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Examining the contribution of livelihood strategies to household food security in rural Zimbabwe: The case of smallholder farmers in Muzarabani District.

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Dissertation submitted to the Department of Anthropology, Archaeology and Development Studies, Faculty of Humanities, in partial fulfilment of the award of a Doctor of Philosophy Degree

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Dedication

I dedicate this work to my mother, Ms Nunurayi Angelina Nhariswa (Mai Tatenda), a hardworking woman filled with so much hope for a better future.

Declaration of Originality

1. I understand what plagiarism is and am aware of the University's policy in this regard.
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ETHICS STATEMENT

As the author of this thesis, I declare that for the purposes of carrying this research, I obtained research ethics approval acknowledging that I have complied with all the ethical standards required. The approval was done by the University of Pretoria Research Ethics Committee and the Office of the CEO for Muzarabani Rural District Council, Mashonaland Central, Zimbabwe.

Abstract

Household food security is a serious and prevalent security issue, especially for poor households living in the dry areas of Muzarabani. Yet vulnerability assessments usually exclude a large portion of these dry areas which make up agro ecological region IV and V. This explains partly why there is insufficient data on household food insecurity. It is within this context that the current study was designed to examine the impact of livelihood strategies on household food security situation in Muzarabani District. The study assessed how farm-based strategies and non-farm strategies affect household food security situation, drawing insights from the Sustainable Livelihood Framework (SLF) as the framework of analysis. Using a qualitative ethnographic approach, this study examined the contribution of on-farm and off-farm livelihood strategies to household food security by analysing how various livelihood strategies contribute to levels of household food security or the degree to which they heighten the risks to food insecurity.

A randomly selected sample of 65 households in Kapembere and Muringazuva wards was used. Secondary data was collected from various data bases. Extended household visits, observation, transact walks, Key Informant Interviews (KIIs) and Focus Group Discussions were used to collect primary data. Thematic content analysis was used to analyse qualitative data. Emerging from the study, livelihood strategies are intrinsically linked to how a household is able to cope with food security challenges brought about by natural and economic factors. The study further brought out how rural farm households make livelihood decisions, and how such decisions affect household food security. The study particularly analysed households' livelihood choices, how much they contribute to household food security, and more importantly, the extent to which they contribute to the vulnerability of households to food insecurity.

This study added knowledge on how livelihood pathways adopted by poor rural households either contribute to household food self-sufficiency or vulnerability to food insecurity. This was achieved through analyzing the way in which livelihood choices have resulted in susceptibility of households and danger to food insecurity using a qualitative approach. The results of the current study are important because of their possible influence in informing interventions, agenda setting, advocating for policies and programmes that improve household food security.

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Abbreviations

AGRITEX:	Agricultural and Rural Extension
CA:	Conservation Agriculture
CFAs:	Cash for Assets
DA:	District Administrator
DFID:	Department for International Development
FAO:	Food and Agricultural Organization
FGDs:	Focus Group Discussions
FNC:	Food and Nutrition Council
FNSP:	Food and Nutrition Security Policy
FTLRP:	Fast Track Land Reform Program
GDP:	Gross Domestic Product
GHI:	Global Hunger Index
GoZ:	Government of Zimbabwe
GT:	Grounded Theory
IFAD:	International Fund for Agricultural Development
IGA:	Income Generating Activity
IFPRI:	International Food Policy Research Institute
IPC:	Integrated Phase Classification
KIIs:	Key Informant Interviews
LRRP:	Land Reform and Resettlement Programme
MeDRA:	Methodist Development and Relief Agency
N.R.:	Natural Regions
NGOs:	Non-governmental organizations
OECD:	Organization for Economic Cooperation and Development
PRA:	Participatory Rural Appraisal
RDC:	Rural District Council
RIGA:	Rural Income Generating Activities

SADC:	Southern African Development Community
SLA:	Sustainable Livelihoods Approach
SSA:	Sub-Saharan Africa
SAT:	Sustainable Agriculture Technology
U.K.:	United Kingdom
U.N.:	United Nations
UNDP:	United Nations Development Programme
VSLs:	Village Saving and Loans
WFP:	World Food Programme
ZimASSET:	Zimbabwe Agenda for Sustainable Socio-economic Transformation
ZimStat:	Zimbabwe National Statistics Agency
ZIMVAC:	Zimbabwe Vulnerability Assessment Committee
ZRCS:	Zimbabwe Red Cross Society

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Chapter One: Introduction

1.1 Introduction and background

In a world of abundant resources and continually improving technologies with potential to enhance the quality of life and ease the daily living of human beings, food insecurity is a pressing global concern and a significant existential threat, particularly affecting impoverished populations in developing nations (Wudil et al., 2022). Food insecurity is a consistent danger to the well-being of millions of global citizens, particularly in Sub Saharan Africa. Recent data on food security points to the fact that the global population of individuals suffering from undernourishment amounted to 925 million in the year 2010, with developing nations constituting 98 percent of this population (FAO, 2020). The 2022 global report on food crises highlights that up to 180 million people on the globe are food insecure and the report attributes much of the increase in food insecure people to rapid population growth. The other significant drivers of food insecurity around the world, according to Integrated Phase Classification (IPC) (2021) data; includes economic instability in some parts of the world as well as conflict and displacements. Of concern is recent empirical evidence pointing towards a rise in global food insecurity, particularly in the Global south (Fikre, 2020). The failure to achieve food security has posed a substantial challenge in Africa, where around 280 million people persistently face food insecurity (World Bank, 2019).

Climate change is affecting food production, with unfavourable impact on food security. Over the previous decade, food production has decreased remarkably, and the Southern African region has been recording food shortages vacillating between 0.1 and 9.8 million metric tonnes (FAO, 2020). The climate-related impacts of the 2024 El Niño alone had a substantial negative effect on food production. Food production decreased by 36% to 42 million metric tonnes, down from 47 million metric tonnes in the 2023 farming season, resulting in general food shortfall of 8.1 million metric tonnes (Kapuka and Hlasny, 2021). The Southern African region has consistently experienced the effects of various natural and anthropogenic calamities, primarily intensified by changes in the climate system and weather variability (Kapuka and Hlasny, *ibid*). Occurrence of such disasters is impeding and reversing the advancements achieved in addressing household food security and the overall enhancement of livelihood resilience (SADC, 2022). The report further posits that climate change has increased food insecurity thereby worsening poverty and social inequalities.

Furthermore, land degradation in the region continues to decimate productive capacity, against the backdrop of increasing food demand due to increased population pressures (Frost et al., 2007; van Ittersum et al., 2013 & Maparara, 2014). Therefore, it is within the context of these challenges that this study sought to assess the impact of various farm and non-farm livelihood pathways on household - food insecurity in Muzarabani district of Zimbabwe.

1.2 The rural dimensions of poverty and food insecurity

Despite the notable increase of urbanisation witnessed in the majority of countries in the Global south, poverty continues to persist in rural areas (IFAD, 2016). According to FAO (2006), a significant proportion of those experiencing poverty reside in rural regions. Furthermore, the level of their impoverishment tends to be notably more severe when compared to those residing in towns. In 2023, a total of 712 million people globally were living in extreme poverty, an increase of 23 million more people as compared to 2019 (World Bank, 2024). FAO (2024) further suggests that these trends are expected to persist in the foreseeable future. The right “fix” for food insecurity in rural areas is therefore rather inclined towards increased smallholder agricultural production (World Bank, 2024; Mhembwe, 2019; Nair et al., 2007). Households equipped with a sustainable livelihood system possess the ability to endure and recover from various exogenous shocks, such as the decline in cash crop prices and extreme weather conditions. Furthermore, they can enhance their capacities and resources without compromising the integrity of the natural resource foundation (DFID, 1999; OECD, 2016).

As noted by Fikre (2020), household food security is an indicator of available livelihood strategies. This means the more livelihood options a household is exposed to, the higher its chances of food security are. This is mainly attributed to the increase in income from various livelihood activities. The challenges associated with food insecurity can manifest at any stage of the food security continuum, which covers availability, accessibility, utilisation, and stability and of late there has been talk of sustainability and urgency as two additional indicators (Berry, 2022). The livelihood pathways that are chosen by rural households to address food insecurity and ensure household income take place at several levels, including the national, household, or individual levels. The processes exhibit a linear interrelationship with repetitive feedback cycles in which stress and shocks influence households to take certain livelihood pathways that may or may not be adequate,

in ensuring food security (Peng and Berry, 2018). Some of these pathways end up increasing the exposure of families to hunger and malnutrition instead of ensuring food security.

While struggling to achieve food security, rural households are frequently confronted with numerous livelihood risks such as internal and external food insecurity complex issues. The matter involves a diverse range of connected political, social and economic factors, such as HIV & AIDS; internal wars, lack of good governance; recurrent droughts and famines; as well as the risks of rain-fed agriculture and loss of biodiversity due to climate and environmental issues (Ghimire, 2017; Ngema ,et al., 2018 ; Yobe et al ., 2019). Rural smallholder farmers frequently follow livelihood pathways and options as a means of coping, and the outcome of these actions; whether successful or unsuccessful, ultimately determines the amount of food security within their households (Kapari et. al.2023; Hlatshwayo et al., 2023). Furthermore, Pawlak and Kołodziejczak (2020) postulate that the importance of enhancing agricultural productivity is of utmost significance in pursuance of household food security. In addition, livelihood strategies have been proposed as equally essential complementary approaches to tackle rural poverty (Ellis, 1999) and mitigate the susceptibility of impoverished individuals to food insecurity and the collapse of their means of subsistence (Ellis & Allison, 2004).

According to Abera et al ., (2021), variation of livelihood strategies is the most effective means of tackling the persistent challenge of food insecurity on a global scale. It is therefore useful, when discussing food insecurity, to consider the complete range of on-farm agricultural activities and off-farm non-agricultural livelihood pathways carried out by non-urban households. In Africa, livelihood strategies that include trading, small scale mining and wage labour are considered to be the panacea to the failure of farming activities in providing sufficient livelihood options for most of the rural dwellers (Ngwenya et al ., 2022 ,Maparara et., al 2018; Khowa & Mukasi 2022). In other words, with a diversified livelihood spectrum, subsistence rural households are able to cope with food insecurity.

Furthermore, the selection of livelihood approaches remains essential for addressing food insecurity; regardless of the form it takes, whether agricultural, non-agricultural, or both. With access to appropriate livelihood pathways, rural households have the capacity of building resilient communities. Government policy restrictions and contradictions in economic and social spheres

are the greatest impediments to resilient livelihoods (Harirum et al.,2023). There should be comprehensive reforms on the economic and social sectors in the rural areas if household adapting and coping strategies are to be improved. Thus, it is necessary to investigate the effectiveness of livelihood pathways in ensuring household food security. Still on that, Khowa and Mukasi (2022) state that livelihoods in Southern Africa are currently experiencing a state of crisis due to a number of influencing factors explored in this study. Furthermore, the agricultural sector utilises a considerable proportion of rural workforce, contributes significant income to the nation's wealth. It also plays an important function in guaranteeing food assurance (Pawlak and Kołodziejczak (2020); Rafael 2023). In many African countries, farming is mostly rain-fed. In addition, most rural subsistence farmers in Africa have relatively small pieces of land, often insufficient to produce profitably (OECD/FAO 2016).

1.2.1 The case for livelihood strategies and livelihood options beyond agriculture

There are two dominant perspectives on why rural households widen their livelihood portfolios , which might include activities outside farming (Loison, 2015). Some scholars (Nyandoro, 2019; Zilberman et., al 2017) argue that the growth of non-agricultural activities is a natural progression from an agrarian-dominated economy to a diversified economy whose pull factor is the search for a higher standard of living. However, Angula and Kaundjua, (2016) believe that the growth of non-farm livelihood activities can be attributed to a troubled agricultural sector experiencing resource depletion, rather than the notion that farming is promoting economic prosperity in other industries. Amongst African countries, broadening livelihood activities is mostly regarded as a solution to the challenges affecting farming which ultimately hinder the provision of adequate economic security to significant sections of rural households (Abera et . al 2021; Giller, Delaune, Silva et al. 2021; Devereux, 2000). Regardless of the challenges affecting agricultural activities it remains a crucial means of subsistence in most African countries

In this investigation, the definition of food security and its measurement is not narrowed to a specific case study. Food security should be understood within the confines of local contexts, as each geographical situation has unique problems that require tailored solutions. Gupta and Wright (2017), depict the diverse aspects of ascertaining food availability in terms of nutrition and health of citizens in communities using statistical means and descriptions. However, they do not offer a comprehensive depiction of the strategies required to effectively enhance nutritional balance as a

crucial component of ensuring food security. FAO (2017) discusses food security in terms of livelihood outcomes. This investigation adopts a definition developed by Maxwell et al. (1998) to conceptualise food security, which encompasses the dimensions of the acquisition of food, its accessibility, sufficiency, use, safety, as well as socio-cultural acceptance. This definition emphasises the goal of ensuring that all individuals have perennial accessibility to enough and suitable food which is acquired in a sustainable way.

Households which establish sustainable livelihood systems typically exhibit resilience against many problems. They normally recover from these risks and sustain their abilities and resources without depleting the resources which are found in their localities (OECD, 2014; DFID, 1999). According to ZimStat (2015), smallholder farmers, who produce 70% of the nation's staple crops, make the foundation of Zimbabwe's food security. The livelihood strategies pursued by households, such as on-farm as well as off-farm work, travelling and sending and receiving remittances, pension benefits and donations, as well as trading, are central to the analysis of rural farmers' food security status (IFPRI, 2019; Oni and Fashogbon, 2012). Furthermore, there is a direct correlation between food security and viable livelihood strategies (Muzerengi, 2017; Peng and Berry, 2019). It can further be alluded that household food security, can be accomplished when individuals demonstrate sufficient access to livelihood activities, or strategies that enable them to get enough food (Patel et al., 2015). However, it could be insufficient to address household food security without adequately considering livelihood security and determinants that cause the choice of these livelihood pathways of rural households when formulating practical policy interventions.

