, it demonstrates that many households interviewed relied on casual work as a coping mechanism because they did not have the required assets.

All household observed that consuming the grains that were intended to be saved for planting in the future has a negative impact on households because those households lack seed inputs which feeds a cycle of poverty. The results supported the contention that there cannot be a single coping mechanism that works for all situations, as shown by Nhemachena and Hassan's (2007) findings that some households end up eating the grains set aside as seeds. However, the households indicated that the coping approach was ineffective, scoring zero.

According to household reports, illegal mining and excessive tree cutting for commercial purposes degrade the soil and expose it to agents of erosion that result in gullies and potholes everywhere. The households also indicated that huge deforestation caused by water reservoirs and soil degradation brought on by gold panning had an impact on future generations and the availability of water.

Selling assets including animals, ploughs, and plots of land, according to all households, was ineffective because almost 90% of the households claimed they were unable to recover the sold assets and instead continued to sell more assets to fill other shortages. For instance, when faced with a shock, they may sell their cattle they purchased for more than $400 per animal for less than $200, demonstrating the unsustainable nature of their coping mechanisms. Selling assets is not the non-optional solution, according to Nhemachena and

Hassan (2007), who highlighted that farmers' reactions differ when they encounter the same climate stressors in the same region. Many households claimed to actually apply this strategy indeed. Effective coping mechanisms to lessen food insecurity are listed below.

- Adjusting planting schedules to account for changes in weather patterns
- Transitioning to drought-resistant crops with faster maturation periods
- Implementing crop rotation and diversification techniques
- Expanding the amount of farmland in use
- Constructing wells in flood-prone areas
- Supplementing diets with homegrown vegetables
- Building water harvesting structures and dams

Conclusion

Based on data collected from households in the rural Chakari area, this chapter analysed and discussed various coping strategies. The study's cross-case analysis revealed that the majority of coping strategies utilized by Chakari A1 resettled farmers (over 80%) were found to be ineffective due to their high costs outweighing the benefits they provided.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides the conclusion of the study and it will also give a brief of the recommendations drawn from the research findings.

5.1 Conclusions

The aim of this study was to evaluate coping strategies employed by Chakari rural area farmers to mitigate food insecurity resulting from climate change. This chapter presents the study's conclusion and recommendations, which were based on four main objectives: assessing food security status, identifying missing food groups, identifying coping strategies used by A1 resettled farmers in Chakari to combat climate change, and evaluating the effectiveness of these strategies in maintaining livelihoods and ensuring food security.

To gather data, a convenience sampling procedure was used to survey 60 households from the three wards in the Chakari rural area. Data analysis was conducted using Statistical

Program for Social Sciences (SPSS) and Kobo collect. Descriptive data were used to identify socioeconomic and demographic characteristics of the households in order to address the second objective, which focused on the coping strategies employed by Chakari rural area households.

The primary goal of the study was to assess how A1 resettled farmers of Chakari rural area copy with different strategies during time of food insecurity in the face of climate change and the results showed that farmers copy with many different strategies but however they claimed that the following copping strategies were effective to a greater extent:

- Adjusting planting schedules to account for changes in weather patterns
- Transitioning to drought-resistant crops with faster maturation periods
- Implementing crop rotation and diversification techniques
- Expanding the amount of farmland in use
- Constructing wells in flood-prone areas
- Supplementing diets with homegrown vegetables
- Building water harvesting structures and dams

5.2 Recommendations

- To encourage sustainable agricultural growth, policy interventions that assist smallholder farmers, such as availability of funding, resources, and market opportunities put into place.
- Reduce the reliance on non-sustainable coping mechanisms by implementing interventions that deal with the root causes of food insecurity, such as climate-smart agriculture, livelihood diversification, and social protection programs.
- To increase food security and encourage sustainable livelihoods, programs that cater to vulnerable groups including female-headed households and those without a formal education should be created.

- To increase smallholder farmers' agricultural output and income, capacity building initiatives should be offered to them, such as training in climate-smart agriculture practices and financial management.
- It is necessary to conduct further study to examine the potential of drought-resistant plants and other sustainable agricultural methods that can aid smallholder farmers in adapting to the effects of climate change and boosting their resilience.
- The study found that many households have an income gap. This situation shows how vulnerable rural households are to shocks and risks related to agriculture. Therefore, efforts to raise and stabilize rural household income should not only concentrate on raising agricultural output but also promote diversification and development of non-agricultural sources. For households to be able to deal with the effects of climate change, this can be accomplished through income-generating projects that help people learn new skills and increase their standard of living.
- Interventions aimed at promoting food security must also support resilient coping mechanisms. Farming activities were carried out by households in the study area, increasing household earnings and food consumption. A household's ability to support and encourage sustainable agriculture production is important.
- To help the community, the Department of Agriculture and Environmental Affairs and local development organizations must provide production inputs such as vegetable seeds, mechanization, infrastructure, and production techniques. This may promote varied gardens to be grown around homes even in households with limited access to land. To the family's food supply and income, home gardens can contribute significantly.
- More guidance should be provided by the Department of Agriculture and Environmental Affairs and local development organizations through extension and training services, as well as support through contract negotiations to help people market their goods and increase household income. While agriculture may be a significant factor in reducing food insecurity, emphasis should also be placed on promoting non-farming enterprises, especially those that do so. The development and implementation of policies and strategies