Furthermore, it is vital to analyse food security within the wider dynamics of livelihoods of the rural small holder farmers of Muzarabani district of Zimbabwe. The currently accepted method for determining and analysing poverty and food insecurity is the livelihood-based approach (Serat, 2017). Jaison et al. (2023) posit that approaches based on the livelihood framework are best suited for operational research reasons. However, there exists a lacuna in understanding the ways in which rural households in developing countries sustain their livelihoods (Mishi et al., 2020). Livelihoods exhibit dynamic characteristics, undergoing transformations in response to diverse internal and external factors. The understanding of this specific characteristic holds considerable

significance in the examination of livelihood strategies employed by rural households (Moyo & Salawu, 2018; Liu & Liu, 2016).

Many studies (Jaison et al., 2023; Oni and Fashogbon, 2012; Abera et al. 2021) have analysed the notion of food insecurity using various methodologies, such as human rights-based approaches and scientific approaches. Savary et al. (2021) defines food security in terms of household food assurance and pointers to vulnerability, food security approximation, and its magnitude. According to Savary et al. (2021), defining and measuring food security should include approximating accessibility to safe water and cleanliness. Furthermore, Gupta and Wright (2017) depict the numerous aspects of food guarantees in terms of food nutrients and people's well-being in societies through statistical methods and narratives. Despite that, they fail to provide a detailed picture of how to foster balanced nutrients as a vital aspect of food guarantees. Furthermore, there is a growing consensus that the small farm prototype, with limited agricultural growth as the major model of rural development, could be wrong in contemporary settings (Steel & van Lindert 2017). The current investigation adopts the conceptualisation put forward by Maxwell et al., (1998), that explains food security on the basis of food availability, accessibility, sufficiency, use, safety and socio-cultural acceptance by all people at all times.

This study situates the challenge of household food security within the broader debates about livelihood techniques as survival activities happening off-farm and on-farm as adopted by small farm households, with reference to households in Muzarabani District of Zimbabwe. The study analyses households' livelihood choices, in terms of how they contribute to household food security and vulnerability of households to food insecurity. While there has been significant amount of scholarly research on the concept of food security, this study seeks to broaden the evidence that links food security directly to households' livelihood strategies or choices. According to Pawlak (2020), although smallholder agricultural production is crucial for ensuring food security in rural areas, the conventional perception that rural economies are solely reliant on agriculture is no longer applicable. This is because farming households in developing countries are progressively generating significant money from activities that are not linked to farming. One of the key arguments raised in this study is that while the livelihood options contributed to food security, some of these exposed households to food insecurity.

This study also contributes towards a theoretical conceptualisation for understanding the link between households' food security and livelihood strategies, considering sustainable livelihoods framework, which is critical in understanding food security and livelihoods. Chitongo (2019) posits that families existing in rural areas of developing countries rely on rain-watered farming for survival and, as a result, are heavily reliant on natural weather conditions. This study introduces a new factor to consider when looking at food security at household level, which is the relationship between livelihood strategies and how they contribute towards household food security situation.

1.3. Understanding the Zimbabwean context.

Food insecurity is a significant concern in developing countries, such as Zimbabwe. The report published by the Southern African Development Community (SADC) in 2022 examines the current status of food and nutrition security and vulnerability in Southern Africa. It emphasises that the degree of food and nutrition uncertainty and inadequacy among SADC countries remains unacceptably high. Consequently, it is imperative for the region to engage in collaborative endeavours to enhance its resilience and effectively respond to the numerous and escalating challenges affecting the region. The susceptibility to food insecurity is exacerbated by various causes, including the escalation of food costs, global economic recessions and household challenges such as unemployment, illness, or the death of a primary breadwinner (Savary et al., 2021). According to the Zimbabwe Human Development Report, 2017, Zimbabwe is classified as having a 'serious' level of food insecurity based on the Global Hunger Index (GHI), scoring 28.8 points. The GHI scale ranges from zero, (indicating no hunger), to 100, representing the most severe incidence of hunger.).

Formerly considered as the food reservoir of SADC, Zimbabwe is now a country that depends on the importation of maize and other food items. Due to the significant increase in the cost of basic foods, most households face challenges in getting adequate food (ZimVAC, 2020). Food security situation have ramifications on how poor populations control their assets and socio-cultural existence (Ngwenya, 2022). The economic and food security situation in Zimbabwe remains precarious. Adverse weather conditions, characterised by unpredictable rainfall patterns and prolonged periods of drought, had a negative effect on the escalation of the humanitarian crisis nationwide. Concurrently, the worsening economic circumstances further intensified the susceptibility to food insecurity of both rural and urban populations, which were already

experiencing an upward trend in vulnerability. According to the Human Development Report (2017), food uncertainty in Zimbabwe is fueled by the complex interaction of poverty, insufficient investment in the farming sector and weak food production systems. These factors are further exacerbated by the critical impact of severe weather developments and climate change.

According to the World Food Programme (WFP) in 2018, Zimbabwe's position on the Global Hunger Index is 108th out of 119, indicating a significant level of food insecurity when compared to other developing nations. In Zimbabwe, approximately 2.61 million rural people are facing serious levels of food uncertainty (IPC, 2021). Zimbabwe's economy depends on agriculture that functions as the source of employment and income generation. Additionally, farming occupies a crucial position in providing food for households and serving as a direct source of nutrition (Matondi, 2011; Mutopo, 2014; Vercillo, 2016; Jaka, 2018). The farming industry is vital for Zimbabwe's economic prosperity. It does not only support nearly 70% of the population's direct and indirect livelihoods, but it also drives economic growth. The increase in agricultural production is expected to support the growth of other subdivisions of the economy, namely industry and services sectors (Bennett et al., 2019).

In the present Zimbabwean context, rural households encounter diverse degrees of food insecurity and vulnerability. The livelihoods of the individuals in question are characterised by a combination of factors; including decreasing macroeconomic conditions, a politically unstable environment, inadequate rainfall patterns, low levels of income, worsening environmental conditions, and the influence of HIV and AIDS. Stakeholders implemented food initiatives in response to the food crisis with the intention of mitigating food insecurity and poverty (Mukwedeya, 2023). However, most of the interventions have failed to address the root causes of household food insecurity. Thus, interventions should address the root cause of household food insecurity.

1.3.1 The Fast Track Land Reform in Zimbabwe: Implication on Food Security

1980 marked the country's transition from colonial rule to majority rule through the Lancaster House Agreement of 1979 (Chuma, 2009). On April 18, 1980, the former colonial ruler, United Kingdom (U.K.), formally conferred independence to Zimbabwe. According to Thomas (2019) some pieces of land were apportioned to black people in Zimbabwe immediately after the

Lancaster House agreement following the willing buyer and seller principle. In fact, the context of a changing environment propelled the effects of food insecurity and destitution in Zimbabwe, as well as the economic deterioration that occurred decades later (VAC, 2003). The Land Reform programme's objectives were designed to rectify the racial and ethnic disparity in land ownership (Matondi, 2012). Scoones (2011) further highlights that land resettlement ushered Zimbabwe to a new agrarian structure. Scoones mentions that this shift saw the growth of small scale farms from the traditional large commercialised farms. In discussing the possible causes of the land reform programme, Moyo and Chambati (2013) highlight the issue of overpopulation which led to the depletion of the natural resources and an increase in poverty in communal areas. This was mainly a result of low output. This situation was further aggravated by the under-utilisation of land on commercial farms, which contributed to discrepancies in land ownership. Shonhe (2019) highlights that the Zimbabwean government adopted land resettlement in order to foster socio-political and economic change whilst addressing historical injustice, perpetrated against the black majority who had been marginalised as a result of the racially-biased colonial land policies.

Furthermore, it is worth noting that the commercial sector, which was largely composed of white farmers, employed over 30 percent of the paid labour force and contributed 40 percent of the total exports (Matondi, 2012). The primary commodities included tobacco, potatoes, sugarcane, cotton, coffee and hybrid maize (Peter, 2000). Smallholder farmers and their large-scale commercial counterparts kept sizable herds of cattle. Commercial farms supplied above 60 percent of the nation's beef supply (Behnke, 2008). On the contrary, the lives of smallholder communal farmers were deplorable as their labour was inadequately compensated. As soil erosion and other unfavourable conditions increased, the rural smallholder farmers' capacity to cope deteriorated alarmingly (Behnke, 2008).

Regarding the roll out of the land resettlement programme, the UNDP (2002) expressed concern that the scheme undermined the resettlement programme's original agricultural productivity goals due to the "fast track" process, which circumvented legal procedures and lacked sound development objectives. The report observed that the resettled farmers, who were predominantly impoverished, lacked the means to finance farming operations successfully. Government provided limited assistance for the resettled farmers. Without legislative protection and government help,

rural farmers became susceptible to starvation and displacement. It is unclear what caused the precipitous decline in food reserves in the years preceding the resettlement programme in 1999. Critics assert that the resettlement programme's erratic execution contributed much. Others argue that the droughty 2002-2003 farming season aggravated the situation.

Food security in Zimbabwe became precarious after the land resettlement programme. The country's crops failed in 2002 due to the premature end of February rains (Zimbabwean Food Security Report, 2003). The drought caused production to fall by 70% as yields decreased. The situation became a food catastrophe. Over 480 000 tonnes of food supply was needed to satisfy the nutritional requirements of over 6 500 000 citizens (Zimbabwean Vulnerability Assessment Report, 2002). Rural inhabitants were affected most. Moreover, Zimbabwe continued to experience food insecurity in all the subsequent years after the resettlement programme (Food and Agricultural Organisation, 2010). Additional factors such as sanctions further exacerbated the socio-economic situation in the country (Ndakaripa, 2021).

1.3.2 The Livelihood Situation in Rural Zimbabwe

When discussing the livelihood and food security situation in Zimbabwe and particularly its rural households, it is worth noting that the agricultural policies implemented during the colonial period had significant ramifications on shaping the rural agro-landscape (Mashiza and Mapuva, 2018). Colonial policies left lasting effects that continued to influence the way rural communities live and the behaviour of families in those areas today (Thebe, 2010). Agricultural production is key to Zimbabwe's economy and food security has over the years been dependent on it (ZimVAC, 2018). In addition, according to Mukwedeya and Mudhara (2023), approximately 70% of Zimbabweans rely on farming. The economy's dependence on rain-fed agriculture exacerbates various factors; including climate change, economic instability, inadequate policy creation, fluctuations in agricultural commodity pricing and political instabilities (ZiLAN, 2016). Gwimbi (2009) suggests that floods and droughts are a common problem that worsened food uncertainty in Zimbabwe.

Zimbabwe's economic activities are closely connected to the agro-ecological zones, referred to as natural regions. Figure 1 shows the agro-ecological regions in the country. There are five distinct natural regions which range from natural region 1 to natural region 5. These are characterised by

made agriculture-centred coping strategies unsustainable (Chitongo and Casadevall, 2019; Manyeruke et al., 2013). Thus, interventions should concentrate on diversification of coping measures in order to guarantee household resilience.

Due to the current climatic conditions, concern regarding current household coping mechanisms is inconsistent with the prevailing situation in Muzarabani district (Mavhura, 2017). Agro-ecological zone V, where the Muzarabani district is located, renders it susceptible to insufficient and unpredictable rainfall (Mugambiwa, 2018; Mashizha 2019). According to Muzerengi et al. (2023), the climate is becoming susceptible to severe occurrences like floods droughts, and unpredictable rainfall, and increased temperatures. Due to the rain-dependent nature of crop cultivation in the district, drought risks always exist. Therefore, from a climate related perspective, it is not surprising that the district often encounters droughts, which cause long-term food insecurity. According to Mukwedeya & Mudhara (2023), prolonged dry seasons have typically plagued even the best coping mechanisms in most rural households.

With support from partners, the Zimbabwean government has implemented sustainable livelihood programmes with the objective of enhancing food security and building resilience (Ngwenya, 2021). Several policies have been implemented in Zimbabwe, including the Land Reform and Resettlement Programme (LRRP) (Mandizvidza, 2016), the Food and Nutrition Security Policy (FNSP) (2013), and the Zimbabwe Agenda for Sustainable Socio-economic Transformation (ZimASSET) 2013-2018 (Government of Zimbabwe, 2013). According to Maruve and Chitongo (2017), the Land Redistribution and Resettlement Programme (LRRP) (Mandizvidza, 2016) had a significant impact on colonial land ownership rules and regulations, as well as on the expansion of agricultural productivity. Dube (2020) suggests that the Long-Range Reconnaissance Patrol (LRRP) played a significant role in establishing Command Agriculture, which is a contract farming initiative aimed at addressing food scarcity. Zimbabwe exhibited its dedication to the imperative of eradicating hunger and diminishing malnutrition by the establishment of the FNSP (Echanove, 2017). After adopting the FNSP (Echanove, 2017), the Government of Zimbabwe crafted ZimASSET (GoZ, 2013), which aimed at changing and promoting the country's economic sustainability.

Various coping mechanisms are commonly employed to solve the problem of food uncertainty, including engagement in non-agricultural employment activities. Nevertheless, there exists a tendency among certain academics and policy makers to undervalue the significance of non-farm employment in mitigating food insecurity. According to Mutami (2017), a lower percentage of households in Muzarabani district have been observed engaging in non-farm employment activities. It is a matter of concern that 67% of families in Muzarabani rely solely on farming as their primary means of sustenance (Mavhura, 2019). Additionally, it is noteworthy that the Government is embarking on uniform policies and programmes with the goal of reducing food uncertainty by promoting agricultural production in all rural areas, irrespective of their distinct climatic variations (Zimbabwe National Agriculture Policy Framework, 2018-2030). However, lack of effective coordination between rural agricultural development strategies and efforts to promote non-farm enterprises have been observed in Zimbabwe.

According to Ngwenya et al., (2023), simply raising crop productivity may not be sufficient in guaranteeing food security. In addition to this, it is crucial to explore alternative strategies, such as engaging in non-farm activities, as potential means for enhancing food assurance. The Zimbabwe Integrated Food Security and Nutrition Assessment Report (2017) posits that the nation is characterised as having acute food deficit. It is well recognised by economists and policymakers that farming is vital in fostering economic growth in Africa, hence holding the potential to alleviate poverty and eradicate hunger (Rafael, 2023). Commercialisation of agriculture is a strategic approach employed by governments in order to augment farm revenues and facilitate broader economic advancement (Carletto et al., 2017; Radchenko and Corral, 2018). The current predicament is further aggravated by the prevalence of poverty, the HIV/AIDS epidemic, extensive unemployment the adverse impacts of climate change, agricultural challenges, land reforms resulting from colonisation, and economic instability (Mukwedeya and Mudhara, 2023). These variables have persisted throughout the historical timeline of Zimbabwe, both prior to and during the period of colonisation. The aforementioned conditions are largely indicative of the majority of the Sub-Saharan Africa region (Viceisza, 2020; Birrri Makota and Musenge 2023; Mukwedeya and Mudhara, 2023).

Several studies (Chifamba, 2021; Chenga, 2016; Chisango, 2018) have presented empirical evidence supporting the implementation of a range of interventions by Government and its collaborators. The interventions include conservation agriculture (CA), irrigation projects, cash for assets (CFA), Village Saving and Loans (VSLs), nutrition gardens, small livestock pass-on initiatives, as well as loan and credit facility schemes. (Kabonga, 2023), as well as the Operation Maguta/Inala 2005–2009 projects. According to Sazali (2015), research undertaken in Zimbabwe between 2003 and 2015 demonstrates that livelihood interventions have had a positive impact on improving livelihoods, enhancing resilience, and fostering rural development. Similar to other neighbouring communal areas in Muzarabani, the adoption of migration as a means of living has been a prevalent trait among individuals seeking employment in urban regions, mines, and agricultural establishments (Mavhura, 2023). The aforementioned factor affects the state of food security, as it escalates food spending. Additionally, it indirectly affects agricultural production and productivity by providing households with the means to finance agricultural inputs and technology that enhance productivity. Alongside the economic deterioration of the country (Vambe, 2023), various significant shocks and stresses have adversely affected individuals' means of subsistence throughout the past decade. These include climate change, persistent droughts, sudden floods, outbreaks of animal diseases, and irregular rainfall patterns, which frequently result in severe crop losses and substantial livestock fatalities (Mushore, 2021).

Drastic changes in weather patterns affects rural households' food security. Globally, climate change-inspired catastrophes have affected to human existence and livelihoods (Mugambiwa & Tirivangasi, 2017; Mugambiwa, 2018). Climate change has a profound impact on agriculture as it depletes water sources and causes grave repercussions on food security (Chikosi, et. al., 2018). Caused by the natural weather cycles and people's activities, climate change has worked against farming and its production in Africa (Mugambiwa & Tirivangasi, 2017). Africa and other developing nations are confronted with heightened vulnerabilities to climate change because of insufficient adaptation systems (Rafael, 2023).

1.3.3 Contextualizing the problem

The food insecurity problem is worrisome in Muzarabani District which is one of the worst cases of chronic insecurity in Zimbabwe (Mavhura, 2019). In spite of the existence of a diversity of on-

farm and non-farm food security coping mechanisms, more than 88.4 % of families face this problem (ZimVAC, 2023). Furthermore, in spite of the availability of several livelihood options and Early Warning Systems (EWSs), households remain unable and ill-prepared to alleviate food uncertainty. In Muzarabani, food insecure households are further affected by a weak small-holding agricultural base. They depend on negative and perilous non-farm survival mechanisms. These strategies encompass the diversification of on-farm and off-farm livelihood techniques and the extensification and intensification of agriculture (Mushore, et al., 2021). Ellis (1997) defines livelihood diversification as 'the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living'. Livelihood diversification includes both on- and off-farm activities which are undertaken to generate income additional to that from the main household agricultural activities, via the production of other agricultural and non-agricultural goods and services, the sale of waged labour, or self-employment in small enterprises, and other strategies undertaken to spread risk. Food and Agriculture Organization of the United Nations (FAO) defines intensification as an increase in agricultural production per unit of inputs (which may be labour, land, time, fertilizer, seed, feed or cash) (FAO, 2006). Intensification is also defined as producing more output from the same area of land while reducing the negative environmental impacts and at the same time increasing contributions to natural capital and the flow of environmental services (Pretty et al., 2011). In addition, FAO 2006, defines extensification as the process (or trend) of developing a more extensive production system, i.e. one which utilizes large areas of land, but with minimal inputs and expenditures of capital and labour

Additionally, the most preferred livelihood options at household level are detrimental and erosive. They range from inevitable compromises such as selling productive assets like cattle, opting for migration, resorting to dry land farming amid climate variability, as well as engaging in artisanal mining and production of high value crops such as cotton. These commonly preferred livelihood strategies often fail to address household food deficit in Muzarabani district (ZimVAC, 2023). Risky livelihood strategies have led to persistent poverty, limited levels of human growth, maladaptation, and the deterioration of environmental services. Therefore, to guarantee that households are able to repel the threat of food insecurity, intervention efforts must specifically target and eliminate these harmful coping mechanisms. Furthermore, the implementation of various on-farm and off-farm livelihood activities has been proposed as a strategic approach to be

employed by rural households in order to mitigate the challenges of low household income and food insecurity (Chitongo, 2019; Fikre, 2020; Mukwedeya, 2023).

The transformation of the subsistence agrarian economy due to climate change, low crop yields, price volatility of agricultural products and overall diminished returns towards reliance on non-farm incomes has not brought the envisaged relief to households in the studied area. In Muzarabani, the contribution of non-farm livelihood activities towards household food security has been minimal (ZimVAC, 2023) despite the availability of evidence which shows that they play a pivotal role in propelling rural growth (Zhang et al., 2024; Duguna et.al., 2023), reducing poverty (Berhe, 2024; Baghernejad and Sabouri, 2023) and augmenting household income (Rahman and Mishra, 2019). Massive outflow of labour away from communal farms has cumulatively reduced the size of cultivated areas, food production and crop income. Migration has undermined traditional agricultural practices and also resulted in land abandonment. Furthermore, families that dwell near alluvial mining sites reduce their farming endeavors because huge acres of land have been occupied by mining operations. Despite the fact that cash crops are associated with higher income (Rahman, et. al., 2023; Rubhara, et. al., 2020), the question is whether the income received from the sale of such crops would be adequate to provide the food requirements of the rural households in Muzarabani. The risk associated with cash cropping are severe as food becomes expensive, and in most cases; cash sales fail to cover household food requirements. Generally, existing research on the ramifications of growing cash crops on food security are inconclusive (Midamba et. al., 2024; Ayeni and Adewuni, 2023; Adboola, et.al., 2017).

Analysing the connection between food security and livelihoods is crucial for addressing the prevalent issue of food uncertainty (Mutea et al., 2019). While many researches show that the employment of various livelihood strategies on top of agriculture has led to an improvement in the food security situation (see for example; Scoones et al., 2018; Rubhara et al., 2020 and Chifamba, 2021), other studies have shown a decline in family food security. This has persisted despite the adoption of other livelihood methods outside of agriculture (Herrera, et al., 2021; Borgerson et al., 2018). Furthermore, other studies explored the idea of food security and livelihoods in different contexts. For example, Gillo (2017) explores the concept of food security in the context of climate change awareness and its impact on food production. Chitongo and Munyati (2017) investigated

the relationship between food security, poverty eradication, and livelihood outcomes both before and after the introduction of irrigation facilities. In addition, Mavhura (2019) focuses on the effects of flood disasters on rural household's livelihoods and food security status in the Muzarabani district of Zimbabwe. Nyahunda and Tirivangasi (2019) discuss livelihoods in the context of climate change related challenges faced by the rural farm households. Their study mainly focuses on hazards and threats posed by climate change. Muzerengi (2019) and Mavhura (2019) looked at food security using the access-based measure of food security, primarily examining food source, income source and coping strategy, using the coping strategy index. In addition, investigations have been pursued in the field of food security and they are mostly tilted towards the quantitative indicators of food security (See for example; Gebissa, 2022; Sani, et al., 2019; Manlosa 2019; Mukwedeya, 2023; Abera, 2021; Giannini, 2021)

Understanding the linkages between livelihood strategies and smallholder farmers' food security outcome requires a much broader lens rather than the productivity and income perspective approaches used in most analysis (Mhlanga & Ndhlovu 2020; Chikanda & Tawodzera 2017; Chingarande, 2020; Amankwah, & Gwatidzo, 2024). Therefore, the main purpose of this study is to examine the contribution of on-farm and off-farm livelihood strategies to household food security by analysing how various livelihood strategies contribute to levels of household food security or the degree to which they heighten the risks to food insecurity.

1.4 The Study Aim

This research sought to understand the connection between small-scale communal farmer households' livelihood strategies and their food security situation. Such a relationship is significant in understanding how households' livelihood choices can either increase a household's vulnerability or provide a safety net that enhances their food security situation. Livelihood strategies are intrinsically linked to how a household is able to cope with food security challenges, brought by natural and economic factors. The study sought to provide an understanding of households and their livelihoods, linking these two issues around food security. It explored livelihood decisions in the context of both economic and natural challenges, and situated issues of food security or insecurity on these decisions. Both on and off-farm coping strategies either contribute to food security or they may amplify the risk to food insecurity (Ncube, 2015; Scoones et al., 2018; Rubhara et al., 2020 and Chifamba, 2021). Consequently, this study examined the

contribution of on-farm and off-farm livelihood activities to household food security by analysing how various livelihood strategies either contributed to varying degrees of household food security or influenced the degree of risks to food insecurity in Muzarabani district of Zimbabwe.

1.4.1 Objectives of the study

1. To outline and understand the various on-farm and off-farm livelihood strategies employed by smallholder farmer households in Muzarabani district
2. To explore how the different livelihood strategies have contributed to food (in)security in different households over the years
3. To identify the factors that have either enhanced or limited the utility of these livelihood strategies vis-à-vis food security
4. To propose policy and practice recommendations with respect to crafting and supporting farmer households' livelihood activities which contribute to food security in dynamic vulnerability contexts such as Muzarabani district

1.4.2 Research questions

- a) What are the various on farm and off farm livelihood strategies employed by smallholder farmers in Muzarabani district
- b) In what ways do the livelihood strategies adopted by the small holder farmers either enhance household food security or contribute to food insecurity?
- c) What are the factors that either enhance or limit the effectiveness of the livelihood strategies of the small holder farmers in Muzarabani district?
- d) What recommendations can be adopted in order to enhance viability of preferred coping strategies in dynamic vulnerability contexts such as Muzarabani district.

1.5 Significance of the study

This study contributes immensely at the theoretical, policy and empirical levels.

1.5.1 Theoretical level

This study contributes to widening the evidence-base on how livelihood pathways of smallholder communal farmers in difficult vulnerability contexts contribute to household food security or how they increase the risks to food insecurity. Moreover, the study widens knowledge of existing

scholarly reviews of rural livelihood mechanism beyond agriculture since non-agricultural initiatives are expanding.

1.5.2 Empirical level

This study helps to unravel and inform poverty reduction policies in rural Zimbabwe by considering the heterogeneity in rural people's livelihood activities. Apart from examining on-farm livelihoods, the study also provides insight into the thriving potential of off farm livelihood activities with an analysis of various risk variables. In addition, the outcomes of this investigation provide a pathway for rural local government authorities to strategically consider off -farm livelihood activities as a development solution in their respective constituencies. The findings of this study are expected to promote further studies on growth of rural economic activities, sustainability of farming and various other strategies of rural people. Results of this study also enlighten development actors and governments to consider the ever-changing and dynamic livelihoods of rural populations.

1.5.2 Policy levels

This study raises fundamental policy questions concerning what need to be done to strengthen rural livelihood pathways in order to develop a comprehensive food security strategy framework. This research raises critical policy issues around land use, climate change interventions, revitalisation of the agricultural sector, social safety nets and agricultural financing models.

1.6 Organisation of the thesis

The thesis is organised into eight chapters, which constitute five parts: the introduction, literature review, methodology, results, and conclusion.

Chapter 1:

The chapter introduces the study by giving a background of the dissertation as well as stating the objectives and aim of the study. It starts by looking at the global food security landscape then move on to the Zimbabwean context and then provides a preliminary description of the food security situation of the smallholder farmers in Muzarabani district, as well as other related issues, including livelihood strategies.

Chapter 2:

This chapter explores what has been discovered before on livelihood strategies and household food security, including concepts such as livelihoods diversification, food insecurity, food security, smallholder farmers, and sustainable livelihood. The literature review in this research used a spiral approach that begins with global patterns, then narrows down to regional, national, and local trends. The research also explored the Sustainable Livelihood Framework and Food Security Concept.

Chapter 3:

Chapter Three explored the research methodology. It clearly outlines the mixed method approach, detailing the object of the study comprehensively. It examined the philosophical thinking underpinning the study, its instruments of data collection and scope of interpretation.

Chapter 4:

The fourth chapter focuses on profiling Muzarabani District so as to unveil the type of livelihoods available for households in the area. It gives an outlook of the climate, geography, social and economic characteristics of the district. The chapter exposes the livelihood profile of the two wards, highlighting the various on and off farm livelihood strategies that the households under study engage in. Furthermore, the chapter explores the political and socio-cultural organisation of the district, before examining the household profiles and the available supporting structures. The chapter then explores the asset portfolios, which are a critical piece in the livelihoods and food security jigsaw.

Chapter 5:

This chapter analyses the various on and off -farm livelihood techniques that the smallholder farm households from Kapembere and Muringazuva wards were involved in. The chapter further explores the crop production activities in the district, as well as examining the obstacles encountered by rural farmers in producing crops. In addition, the chapter analyses livestock production; which is another critical livelihood path followed by the rural households in the study area. The chapter also explores non-farm livelihood strategies within the study area and assesses how they contribute to household food security or vulnerability to food insecurity. The chapter

then evaluates the various initiatives by the government of Zimbabwe in supporting rural livelihoods.

Chapter 6:

This chapter critically examines the various livelihood strategies that the small holder farm households under study engage in. From providing a descriptive analysis of the various livelihood activities, the chapter further brings out the impact of the various activities in ensuring household food security, while bringing out the various risks associated with each strategy. In this assessment, the chapter also interrogates the livelihood decisions of the households in order to understand the impact of the household options in addressing food security or in increasing the risk of food insecurity.

Chapter 7:

This chapter explains the various factors that shape the livelihood decisions of rural subsistence farmers. A number of push and pull factors were identified and explained further in order to bring out the interface between livelihood choices and the decisions made by the rural small-scale farmers. Further, this chapter examines how livelihood strategies adopted by the smallholder farmers either enhance household food security or contribute to food insecurity. The chapter further discusses the factors that may enhance or limit the effectiveness of livelihood strategies in ensuring household food security, and goes on to look at the food security status of the rural households in Muzarabani district. The chapter brings out the tools of analysis used to measure the food security status as well as identifying the key coping strategies adopted by the small holder farmers.