for farm and non-farm interventions should involve the community and households actively.

- It's crucial to act to reduce the chronic food insecurity among the most vulnerable households that are unable to deal with food insecurity as part of short-term remedies by extending food safety net programs so that they can have access to sufficient food.

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APPENDIX: QUESTIONNAIRE

Simbisai Praise Moyo is my name, and I'm a student studying agriculture Economics and management at Bindura University of Science Education. As a part of my degree program, I am conducting a research study on examining coping mechanisms to reduce food insecurity in the context of climate change. Please help by honestly responding to the questions below.

The information gathered will be kept in strict confidence and used only for academic reasons.

Section A:

FARMER'S BACKGROUND OR HOUASEHOLD INFORMATION

Tick the appropriate response 0r fill in the space provided.

1. **Gender of respondent:** Male ☐. Female ☐
2. **Age**: 18 -29 years ☐ 30 -39 years ☐40 -49 years ☐ Above 50 years☐
3. **Position of respondent in the household:** Mother ☐ Other female adult ☐Father☐ Another male adult ☐
4. **Marital status of respondent:** Single☐ Currently married ☐Separated/Divorced ☐ Widowed ☐
5. **Highest level of education reached by respondent:** No formal education ☐Primary ☐ secondary ☐Tertiary ☐
6. **Land size…**……
7. **Main occupation of household head:** Farming (crop +livestock) ☐ Business Casual labourer on-farm or off farm☐
8. **What is the number of people who live in your house…**……

SECTION B

Objective 1**:** To assess food security status of A1 resettled farmers in chakari rural area.

1 Do you have access to agricultural land (arable land for cultivation)? □ Yes □

2 What is the size of land you have to? _____ acres

3 What was the biggest constraint to agriculture in the past six months?

0= No constraints

1= Insecurity

2= The land is infertile/ marginal

3= I did not have adequate seeds and tools

4= I do not have sufficient family/household labour

5= We are not agriculturalists

6= Land conflicts

7= Drought/Low rainfall

8= Other. Please specify:

4 Do you have any food stocks in your household at the moment? □ Yes □ No

5 What was the source of these stocks? □ WFP/Partner food distribution □ Own production □ Gifts □ Markets □ Other. Please specify:

6 How long will these stocks last your household? |__|__| Weeks

SECTION C

Objective 2: To identify missing food groups

Did you purchase any of the following items during the last 30 days for domestic consumption? If 'no', enter '0' and proceed to the next food-item and if its yes just enter 1 and go to the next food item

Cereals (maize, rice, sorghum, wheat, bread)	
Tubers (sweet potatoes, cassava)	
Pulses (beans, peas, groundnuts	
Fruits & vegetables	
Fish/Meat/Eggs/Poultry	
Oil, fat, butter	
Milk, cheese, yogurt	
Sugar/salt	
Tea/Coffee	
Other meals/snacks consumed outside the home	

SECTION D

Objective 3: To identify the copping strategies employed by A1 resettled farmers of chakari in the face of climate change.

Indicate which coping strategies did you employ during food insecurity in the face of climate change

Coping Strategy	
Digging dee wells along the flood plains	
Change planting dates	
Switching to drought resistant crops	
Casual work (*maricho)*	
Bartering cattle and assets for grains	
Supplementing with wild fruits	
Reducing the number of meal per day	
Reducing the quality and quantity of meals	
Consuming grains left aside as seeds	
Barter pieces of land for grains	
Illegal mining activities	
Selling their domestic animals like cattle and goats, as well as domestic birds like chicken	
Selling wild fruits at growth points and in towns	
Get cash from Care0International through Cash Transfer Project (CTP)	

SECTION E

Objective 4: To explore the effectiveness of coping strategies used in sustaining livelihoods and ensure food security in chakari rural area

From the above coping strategies which you employed during the time of food insecurity, how were they effective show by using a two-point numerical rating scale where by

1= To a lesser extent

2= To a greater extent