Chapter 8:

This is the final chapter which gives the conclusion and presentation of the summary, as well as giving policy recommendations. This chapter explores the conclusions, lessons deduced from the investigation and the policy implications as well as the recommendations of the study. The chapter further highlights pathways for future research around livelihood strategies and household food security.

Chapter Two: Literature Review

2.1 Introduction

This Chapter examines the Sustainable Livelihoods framework and other key concepts that are interlinked to livelihoods such as food security and changes in climate. The chapter further identifies the many components of the Livelihood Framework in order to demonstrate how different resources are connected to various livelihood mechanisms and result in diversified livelihood outcomes and household food security. The section also explores the ramifications of changing structures and processes on household livelihoods and consequently household food security. The chapter further reviews literature on livelihoods and food security that has been produced over time by various researchers. This interrogation further explores the link between the Sustainable Livelihood Framework and food security (Scoones 1999; DFID, 1999; UNDP, 2017) in explaining the concept of food security. Key themes are also raised to furnish this study. These include; livelihood strategies, livelihoods, climate change, resilience and livelihood outcomes. These topical issues lead to a broader discourse, which calls for a more refined, and critical approach in examining the ramifications of livelihood techniques to household food security. This helps to grasp the idea of food security and livelihoods at a much-focused level. Lastly, the chapter narrows down on the Sustainable Livelihoods Framework which is the key framework underpinning this study.

2.2 Livelihoods Approach

2.2.1 Livelihoods

The term "sustainable livelihoods " refers to an approach used to assess the value of livelihoods, which was endorsed by the Department for International Development (DFID) led by the British government and has received academic backing from scholars such as Chambers and Conway (1991), Krantz (2001), and Geiser et al. (2011). Scholars such as Chambers and Conway (1991)

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when

it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

Scholarly literature refers to this concept as the blueprint for poverty reduction (Krantz (2001; Chambers and Conway, 1991; Scoones, 1998). The idealisation of ‘sustainable livelihoods’ encompasses a diverse range of asset portfolios, processes, constructions, vulnerabilities, and contexts, as discussed by Adger et al. (2009) and Williams & Micallef (2009). The approach facilitated the comprehensive examination of poverty and food security levels among households in Muzarabani. In addition, a livelihood involves various capacities; including natural, economic, and socio-cultural assets, as well as activities necessary for sustaining one's means of subsistence (Scoones, 1998). Furthermore, sustainability is achieved when livelihoods demonstrate the propensity to effectively adapt from environmental disturbances while also preserving their capabilities without depleting the natural resource foundation (Madzwamuse, 2010; Peacock et al., 2009). This conceptual framework serves as a robust foundation for the present study, aiming to comprehend the notion of livelihoods, with specific emphasis on smallholder farmers in Muzarabani District of Zimbabwe. Another important aspect of livelihoods is their interdependence. There are very few ways to make a living alone. A given family choice of survival may be reliant on other ways of sustenance for accessing and transferring assets. Sole traders, for example, depend upon farmers to produce commodities, avail them to manufacturers, and sell them to consumers (Ayana et al., 2022). Moreover, the concept of Sustainable Livelihoods has provided valuable insights into how individuals, households, and social groupings in various situations exert their influence and use their resources to achieve the essential requirements for survival and overall welfare (Manlosa et al., 2019).

The utilisation of the notion of livelihoods gained significant traction within the academic sphere during the 1990s (Scoones, 2009). No common definition exists to fully capture the concept of livelihoods. The most common definition of livelihood, as proposed by Chambers and Conway (1991), posits that it encompasses the capacities, tangible and intangible resources and endeavours necessary for sustaining a means of subsistence. This definition centres on resources, abilities and actions required for making means of living. Assets refer to the tangible or intangible aspects that households utilise to make decisions regarding various living possibilities, with the aim of

achieving favourable outcomes (Krantz, 2001). According to Chambers and Conway (1992), a sustainable livelihood is characterised by its ability to effectively manage and rebound from stress and shocks, while simultaneously preserving or improving its capabilities and assets. Additionally, it should offer sustainable livelihood possibilities for the next generations and generate net benefits for other livelihoods.

Moreover, the term ‘livelihood’ encompasses what people do to earn a living, and the resources that allow them to do so, the risks they face in administering their assets, as well as the organisational policy context that either facilitates or impedes on their search for a viable or better standard of living (Mutenje, 2010). Livelihood refers to single persons, families, and communities endeavouring to attain diverse usable attainments and economic requirements, adapting to uncertainty, and aligning to new opportunities (de Haan and Zoomers, 2005; Mutenje, 2010). In addition, Ellis (2000) further articulates that livelihood strategies are the product of the interaction between choice and constraint. A number of frameworks have been postulated for the examination of livelihoods. These concepts encompass the Sustainable Livelihoods Framework (SLF) proposed by Carney (1998, 1999) and Scoones (1998), the Framework for Thinking about Diverse Rural Livelihoods developed by Ellis (2000), Bebbington's (1999) Capitals and Capabilities Framework, and the Sustainable Livelihoods Diamond presented by the United Nations Development Programme (1999). These frameworks exhibit distinct emphases rather than underlying conceptual disparities. All individuals strive to incorporate resources, limitations, and human capacities in a rational and inclusive fashion to examine the state, structure, characteristics, and dynamics of livelihoods across different geographical locations and temporal periods. The SLF has gained significant popularity among the academic community due to its strong analytical capabilities and extensive endorsement by donor agencies (Chimhowu and Hulme, 2006).

2.2.2 Livelihood strategies

The term “livelihood strategies” refer to a collection of actions undertaken by households with the aim of attaining desired livelihood outcomes, as described by de Haan (2012). According to Dube (2017), livelihood strategies are capable of being implemented and are specifically developed to get specific livelihood objectives. The livelihood methods seen in this study are contingent upon the availability of livelihood assets, as discussed by Kabonga et al., (2023). Livelihood strategies are activities such as livelihood diversification, and natural resource-based activities, and market-based activities that people choose to engage in to attain their livelihood goals (Ayana 2022; Ellis and Allison 2004). A range of socio-economic conditions and institutional processes influences livelihood strategies. Livelihood strategies in the district are mainly agro-based. The main activities are tobacco farming and cattle rearing. Livelihood strategies, according to Ellis (2000), are activities that create the way of household survival. They are planned actions that people engage in so as to sustain their livelihood. Activities that produce tangible and intangible assets, financial methods, and reproductive decisions are also part of livelihood mechanisms.

To attain favourable livelihood outcomes, accessibility to resources, enabling policies, institutions, and procedures that control resource consumption must be considered (Scoones, 1998). Livelihood strategies are also characterised as revenue streams that are used to address human needs. According to Chambers and Conway (1992), strategies can be categorised into two broad types: natural strategies, such as land cultivation, and non-natural strategies, such as commerce. The idea of household livelihood strategy entails various activities and decisions that individuals engage in to effectively utilise their assets and achieve their cherished livelihood objectives (DFID, 1999).

The achievement of household food security is a consequential effect of livelihood activities. The sustainable livelihood framework offers a means to establish a connection between household livelihood activities and food security. The study examines the diverse inclination of evaluating the resource allocation of rural households, their strategies in combining assets, and their pursuit of certain livelihood activities in order to attain desired livelihood results. According to Fikre (2020), in most rural communities, the strategies employed predominantly revolve around the utilisation of the natural resourceassets like land and water, primarily through agricultural or mining activities.

Numerous studies have brought forth significant observations regarding the extensive range of livelihood strategies, which exhibit considerable pathways and factors that influence the choice of these pathways across various levels, including within natural landscapes, within households, and through temporal zones (Scoones et al., 1998). In their study, Iiyama et al. (2008) categorised the various means of sustaining livelihoods into two distinct groups: individuals who derive income primarily from farming activities, and those who generate money through non-agricultural sources. According to Freeman and Ellis (2005), in the event of a major shock such as a drought or an economic crisis, there is a need for expedited livelihood adaptation. In addition, the mixture of livelihood activities is determined by an individual or family's ability to access various sources of income (Ellis, 1998; Bryceson, 2002). This statement suggests that the understanding of human activities should be approached as a complex process, wherein persons engage in a combination of activities to meet their diverse needs across different temporal, spatial, and socioeconomic contexts. Furthermore, it acknowledged that these livelihood activities could vary within a same household.

The assemblage of livelihood activities or strategies a household engages in is conceptualised as a "livelihood portfolio" According to Scoones (1998), three kinds of livelihood approaches have been established. They consist of agriculture intensification and extensification, which requires putting in more labour, money, or technology to increase the value of production per hectare of land or animal. Secondly, there is also livelihood diversification, the use of additional land or animals for production while maintaining the same amounts of labour, resources, or technology, in which households expand their choice of on- and off-farm income sources in order to reduce their dependency on agriculture. Lastly Scoones (1999)(Year?) talks about migration where there is movement in search of livelihood options, either temporarily or permanently. However, it is important to note that in most cases, these strategies are combined to form a more robust livelihood portfolio. In addition, the understanding of these key linkages and combinations as well as the historical and environmental context of a particular community provides a strong basis for livelihood analysis.

2.2.3 Livelihood Outcomes

Livelihood outcomes can be conceptualised as the consequences or achievements that arise from the implementation of various livelihood strategies. These encompass a rise in income, enhanced

well-being, changed levels of vulnerability, improved food security, and a more sustainable utilisation of natural resources (Carney, 2002). These consequences are commonly attributed to the combination of techniques and strategies employed by individuals, households, and communities. It is crucial to acknowledge that the allocation of resources by people, households, and communities is shaped by many structures and processes, resulting in diverse approaches to achieving desired livelihood goals. Hence, application of the Sustainable Livelihoods Approach enables comprehension of the interconnections among individuals' livelihood choices, their asset conditions, and their utilisation of accessible God-given resources.

Scholars consider it vital to ascertain the consequential impacts of various livelihood strategies, as unintended results may arise and the anticipated benefits may not materialise in the long run. Consequently, the implementation of a livelihood strategy can yield either favourable or unfavourable consequences for both the household's livelihood outcome and its food security conditions (Mukwedeya and Mudhara, 2023). The selection of the implemented livelihood strategy can have both positive and bad effects on the economy and environment. Therefore, it is imperative that the livelihood strategy not only accomplishes the desired household goals, but also guarantees long-term viability and sustainability. Ensuring that the chosen livelihood strategy is effectively achieving its intended objectives without depleting the productive capacity of resources necessary to meet the needs and aspirations of future generations is of utmost importance. The livelihood mechanism adopted by households would impact their food security condition in the long run. Livelihood outcomes refer to the accomplishments or results obtained via the utilisation of livelihood techniques. This view is similar to Awoke et al., (2024) who posit that livelihood strategies focus on a range of actions that improve the attainment of livelihood goals and better the outcomes of livelihoods, ultimately improving the capability to overcome and recover from disastrous situations.

Moreover, Alinovi et al. (2009) state that livelihood outcomes encompass the objectives individuals strive for and the consequences that arise from their pursuit of livelihood strategies. The examples encompass several positive outcomes such as enhanced financial resources, diminished vulnerability, heightened quality of life, enhanced access to nourishment, and a more sustainable approach towards using natural resources (Hussein, 2002). Furthermore, Alinovi et al.

(2009) assert that the examination of livelihood outcomes is crucial for comprehending the implications of individuals' livelihood strategies within a certain setting. This implies that systems exhibit certain tactics and prioritise their responses based on opportunities and restrictions. Hence it is imperative to have the local community articulate the results, as they encompass a broader spectrum than mere financial gains. The attainment of enhanced food security is a direct result of the livelihood strategies implemented by individuals or households, as stated by Ngwenya (2022). It is the farm households themselves that define what livelihood outcomes are, and to what extent a particular strategy assists them to garner greater attainments such as food security and resilience to food uncertainty.

2.2.4 Livelihoods capital assets

The Livelihoods Framework is founded on the view that individuals need various resources in order to attain favourable livelihood achievements. The term "capital" is extensively employed in literature to refer to these assets, although not only in the economic context. Instead, assets are more accurately conceptualised as fundamental components for developing one's living (Scoones 1998). The sustainable livelihood strategy seeks to enhance access to livelihood assets among diverse households, recognising the inherent variability in their availability. The aforementioned assets encompass a variation of categories, namely personal, financial, social, physical and natural assets that the farm households in Muzarabani make use of in shaping their livelihoods

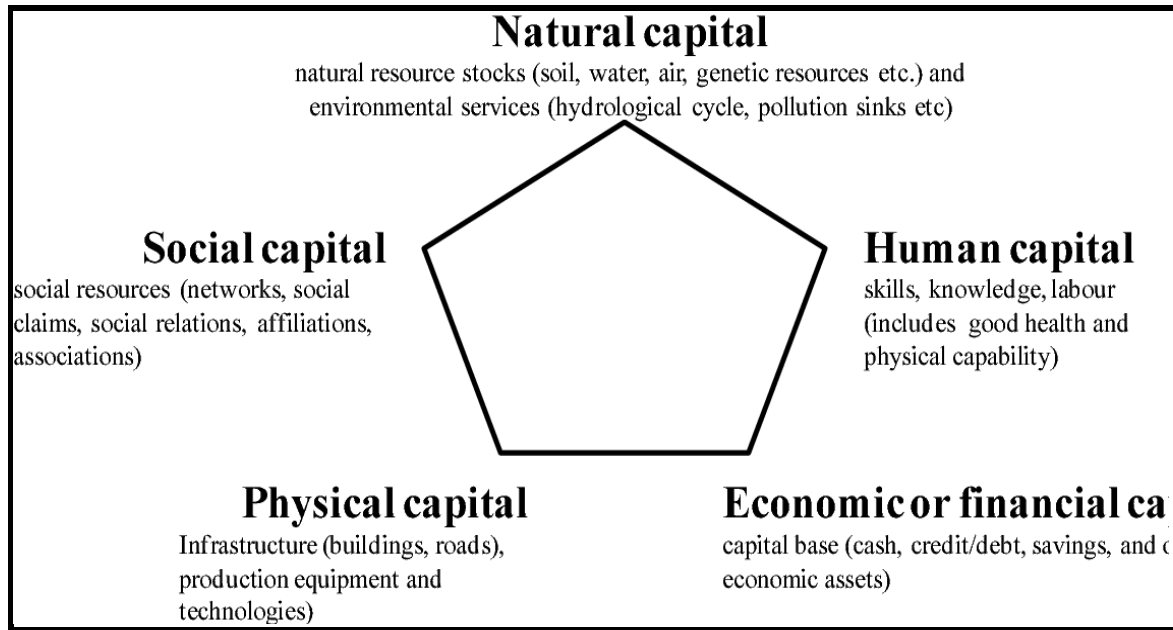


FIGURE 2: THE LIVELIHOODS CAPITALS THAT MAKE UP THE SLF (DFID, 1999)

The primary goal of the Sustainable Livelihoods Approach is to establish the advantageous aspects within the livelihoods of the most marginalised segments of society, which can be further developed; based on their existing resources, with the overall aim of alleviating poverty and ensuring food security. This approach emphasises the need of concentrating on assets and strengths, rather than vulnerabilities (Ellis & Freeman, 2005; Jackson, E.A, 2020). In order to achieve the comprehensive livelihood outcomes that individuals and households require, a diverse array of assets is necessary. It is critical to comprehend how the five capital assets work dynamically to support individuals. As an illustration, although cattle are seen as physical capital since they provide animal traction, they may also create social capital because they foster ties and status within the community and still count as a form of natural capital. It is necessary to view the livelihood capitals as interconnected rather than as discrete components. The livelihood capitals are explained as follows:

a) Natural Capital (N)

Natural assets are commonly known as natural capital, encompassing several elements like land and farm yields, water and water-living assets including lakes, forests, trees, wild animals, forestry foods and fibres, biodiversity, as well as environmental services. Environmental occurrences that deplete natural assets, for instance, cause the majority of

livelihood shocks. As a result, there is a clear correlation between the context of vulnerability and natural capital. The comprehension of existing environmental assets and their conservation now and in the foregoing future utilisation is crucial in attaining resilient livelihood results (Berry, 2022; Scoones, 1999). Berkes and Folke (1992) explain that natural capital consists the following principal classifications which are:

- The physical and biological environment; which encompasses various aspects, such as land quality, atmospheric conditions, climate patterns, hydrological processes, including water regulation and supply for agriculture and drinking purposes, nutrient recycling, crop pollution, seafood production, and preservation of a diverse genetic repository.
- Depletable assets, such as minerals that are harvested from the environment.
- Living or recyclable resources, such as aquatic like, and water which are derived from and sustained by environmental processes and work within ecosystems.

Within the Sustainable Livelihoods Framework, the connection between natural resources and the vulnerability context is very close, especially for small-scale rural farmers who are already resource poor. Natural disastrous phenomena such as fires, floods, droughts, and earthquakes are inherent processes that may sometimes be caused by human activities. These events result in the destruction of natural resources. Therefore, natural capital has significant importance for those who depend on resource-based activities for their livelihoods, such as rural farmers in districts like Muzarabani in Zimbabwe. This capital is closely connected to climate change and fluctuation.

b) Human capital (H)

The term "human capital" entails the degree of leaning and physical condition of both people and populations. (For example, health, dietary needs, schooling, understanding and skills, ability to work, and capacity for adaptation) It encompasses human mental and physical capabilities; including body type, talents, and cognitive understanding of persons to contribute to the sustenance plans that households would pursue (Jackson, 2020). In detail, human capital involves knowledge and expertise which is the essential knowledge and ability that allows households to engage in farming as well as engagement into other livelihood strategies.

c) Physical capital (P)

Physical capital encompasses assets that are created through economic production activities. These assets include infrastructure, like transportation, highways, locomotives, secure shelter, constructions, water delivery and health facilities, energy sources, and communication networks. Additionally, physical capital comprises tools and technology used in production processes, such as equipment, machinery, seed, fertiliser, pesticides, and traditional technological resources. It includes the built assets which are vital in enabling farming activities through accessing transport, accommodation, equipment for productions, water, energy and networks for sending and receiving messages (Scoones, 1998). The road networks, Information and Technology (IT) systems, deep tanks and boreholes are components of the natural capital of the rural households in Muzarabani.

d) Social capital (S)

It pertains to social networks in which people engage in, through which they might obtain support that enhances their means of subsistence. This approach prioritises individuals and their interpersonal dynamics, as well as their interactions with various institutions within their own communities. According to Ashley (2000), it denotes the societal assets that individuals utilise in order to attain their livelihood outcomes. These illustrative instances include various forms of social structures such as personal links and social synergies, which encompass friendships, neighbours, and relationships.

Additionally, kinships characterised by dependability and reciprocal understanding as well as both formal and informal groups, play a significant role. This also includes mutually cherished aspiration and conducts, along with established codes and enforcements. They contribute to the formation of communitarian kind of representation. Moreover, mechanisms facilitating engagement in decision-making procedures and leadership positions are also integral components of social structures. (Scoones, 1995, Chambers and Conway, 1992). In addition, social networks refer to the social resources that people or households acquire because of connecting with certain groups of people or communities. They include networks, trust-based associations, or belongings to certain groups, all of which have an impact on the long-term livelihood strategies that households pursue. Social networks shape the thinking around

livelihoods pathways in a particular area. This refers to the social connections and relationships that unite people within a home or community. These relationships enhance individuals' confidence and their capacity to collaborate. In Muzarabani, this includes organisations and institutions such as churches, political groupings, ethnic clans/totems, burial societies, and other connections, that promote unity and cooperation inside and across households. They work together to achieve common goals and improve lives. Social capital has the potential to foster collective action and unity among individuals, but it may also lead to exclusion when a tightly-knit group prevents others from accessing the advantages associated with them (Conway, 1992).

e) Financial capital (F)

Financial capital is a term used to describe a store of money that can be used to pay for either production or consumption items (Scoones, 1998; Carney, 1998). The two primary origins of finance are existing assets, which can take the shape of hard currency, savings, credits, or borrowing, and recurring flows of income like wages, payments, or pension funds. Capital can be transformed into other types of income that give individuals choices for a living and cause them to choose from a variety of living arrangements, such buying food or obtaining production tools (Cattermoul et al., 2008). Household financial resources encompass several forms of economic assets that can be accessed and utilised by individuals; including savings, credit, pensions, and remittances. The availability of financial resources to households enables them to access various livelihood strategies and has a tendency to impact their livelihood results (Berkes & Folke, 1992).

The determination of households' livelihood strategies is significantly influenced by the ownership of natural capital (Wanyama et al., 2010). The unequal accessibility of natural resources, specifically land, in rural regions of Less Developed Countries (LDCs), has posed a significant obstacle to reducing poverty and attaining food security. Land plays a big responsibility in securing livelihoods for the next human race (Gebru & Beyene, 2012). The primary and most significant natural resource for smallholder farmers in Muzarabani district is land. As a paramount natural resource, land is inherently inadequate without the presence of auxiliary capital assets such as the accessibility of agricultural machinery. In addition to the

land, smallholder subsistence activities necessitate additional resources like personnel, natural, social and monetary capital.

2.2.5 Livelihood diversification

Rural households engage in livelihood diversification as a means of ensuring their survival and improve their quality of life. This entails the establishment of a varied range of activities and the acquisition of social support skills (Ellis, 1997). Few people get all of their income from a single source, hold all of their money in a single asset, or spend all of their assets in a single activity, therefore diversity is the norm (Barrett et al., 2001). Livelihood diversification is regarded as a strategic endeavour undertaken by people and households in order to explore other avenues for augmenting their income and mitigating environmental vulnerabilities (Hussein and Nelson, 1998). Diversification of income sources encompasses both on-farm and off-farm activities carried out in order to provide revenue; in addition to that from the primary agricultural operations of the household. In addition to various risk-sharing measures, households can diversify by producing other agricultural and non-agricultural commodities and services such as selling their labour for a wage, or working for themselves (Ellis, 1997).

According to Ellis (1997), rural livelihood diversification is spurred by the requirement for survival, with households developing a diversified portfolio of occupations and social support skills. Influx of actions will be determined by a family's potential to obtain various sources of income (Ellis, 1997; Bryceson, 2002). Mutenje (2010) suggests that although there is considerable amount of literature which explains the reasons many families vary their livelihood methods, it is puzzling to aggregate the effects and results of such diversification across the area of study (Hussein and Nelson, 1998). Furthermore, it should be emphasized that a household's exposure to shocks and asset portfolios both influences how well it can diversify its sources of income (Mutenje, 2010). Thus, an ethnographic study of livelihood methods adopted by households in Muzarabani district will help researchers and policymakers to understand the complex matters surrounding household-level livelihoods in connection with food security.

Diversification further refers to the practices taken up by rural households to augment their revenue streams through the expansion of economic production, irrespective of industry or geographical site (Start, 2001). Despite each person in the family having a primary focus, a household can have

many sources of income. Increased numbers of economic activities; whether agricultural or non-agricultural, are referred to as income diversification (Ellis, 1998). A broad spectrum of on-farm and off-farm economic engagements must be maintained and continuously adapted throughout time in order to ensure survival and raise living standards. Therefore, livelihood diversification is described as “an active social process of individual or household diversification” (Ellis, 2000: 58).

This study gives details of the two types of diversification that are commonly distinguished. There are two main types of diversification strategies observed in households. The first type is known as accumulation/opportunity-led diversification, which involves households actively choosing to invest in diversification for the purpose of accumulating wealth and reinvesting it. The second type is the survival kind of diversification, which deals with temporary hardships or shocks. In some cases, households may also engage in this type of diversification as a long-term adaptation strategy when their primary livelihood activities; particularly agriculture, fail to provide a sufficient income. These categorisations have been discussed by various scholars such as Rigg (2006), Orr and Mwale (2000), Ellis (2000), and Scoones (1998).

Furthermore, Ruben and Pender (2004) as cited in Mutenje (2010) propose that poorhouseholds encounter a paradox wherein their urgent need for livelihood diversification is hindered by their limited capacity to pursue more lucrative livelihood strategies. This is primarily attributed to the presence of entry barriers and the challenges associated with securing initial investments. According to Barrett et al. (2001), a significant portion of the diversification of livelihood in rural areas can be described as being driven by desperation, and primarily consists of engaging in unskilled wage labour. The primary determinant of diversity among rural families is the variation in resource endowments (Ellis, 2000; Barrett et al., 2001; Ruben and Pender, 2004). Asset portfolios not only facilitate the potential to achieve diversification, but assists in determining the outcomes of diversification, whether they are favourable or unfavourable.

Furthermore, Hussein and Nelson (1998) suggest that the capacity of a household to implement more lucrative diversification methods is contingent upon possessing the necessary expertise, geographical proximity, financial resources, access to finance, and social networks to engage in alternative endeavours. The motivations of rural farm households to engage in off-farm activities exhibit notable variations based on the specific context and income levels available to them. In the

realm of diversification, the impetus to pursue this strategy can be broadly classified into two distinct types, sometimes referred to as push and pull factors (Ngau, 1991; Davies, 1993).

It is possible for rural households to diversify their farming activities such as value addition to raw materials by improving them as well as off-farm engagement by taking on new occupations. It could be implemented voluntarily for the purpose of accumulating wealth or investing it again, or it may be done out of need to deal with short-term hardship or as a more long-term adaptation to the failure of other means of subsistence. In contrast to the latter, which is focused to the practiced response to a specific sort of shock or stress, the former reason may be linked to a wider capital-earning facility to counter future emergencies.

Mobility occurs voluntarily or involuntarily. As a crucial approach to ensure employment outside of agricultural activities, commonly referred to as off-farm employment, it is reliant on and has the potential to foster economic and social connections between the regions of origin and destination. Migration patterns of individuals can be significantly influenced by kinship structures, as well as social and cultural standards. The phenomenon of migration will inevitably result in significant consequences for the economic status of individuals who remain in their home countries, as well as for the societal roles of women and the allocation of resources towards enhancing agricultural output (Scoones, 1998; Swift, 1998).

2.2.6 Different types of livelihood strategies

Factors influencing choices of livelihood pathways are critical aspects on livelihoods (Murray, 2002). According to Ellis (2000), the reasons for choice of particular pathways as a livelihood strategy can be classified into two issues determined by necessity or choice. Necessity has to do with compulsion and helplessness in pursuing a particular pathway. For instance, reduced land accessibility, diminishing agricultural productivity, occurrences of natural calamities such as droughts, floods, or man-made disasters like civil unrest leading to displacement and abandonment of prior resources, as well as accidents or poor health (Ellis 2000). Choice varies from voluntary and proactive reasons for engaging in certain strategies such as taking advantage of off-season casual labour opportunities, putting resources into off springs' learning programmes, saving money to invest in non-farm pathways or buying inputs as well as equipment for the farming pathways. Necessity and the ability to choose are considered as survival strategies.

In this research, the word "strategy" is used to denote deliberate and cohesive acts undertaken with the objective of attaining a certain goal in the future, within a reasonably extended time frame. (Niehof, 2004, Anderson et al., 1994). To ensure the sustainability of rural livelihoods, households must consistently engage in a diverse range of methods to support their economic well-being. (Mukwede, et al 2023). This is possible when assets or capitals may be converted and replaced. For instance, social networks could compensate for a household's dearth of financial capital or a conversion of natural capital into financial capital (Bauman & Sinha, 2001). Nevertheless, the utilisation of capitals or assets occurs within a context that is susceptible to disruptions and stresses, which will influence the nature of the livelihoods employed by the community. Moreover, according to Orr (2001), livelihood strategies may be categorised into three broad groups. They include agricultural intensification and intensification which refers to strategies based on the exploitation of natural resources like food crops and livestock. Additionally, it includes revenue generated from agricultural activities that are conducted outside the farm, such as casual work. Livelihood diversification, which is the process by which rural families; motivated by the necessity for survival and a desire to enhance their quality of life, engage in a range of different activities to generate income. Diversification refers to the process of increasing the proportion of revenue derived from non-agricultural activities or from income transfers.

Livelihood migration is the phenomenon when one or more individuals from a family temporarily depart from their home for varying periods of time. Migration may be classified into three distinct types: seasonal, circular, and permanent. Hussein and Nelson (1998) propose categorising livelihood activities into four groups: (i) farm versus non-farm; (ii) on-farm versus off-farm activities; (iii) local versus migratory; and (iv) self-employment versus wage labour. However, Barrett et al. (2001) points out that there is often confusion due to inconsistent terminology. Terms such as "off farm", "non-farm", "non-agricultural", and "non-traditional" are frequently used interchangeably, leading to ambiguity. The phrase "rural non-farm income" is sometimes used to describe income produced by rural families from sources other than farming. Alternatively, it refers to the revenue generated only in rural regions by rural families, excluding any income derived from farming activities.

The rural non-farm economy refers to all income-generating activities in rural households that are not linked to agriculture. It may be categorised, basing on many factors; including whether the

activity is on-farm or off-farm, whether it involves wage labour or self-employment, and whether it is agriculturally related or not (Davis, 2004; Davies, 2002). An optimal classification should encompass activities that are directly related to agriculture and the food supply chain. This includes the production of goods and services for both local and distant markets, as well as enterprises that cater for distant markets. Additionally, it should include businesses that are sufficiently large, productive, and financially capable of generating incomes that surpass the returns achievable through farming alone. Local wage labour and migratory wage labour are two types of employment opportunities that can be found either nearby or in distant areas from where people live. Migratory wage labour often involves seasonal or long-term migration. Both types of wage labour serve as a diversification strategy to supplement on-farm production and meet household consumption needs. They also help in revitalising impoverished farms. Self-employment businesses are defined as operations that include the utilisation of labour and other household capital assets, such as savings and land. These strategies may be either agricultural or non-agricultural. Agricultural strategies include creative on-farm operations, while non-agricultural strategies concentrate on activities like processing agricultural commodities, petty-trading, and handicraft.

Nevertheless, there are disparities in the manner in which wage work and self-employment influence rural livelihood practices. Rural self-employment has the potential to be more lucrative than working for wages, but it also entails a greater financial risk due to the need for larger capital investment (Woldehanna and Oskam 2001). In addition, it is important to note that:

It would be misleading to see the growth in rural non-farm activities in isolation from agriculture, as both form part of complex livelihood strategies adopted by rural households. High levels of income diversification is a common phenomenon among rural farm households. Rural off -farm strategies are often counter cyclical with agriculture and, as such, may serve as a consumption smoothing or risk insurance mechanism, particularly when the returns to these activities are not highly-correlated with agricultural returns, and may also absorb excess labour during agricultural off-peak periods (Jiashun,2019).

2.2.7 Livelihood Strategies and Food Security Linkages

Food security is supported by livelihood strategies (Patel et al., 2015). The most crucial aspect of livelihood to examining when analysing household food security is the means by which people produce their own food and the means by which they secure income to purchase food from other

sources (Chikopela, 2014). Either off-farm or on-farm strategies can result in more or less favourable livelihood outcomes in terms of food security or insecurity. Therefore, food insecurity is a consequence of inadequate livelihoods (Clover, 2003; Lvendal, Knowles and Horii, 2004; Ncube, 2014; ACF, 2010). If the livelihood activities of a household are easily vulnerable or less adaptable to a changing environment, that household's capacity to produce its own food or procure it from other sources is severely compromised (Devereux, 2004; Gathiaka, and Muriithi, 2013). Matse et al., (2009) and Sasson (2012) note that food production is one of the essential activities for rural households' subsistence and an indispensable source of food access.

Nevertheless, if a household cannot grow enough food for its own use, its ability to procure food in sufficient quantities is determined by its income level and the availability of food on the market (Woller, 2009). This is justifiable for agriculture-dependent rural households that have progressively become net purchasers of food and therefore require cash income from diverse livelihood activities (Baiphethi and Jacobs 2009; Loison 2015). The issue, however, is that the poor households do not have the means to cultivate or purchase sufficient quantities of food. Their coping strategies are quite limited (FAO, WFP, and IFAD, 2012). According to Devereux (2000), the root cause of food insecurity in Zimbabwe is reliance on less diversified livelihoods centred on rain-fed agriculture, with low inputs and outputs.

According to Matshe (2009), comprehension of the structural challenges that perpetuate food insecurity in rural parts of Africa is based on the examination of local strategies employed to maintain one's livelihood. The choice of strategy results in sustenance or cash flows. Poor households, whose agricultural activity is less productive and whose non-agricultural opportunities are limited, are therefore susceptible to food insecurity. These households are always at risk of food insecurity (Clover, 2003; Gathiaka, & Muriithi, 2013). Within the realm of food security analysis, it is crucial to comprehend the fundamental elements of livelihood. Specifically, one must comprehend the techniques individuals use to cultivate food for their own consumption, as well as the means by which they generate income to purchase food from external sources. The analysis considers the range of livelihood assets available to households, as well as the policies and institutions that shape their choices for the most suitable livelihood strategies to pursue.

Utilisation of these strategies possesses the capacity to yield either favourable or unfavourable consequences for individuals' livelihoods, particularly with regards to the aspect of food security. According to Messer and Townsley (2003), lack of robust livelihood strategies contributes to food insecurity. Application of the livelihoods-based analytical framework holds great potential in facilitating the advancement of improved approaches for understanding the intricacies of poverty and food security (Devereux et al., 2004). As illustrated in the analytical framework, the connection between livelihood strategies and improved food security is identified as one of the outcomes resulting from the pursuit of livelihood strategies by rural households (Scoones, 1998). Therefore, conducting an examination of the food security status across various livelihood groups will result in the identification of distinct strategies tailored for each respective group. Furthermore, in order to assess the effectiveness of households in implementing their livelihood strategies, it is crucial to consider many indicators that encompass the fulfilment of needs and satisfaction of rural farmers' well-being (Tesfaye, 2003).

The assessment of nutritional status is often regarded as a robust measure for evaluating the overall security of livelihoods, as it encompasses various facets; including food accessibility, healthcare availability, and educational opportunities (Ellis, 2000). As a result, the use of a livelihoods approach in the assessment of food security has led to the broadening of viewpoints, yielding notable achievements. The Livelihoods Approach acknowledges the presence of many risks and emphasises the importance of addressing both immediate life-threatening threats and the gradual erosion of livelihoods over time (Young et al., 2001). The integration of a Livelihoods Approach into the examination of food security would yield several notable benefits. Livelihood approaches have been identified as a viable and pragmatic means of establishing a connection between rights-based approaches, measurement, and action in order to mitigate the issue of food insecurity (DFID, 1999). Additionally, this approach would broaden the scope of analysis and action beyond the confines of agriculture, encompassing other interventions aimed at promoting varied livelihood options that are not solely reliant on agriculture. Furthermore, it would involve the allocation of a diverse set of resources that contribute to the enhancement of food security (Young et al., 2001). Before identifying solutions, it is critical to first understand individuals' experiences with poverty and the relationship between food insecurity and the restrictions and possibilities within their current livelihoods (Hussien, 2002).

Existing body of literature indicates that livelihoods strategies, as discussed by Carney et al. (1998), play a crucial role in comprehending the intricate interconnections that impact both food security and livelihoods approaches. Food security; encompassing the quantity and nutritional value of food consumed as well as the consistency of access to it, is merely one of the anticipated outcomes of household livelihood plans, which also include the pursuit of increased income. One advantage of using livelihoods methodologies in the investigation of food security issues is their ability to stress the importance of completely comprehending the diversity of factors that influence livelihoods. This understanding is crucial for effectively enhancing the availability, access, and utilisation of food (Devereux et al., 2004). It is crucial to recognise that individuals living in rural areas utilise various strategies to secure their livelihoods, which vary among households based on several factors such as socioeconomic status, educational achievement, local knowledge, ethnic heritage, and the stage of the household life cycle. Even within the same region, socioeconomically diverse individuals' methods differ significantly. This is exemplified by the divergent approaches employed by individuals with larger land holdings versus those with smaller land holdings or without property (Wagayehu, 2004). Hence it is necessary to conduct an examination of the many prospects for livelihood diversification that are accessible in rural, marginalised areas. Furthermore, it is vital to ascertain the diverse factors that may potentially influence the ability of those rural households to augment their productivity and yield improved outcomes in their present pursuits, or alternatively, shift towards livelihood endeavours that provide increased income (Devereux, 2000). The selection of livelihood options has a crucial role in determining the likelihood of achieving a prosperous and sustainable livelihood, as well as the potential for encountering food insecurity within rural households (Testaye, 2003).

Moreover, it is imperative that the decisions taken by rural farmers facilitate the exploration of the intricacies and variations in individuals' livelihoods, rather than depending on oversimplified presumptions on the functioning of rural economies. The selection of livelihood strategies bears significant influence, and it may be advantageous for policymakers to categorise families into a restricted number of groups based on their pursuit of comparable livelihood strategies. This categorisation can provide more effective targeting of households with shared features. This statement suggests that the examination of livelihood strategies holds value for policy makers and

practitioners in gaining a comprehensive understanding of the realities of individuals' lives, as well as identifying the factors that contribute to poverty reduction and community resilience (Ashey et al., 2003).

2.2.8 The role of transforming structures and processes in shaping livelihoods

The concept of transforming structures and processes encompasses institutions, organisations, laws, and regulations that have a profound impact on individuals' livelihoods (Scoones, 1999). These factors not only influence individuals' access to different forms of capital, but also dictate the ways in which assets can be exploited. Institutional and policy-making processes function in pre-existing circumstances such as the history of the people, climate change, and other shocks and stressors. The transformation of structures and processes is vital for effectively controlling access, regulating the terms of trade among different kinds of capital, and determining the returns from specific livelihood plans (Shankland, 2000; Keeley, 2001). In addition, Kollimar and Gamper (2002) provide a definition of structures as the physical entities, such as commercial and public organisations, that are responsible for establishing and executing policies and regulations, providing services, engaging in transactions, and carrying out various other activities that have an impact on people's livelihoods. Furthermore, structures encompass both governmental and private sector entities responsible for formulating and implementing policies and regulations, delivering services, and engaging in various activities that significantly influence individuals' livelihoods (Serrat, 2008).

In conjunction with physical structures, processes constitute the intangible components that govern the behaviours and interactions of individuals and entities. Laws, rules, policies, operational arrangements, agreements, societal norms, and practices that govern how structures function are all considered as processes (Shankland, 2000). Policies, legislation, institutions, culture, and power interactions are all crucial livelihood processes. The potential applications of these tools include the ability to influence individuals' decisions, regulate access to assets, and enable stakeholders to supplant and modify one type of asset with another. (Kollimar and Juli, 2002). Both structures and processes influence people's decisions about their style of living. While structures and procedures are essential for converting resources and improving livelihoods, it is important to understand that they can also be constrictive if they are not equitable and pro-poor (Ellis, 2000). These structures

and processes hold a prominent role within the framework and provide immediate responses to the context of vulnerability. These structures help stakeholders to critically examine the factors influencing the choice of livelihoods that smallholder farmers engage in.

2.2.9 Vulnerability context

The concept of vulnerability context refers to the external circumstances that individuals navigate through in order to sustain their livelihoods (Scoones, 1999). Various types of shocks including economic, health, natural, conflict-related and climate related, have the potential to directly cause destruction of assets (Kassa, 2015; Mavhura et al., 2017). According to Scoones (1999), the rural poor face persistent challenges arising from fluctuations in prices, variations in employment prospects, and constant changes in food availability. Additional considerations encompass governance and technology advancements. Livelihoods exhibit a multifaceted nature and undergo dynamic transformations, hence encountering diverse forms of risk (Ellis, 2005). The vulnerability context encompasses the various risk variables that impact livelihoods. The concept of vulnerability entails an increased susceptibility to experiencing a rapid, severe, or significant decline in one's standard of living. The phenomenon presents itself in the form of seasonal patterns, unexpected disruptions, and prevailing tendencies that challenge the ability of households to maintain consistent levels of consumption. Households which are vulnerable find themselves trapped in a state of poverty (Ellis & Freeman, 2005; Mavhura et al., 2017).

Impacts of vulnerability to shocks vary from one instance to another (Chitongo, 2019). As an illustrative example, drought exerts an impact on natural capital, thereby leading to a decline in agricultural productivity. The movement of individuals into and out of a household or community has a significant impact on the extent and strength of social networks. The implications of demographic shifts extend to landholding and fragmentation as well (Morse and McNamara, 2013). Changes in resources such as land have a significant impact on agricultural livelihood activities for rural households. However, it is important to note that the susceptibility of various livelihoods to shocks is not uniform. This section of the sustainable livelihood framework focuses on the objective that highlights the difficulties encountered by smallholder farmers in the current study. Individuals experience dynamic shifts in their socioeconomic status, occasionally transitioning in and out of poverty as a result of various factors within their surrounding

environment (Elasha et al., 2005; Stafford and Abramowitz, 2017). The vulnerability context, as defined by Devereux (2001), encompasses the external environment in which individuals reside and experience significant effects on their asset status. The components of this phenomenon encompass various patterns, including demographic patterns, resource patterns, and governance patterns. Additionally, it involves unexpected issues such as human, livestock, or crop health crises, natural disasters like floods or earthquakes, economic disruptions, and conflicts in the form of national or international wars. Furthermore, it incorporates the cyclical nature of prices, products, and employment opportunities. These categorisations have been identified by scholars such as Allison and Ellis (2001) and Ellis (2000). The livelihoods and assets of individuals are subject to several factors such as trends, shocks, and seasonality, which are beyond their control or influence. The level of vulnerability is contingent upon the assets possessed by a household and the degree to which the holders of these assets are capable of adapting (Carney, 1998; Martin, 2019). Hence, vulnerability can be defined as a state of insecurity pertaining to the welfare of people, households, and communities when confronted with alterations in their external surroundings (Devereux, 2001).

Nevertheless, it is crucial to highlight that the aforementioned framework fails to adequately handle the favourable aspects of the existing trends. Not all trends and seasons should be regarded as detrimental; they can sometimes have good trajectories. According to Carney (2002), the identification of trends in emerging technology or the observation of price seasonality can serve as advantageous means to safeguard one's livelihood. The phrase 'vulnerability context' implies that these patterns may be accountable, either directly or indirectly, for the challenges experienced by individuals. However, it is important to note that this is not always the prevailing circumstance.

2.3 The Food Security Concept

2.3.1 Understanding food security

Food security continues to be a topical global issue which has attracted attention from many groups (Van Duy and Huong, 2017). The concept of food security has evolved over the last thirty years, with early emphasis on physical availability of food, ignoring other pillars like accessibility, utilisation, and stability (Quizon, 2012). More than 70% of households that spend a higher proportion of their income (Averagely 60%-70%) on food are food insecure (FAO, 2011). The

most commonly used definition of food security, as established by the Food and Agriculture Organisation (FAO) in their annual report on food security titled "The State of Food Insecurity in the World 2001," encompasses the notion that food security is achieved when individuals possess the necessary means, both in terms of physical resources and social and economic capabilities, to obtain an adequate supply of food that is both safe and nutritious. This supply should be able to fulfil their dietary requirements and preferences, thereby enabling them to lead a healthy and active lifestyle (FAO, 2002). In Zimbabwe, the issue of food security is tightly regulated by the government, but the same government lacks adequate resources (Chitongo, 2013). According to Muzerengi and Mapuranga (2017), the concept of food security encompasses the total amount of food available inside a nation, including various sources such as domestic production, imports, food stocks, and food aid.

There have been numerous definitions of household food security offered. According to Maxwell and Frankenberger (1992: 155-159), "all agree that the primary distinguishing quality of household food security is secure access to sufficient food at all times." The World Bank, for example, defines food security as "all people having safe access to good food for an active life" (Stevens and colleagues, 2000: 64). Food security can be described as the state in which individuals have consistent access to an adequate supply of food that is both safe and nutritious, meeting their dietary requirements and allowing for an active and healthy lifestyle. This definition was established during the 1996 World Food Summit (FAO, 2001 According to Mishra (2016), a food-secure home is characterised by the absence of any indications of food insecurity. The achievement of food security is contingent upon factors of food supply, accessibility, stability, and utilisation, as highlighted by Ogundari and Awokuse (2016).

Food security, particularly in rural settings, refers to the state of having an adequate supply of corn meal and food; particularly vegetables, as well as sufficient financial resources to support a household until the next harvest period (Ngwenya, 2021). Furthermore, Peng and Berry (2018) argue that the concept of food security is afterwards categorised as a component of the broader concept of "food security and nutrition". Gillespie and Mason (1991: 63), as referenced in Sarkar (2022), propose a definition of food security at the home level, which encompasses the notion of

having sufficient access to food that meets the necessary standards of quality, quantity, safety, and cultural acceptability for all individuals within the household.

Households would be food secure when the prerequisites of availability and accessibility are met, according to a definition approved during an Africa regional workshop conducted in Zambia in 1992 (Ncube 2015). According to the established criteria, it is imperative that the adequacy of staples, vegetable and animal protein dishes, vitamin supplements, and concentrated energy sources align with cultural preferences in order to ensure safety. Accessibility pertains to the capacity of households to acquire food by means of converting assets, including land, labour, capital, and other resources. There is growing need to evaluate whether the current four-pillar framework for food security needs to be further updated in light of the rising rate of hunger. This is done in order to incorporate intricacies of the current situation into policies which are intended to alleviate food insecurity (Clapp *et al.*, 2022).

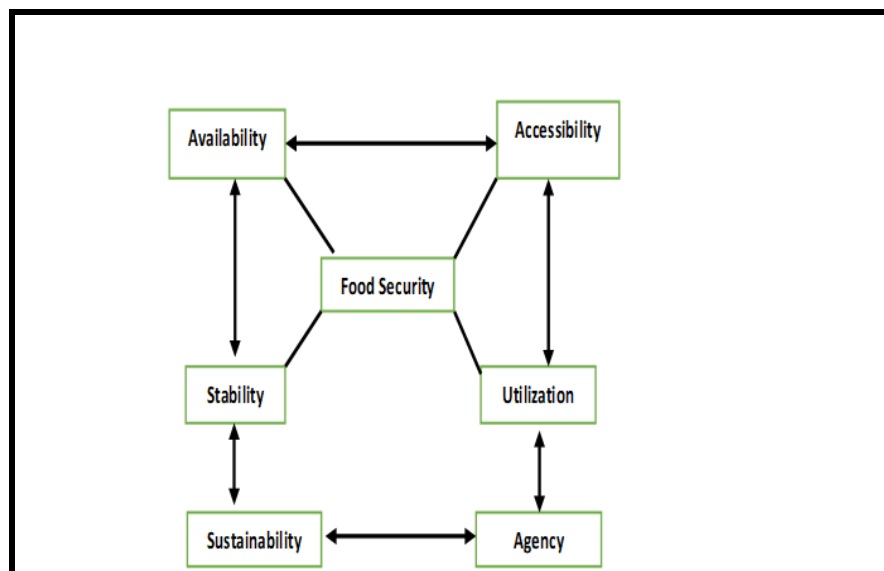


FIGURE 3: DIMENSIONS OF FOOD SECURITY

Figure 4 above depicts the interaction of the components of food security, with availability, accessibility, utilisation and stability, with the new emerging pillars of sustainability, and agency. These are interconnected and depicted as having an impact on food security. The components imply that any discussion about food security should consider variables such as sufficiency, availability, accessibility, and acceptability, which are all linked in some way. Not only must food

be supplied, but it must also be accessible to all members. What is available must also be sufficient, and there should be a willingness to consume it. As a result, what is available must be recognised as a preferable food. Food security is also analysed as a causal route that is interconnected from production to consumption, encompassing distribution and processing. This perspective is acknowledged in various fields, as opposed to being viewed as four distinct pillars (Berry et al., 2015). Consequently, there has been an increase in interest in the subject of food insecurity and welfare during the past few decades. As a result, it is necessary to pay more attention to the global processes that have an impact on local communities, whether they be rural, urban, or somewhere in between, as well as the factors that cause household food insecurity. Households in these ecologically diverse areas engage in complex activities and develop coping strategies to maintain short- and, ideally, long-term well-being (Pottier, 1999).

2.3.2 Dimensions and pathways of food security

Food security has never been constant; it has changed over time as a result of macro and micro environmental, political, and social factors. Current definitions of food security, among other things, only make token mention of issues like sustainability and growing concerns about unhealthy eating habits. The notion of sustainability, which considers the economy, society, and nature, is supported by environmental, equity, and social justice issues (Gibson, 2005). Sustainability is the term used to describe the circumstances that enable behaviours, activities, and systems to endure across time (Lima, 2008). Although, definitions of food security emphasize the need to always have conditions that meet food demands without the potential of seasonal food insecurity, the idea is imprecise and falls short of societal needs. In both the Global North and South, overeating and poor eating practices are progressively contributing to issues like overweight, obesity, and other chronic diseases linked to diet. These are gradually becoming part of the idea of food security, and are implied in the FAO definition, which emphasizes the importance of "an active and healthy life." (Young, 2004:6). Despite this, publications from the FAO and other development organisations continue to ignore over-consumption as a source of food insecurity (FAO, 2006).

Food availability is the most fundamental component of food security because it is the most commonly used indicator to measure food security. However, given recent increases in food

production, this does not seem to be a problem on a worldwide scale. The amount of grain produced now would be sufficient to feed everyone on earth and solve hunger, if only the underprivileged had access to it (Lappé et al., 1998). Food availability in this context refers to the sum of local production, commercial and humanitarian imports, and changes in national stock. According to FANTA (2011)¹, availability encompasses the presence of adequate quantities of suitable and necessary food obtained either through domestic production, commercial imports, or donations, which is consistently accessible to persons or within an acceptable distance from them.

Simply put, this comprises both domestically produced food and imported food. (Tweeten and McClelland, 1997; Madziakapita et al., 2004). For people to be able to buy adequate food, they must have access to sufficient resources and entitlements (Hart, 2009). Having access to the foods they prefer should be a part of this. Understanding cultural influences, dietary preferences, and how individuals purchase and prepare food are necessary for gaining an awareness of food security. As a result, how people use entitlements, choose foods, and prepare food determines their food security status (FAO, 2006; Hart, 2009). Several studies have linked the notion of adequacy to entitlement. These include Reutlinger and Knapp's (1980:38) conceptualisation of "minimum amount of food consumption," FAO's (1983:12) "basic food needed," as well as Barraclough and Utting's (1987: 112) notion of "sufficient [food] to meet nutritional needs.". Other demands are usually met when calorie intake is adequate, according to this viewpoint (Maxwell and Smith, 1992). However, as previously stated, determining calorie needs for various groups is difficult, so all nutritional requirements estimations should be taken as value judgments (Pacey and Payne, 1985). Although the idea of enough or sufficient food is difficult to define, it makes sense to concentrate on individual calorie needs rather than family needs. It is more appropriate to redefine needs beyond just survival in order to include those for an active, healthy life, and to gauge the severity of a food crisis. (Maxwell and Smith, 1992).

On the other hand, as defined by the World Health Organisation's (WHO) (2010) nutritional recommendations; food served to the general public must be both nutritious and safe. It should be free of infections and other contaminants like chemical residues. In reality though, food will

¹ The Food and Nutrition Technical Assistance III Project (FANTA) (2012-2018) was a programme run between USAID and FHI 360.

frequently contain these chemical residues as well as bacteria, even if only in small quantities. A typical illustration is the residues of antibiotics and hormones found in animal products like meat, dairy and eggs, whose safety has long been questioned (Pollan, 2006). Sustainable food security is defined as a condition in which the food system provides enough food while also promoting social justice and ecosystem integrity. To be considered healthy, food must be both safe and nutritious; but it must also be culturally appropriate (Lima, 2008). Even so, one could suggest that the majority of people facing food shortage should put their survival needs first and eat things that are not culturally acceptable. Assistance programmes around the world have made it necessary and appropriate to speak about "cultural appropriateness" rather than "cultural acceptability," given that individuals may eat food they would not otherwise accept in times of crisis. To be considered adequate, food must be both healthy (i.e., secure and nutritious) and culturally appropriate (Lima, 2008).

Food access can be defined as a person's entitlement to food, or the amount of food they can produce, purchase, or obtain through both formal and informal food distribution networks. To maintain a suitable diet and nutritional level, people in this situation must have enough money or other means to buy or exchange for the food they need (Fanta, 2011). Food insecurity can emerge when food is available but not accessible due to the erosion of people's right to food (Borton and Shoham, 1991). There is a critical distinction between food availability and people's access to food, according to Sen (1981). People's food entitlements are derived from their assets, stores, networks, and skills, as well as their own production, sales of their produce, and transfers which give them entitlements (Ncube, 2015).

A person or family is said to be food insecure if their combination of entitlements is insufficient to cover their essential dietary requirements. For people and groups who lack meaningful food rights, increasing national food production will not increase their food security. The term "entitlement" refers to the collection of funds, possessions, and goods that households can employ to govern and safeguard their standard of living (Maxwell, 1996). As a result, households obtain food entitlements from their own production, income, wild food collecting, and community support and migration, only to mention a few. A number of socioeconomic characteristics, however, have an impact on a household's food access. Food production is seen as a means to

entitlement, either directly for food producers or indirectly for consumers by lowering market prices. As a result, food poverty is seen as an issue of access to food. Using Sen (1996)'s Entitlement Theory as a foundation, this argument contends that the scarcity of household assets, rather than immediate entitlements, is a better way to understand how vulnerable households are to food shortages. The household's vulnerability will depend on both immediate entitlement failure and buffer stock exhaustion as subsequent crises deplete household assets.

Food accessibility encompasses various factors, including the economic aspect of affordability and purchasing power, the distribution and allocation of food resources, and the individual and household preferences about food choices (Sakar, 2022). As per the findings of the Committee of Economic, Social, and Cultural Rights of the United Nations (U.N.), the primary causes of hunger and malnutrition are predominantly attributed to the inability to access accessible food rather than a scarcity of food itself (FAO et al., 2019). This lack of access is commonly associated with poverty. The condition of poverty can impose limitations on an individual or household's ability to get food, thereby rendering them more susceptible to variations in prices.

The level of accessibility is contingent upon the financial capacity of the household to purchase food at prevailing market prices or possess sufficient land and resources to cultivate their own food. According to Parvathamma et al. (2015), households with adequate resources have the potential to overcome the challenges posed by unpredictable crop yields and localised food scarcities, hence ensuring continued food accessibility. Food access pertains to the capacity of a household to acquire an adequate quantity of food through various means, such as self-production and reserves, purchases, bartering, receiving gifts, borrowing, and relying on food assistance programmes (Sakar, 2022).

In the event that a household is unable to procure an adequate quantity or assortment of food via these mechanisms, it is plausible that sustenance may be present but; not within their reach. (WFP, 2009). Direct access and indirect access are the two varieties of food access. Indirect access refers to the acquisition of food by households through economic means such as purchasing it from external sources, or through the receipt of food as a gift or as part of aid provisions. Direct access refers to the practise in which a household independently cultivates and produces its own sustenance by utilising its own human labour and material resources (Sarkar, 2022).

Access to food by a household can be influenced by the several assets it possesses; including income, land, labour products, inheritances, and gifts. The household's preferences are determined by the demographics, educational attainment, and gender of the head of the home, who decides what kind of food is bought. A household's availability to safe, sufficient, and nutritious food may not assure proper food intake for every member of the household because intra household food allocation may not be sufficient to meet needs of each household member. Food must be available in ways that are acceptable in society, without resorting to scavenging, theft, stealing, or other coping mechanisms (Parvathamma et al., 2015).

Food utilisation has to do with how food is prepared and served in a home; as well as how effectively a person can utilise the nutrients in the food they eat (FAO, 1996). Food is appropriately used when it is processed and stored properly, when there is adequate understanding and application of nutrition and childcare, and when there are adequate health and sanitation services (FANTA, 2011). Utilisation is the capacity of individuals to select, store, prepare, distribute, and consume food in ways that provide adequate nutritional absorption for each member of the family. The ability to achieve nutritional health is also influenced by the availability of good water, sanitation, nutrition education, and health care services (Hart, 2009). As a result, it is crucial to consider concerns related to food security, sufficiency, quality, and the body's capacity to effectively process food and absorb nutrients. Barrett (2010) stressed the significance of the dietary quality of the readily available foods. The nutritional content of food in terms of essential vitamins and micro-nutrients, as well as the body's capacity to digest and absorb these nutrients are factors that influence food security. A number of different factors influence the quantity and quality of food that is consumed by each member of a household after it has purchased the food. To attain food security, food must be healthy and plentiful enough to satisfy each person's physiological needs. The preparation, processing, and cooking of food in the household and community can have an impact on food safety, which affects how food is used (Sarkarm, 2022).

Access to healthcare is another factor that influences how people use food because human health affects how food is broken down and metabolised in the body. For instance, intestinal parasites can ingest nutrients from the human body and decrease dietary consumption. The beginning and

spread of diseases that affect how food is used can be slowed down by practicing good hygiene and sanitation. Education about nutrition and cooking skills can have an impact on how people use food, strengthening this pillar of food security (Parvathamma et al., 2015). Sakar (2022) outlines various aspects encompassed within food utilisation. These include the storage, processing, and preparation of food, with a particular emphasis on safety and hygiene conditions. Additionally, feeding practices are examined, specifically in relation to individuals with specific nutritional requirements, such as infants, young children, the elderly, individuals with illnesses, and pregnant or lactating women. The sharing of food within households is also considered, taking into account the nutritional needs of each individual; including growth, pregnancy, lactation, and overall health status.

The concept of food stability pertains to the capacity to consistently obtain an adequate supply of food during a certain period. The stability of the initial three components of food security has been highlighted by Sarkar (2022). Food insecurity can arise when the three fundamental aspects, namely availability, accessibility, and utilisation, exhibit instability throughout time. Food insecurity can manifest in three distinct forms, namely transient, seasonal, and chronic. During episodes of transitory food insecurity, there may be temporary unavailability of food for brief durations. For instance, crop failure and decreased food supply may result from natural disasters and drought at the level of food production. Any civil conflict or state of emergency may reduce availability of food. Food insecurity could emerge from market instability that raises prices temporarily (Reddy et al., 2019).

Other situations that may shortly result in food insecurity include loss of employment or production. Food production follows a predictable cycle of growing seasons, which might make some crops inaccessible for a while, contributing to seasonal food insecurity (AGRA 2016). Furthermore, Sarkar (2022) emphasises that chronic food insecurity, sometimes referred to as permanent food insecurity, is characterised by a prolonged insufficiency of food resources. Households under such circumstances are consistently vulnerable to the potential inability to acquire enough quantity of food to adequately fulfil the nutritional requirements of all individuals within the home. There exists a connection between chronic and transitory food insecurity, as the repeated occurrence of transitory food insecurity may increase the susceptibility of households to

chronic food insecurity (Parvatham et al., 2015). World market stability, according to Josling and Barichello (1984), is important for maintaining long-term food security.

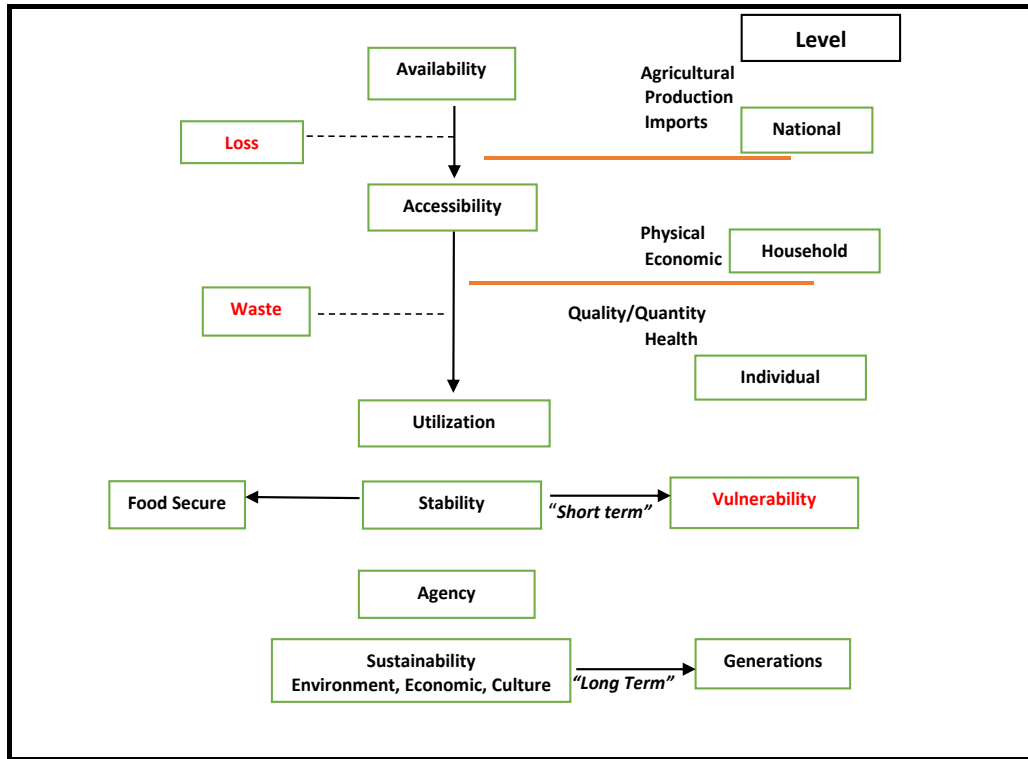


FIGURE 4: THE PATHWAYS OF THE DIMENSIONS OF FOOD SECURITY

Adapted and modified from Berry, (2015)

Sarkar (2022) posits that agency plays a crucial role in tackling the escalating inequities prevalent in food systems, which encompass power disparities among various participants within the system. The term "agency" encompasses the capacity of individuals and collectives to exert influence over their own circumstances and actively participate in governance processes. According to Neufeld et al. (2021), the paper by the United Nations Food Systems Scientific Group highlights the persistent constraints faced by food systems in delivering poverty reduction and sustainable, equitable livelihoods. These constraints arise from inequalities and power imbalances that exist at various levels, including households, communities, nations, and the global arena. The aforementioned paper emphasises the importance of addressing inequality and power imbalances through initiatives that empower individuals, reshape social dynamics, and ultimately modify the

underlying institutions that perpetuate these power disparities and lead to inequalities (Sarkar, 2022).

The increased attention being paid to agency as a factor in food security is largely a result of recent developments in thinking within the literature on human development. This body of writing on human development resulted from a broadening of perspectives on the objectives of development beyond tangible attributes like income and economic progress. Sen (1981) recommended approach to development centres on capabilities and emphasises non-material elements of the development process, such as individuals' rights and abilities to autonomously select their own state of well-being. The present study expands upon the previous research conducted by Sen (1985; 1999), Drèze and Sen (1989), Fukuda-Parr (2003), and Hill (2003) in relation to entitlements.

According to Sen (1985), agency can be seen as the extent to which an individual possesses the freedom to pursue their own objectives and ideals, and to take action in order to attain them. Agency refers to the ability of individuals to exercise their autonomy and make choices, as well as to effectively implement and act upon those choices, with the aim of improving their personal welfare and that of their community (Fukuda-Parr, 2003; Ibrahim and Alkire, 2007). The prevailing body of research in the field of development studies has primarily focused on the concept of "situated agency." This concept pertains to the examination of how societal injustices, particularly those related to gender, impose constraints on individuals' ability to exercise control over their own situations. Consequently, these limitations have a direct impact on their ability to shape their own state of well-being (Kabeer, 1999; Fukuda-Parr, 2003; Frediani, 2010; Thompson, 2015). In the context being discussed, agency might encompass both economic and political dimensions.

The implications of these findings from the wider body of development literature hold considerable importance in the context of food security (Crocker, 2008; Burchi and De Muro, 2016; Chappell, 2018). The importance of procedural elements is emphasised by agency, specifically the ability of individuals and communities to actively participate in food systems and make autonomous decisions regarding them. This participation should enable them to be free from hunger and its associated negative consequences (Burchi and De Muro, 2016; Drèze and Sen,

1989). An emphasis on agency also recognises that power disparities and structural inequalities within society, such as those rooted in gender, race, literacy, or other factors beyond an individual's influence, can impede the ability to express oneself and participate in both personal and collective decision-making processes concerning food systems. The potential consequences of this phenomenon on food security have been documented by Rocha (2007), Chappell (2018), and Collins (2021). The presence of agency holds significant importance at both the individual and collective levels, as it enables people to transcend the notion of being passive consumers of food and embrace the role of active "food citizens" (Fernandez-Wulff, 2018:81-93 ; Vivero-Pol, 2017:442). At the individual level, the augmentation of agency contributes to the promotion of autonomy and self-determination in relation to one's participation in food systems. This serves to guarantee access to culturally appropriate food and livelihoods within these systems, while also safeguarding human dignity and mitigating concerns regarding food insecurity (Maxwell, 1990, Maxwell, 1996).

The correlation between food security and individual agency is proven by several academic studies. Increased agency, achieved through enhanced access to education and land ownership, particularly among women who face gender-based inequalities, has been found to positively impact food quality and child nutrition outcomes (Malapit and Quisumbing, 2015; Rehman et al., 2019; Bezner Kerr et al., 2011). At the level of the community, an increase in collective agency, achieved via increased voice and participation in the design of food and agriculture development initiatives as well as governance of the food system, has been found to have a positive impact on food security and nutritional outcomes (Crocker, 2008; Bezner Kerr et al., 2019). According to the renowned scholar Sen (1999), it has been shown that famines are not prevalent in democratic countries that ensure fair opportunities for individuals to express their opinions. This notion is further supported by Burchi (2011).

Within the realm of social movements advocating for food sovereignty and the right to food, there has been an increasing prevalence of similar ideas concerning the need of agency in the context of food security. According to Thompson (2015), the concept of food sovereignty originated during the 1990s as a desired outcome of social movements, notably La via Campesina. These movements sought to address the perceived inequalities arising from the globalisation of food systems, which

they believed were controlled by transnational corporations and influenced by global trade regulations that did not adequately involve farmers (Wittman et al., 2010). Advocates of food sovereignty emphasise the need for increased participation of farmers in both the formation of food systems and the governance of associated institutions (Anderson et al., 2019).

Similar to the idea of food security discussed earlier, the concept of food sovereignty, has undergone changes in its meaning over time. However, it has continuously emphasised the fundamental right of individuals to determine their own food systems in order to secure their livelihoods and have access to foods that align with their cultural preferences. Certain scholars argue that food sovereignty and food security are not necessarily aligned, as the concept of food security fails to adequately address issues pertaining to agency and rights (Wald and Hill, 2016). Nevertheless, it is worth noting that social movements have emphasised the significance of food sovereignty as a prerequisite for ensuring food security (Patel, 2009). The emphasis on agency holds special significance when examining the food systems of indigenous peoples.

Action must be taken to create increased skills and participation in food systems at both the individual and community levels in order to increase agency within food policies. In order to lessen injustices, such policies include strong social protection programmes for the most vulnerable and marginalised groups in society, such as small-scale producers, women, youths, and indigenous peoples. It also calls for the development of more robust institutional and legal frameworks to safeguard the right to food and ensure that everyone has equitable access to resources that can be used to produce. Measures of this nature necessitate a significant involvement of the state in establishing policy frameworks and institutions to safeguard rights (Sen, 1981; Drèze and Sen, 1989). Efforts aimed at enhancing the agency and protection of women, such as the utilisation of participatory research and extension methods and the inclusion of women in decision-making processes across various levels, have the potential to significantly mitigate disparities. This is particularly crucial, given the substantial contributions women make to all dimensions of food systems, as highlighted by Rao et al., (2019).

Moreover, it is essential to formulate comprehensive approaches to mitigate the accumulation of power in food systems resulting from corporate mergers, as well as governmental policies and governance structures that promote a more equitable distribution of power within food systems.

(Clapp, 2021). By creating opportunities for participation and representation, particularly for historically marginalised populations, in the governance and policy frameworks that define the rules by which actors in the food system must act, such redistribution of power within the food systems can improve both individual and collective agency (Sarkar, 2022). This forms a critical pathway for this study to interrogate the food systems approach in understanding household food security.

In addition, the concept of sustainability underscores the interrelationships among ecosystems, livelihoods, society, and political economy with the aim of ensuring the long-term viability of food systems and the promotion of food security in the foreseeable future (Sarkar, 2022). The concept of sustainability entails the ability to meet present needs while safeguarding the capacity of future generations to meet their own demands (Frantzeskaki, 2012). The attainment of sustainability necessitates a process of transition, since sustainability transitions seek to address the pressing issues faced by modern societies through the integration of environmental preservation, socio-economic feasibility, and the principles of intergenerational equity.

Numerous studies indicate a positive correlation between the shift towards sustainability and the achievement of sustainable food security. This correlation is manifested through various factors, including the augmentation of food availability, the improvement of food accessibility, the optimisation of food utilisation, and the enhancement of both stability and resilience within the food system (Bodirsky et al., 2020; El Bilal et al., 2019). The primary problems are around the disparities in resource accessibility among distinct populations and cultures at many levels, including local, regional, and global. Consequently, there is a need for societal reforms that span several sectors and scales. Furthermore, the sustainability of a system is impacted by the increased levels of domestic material consumption and the reduced rate of circular material usage (Rabbi et al., 2021).

2.3.3 Food insecurity

Food insecurity is basically a state of not having enough food (Wiggins and Leturque, 2010). It might be short-term or long-term (Hussein, 2002). When a household's food demands are not met due to a lack of assets, chronic food insecurity develops. Temporary food insecurity, on the other hand, occurs when a household's entitlement security is jeopardised and food needs are not met (Woller, 2009; Degefa, 2002). Food insecurity is increasingly seen as a failure of livelihoods to secure household access to enough food rather than just a failure of agriculture to produce enough food on a national scale (Clover, 2003). Furthermore, Sanchez et al., (2005) described food insecurity as a condition wherein individuals experience limited physical and financial means to acquire an adequate, safe, nutritious, and culturally appropriate food supply that fulfills their dietary requirements, hence impeding their ability to lead a healthy and active lifestyle.. The prevalence of poverty, constrained employment opportunities, economic volatility, and recurrent climate-induced disturbances collectively contribute to the issue of food insecurity in Zimbabwe (Tawodzera et al., 2016).

According to Sen (1984), a food insecure system refers to a situation in which the system is unable to obtain the necessary basic food requirements through a mix of entitlements. Food insecurity is defined as the condition in which a household does not have access to an adequate and reliable supply of nutritious food that is socially and culturally acceptable, as stated by Sanchez et al. (2005). D'Haese et al. (2013) examine the concept of food insecurity by focusing on individuals' self-reported experiences of the outcomes associated with inadequate access to food. For instance, individuals may experience hunger, reduce meal frequency, consume less preferred food, or adopt a less varied dietary pattern. Similarly, Smith, Rabbitt, and Coleman-Jensen (2017) depict food insecurity as the aggregate of individuals experiencing either moderate or severe food insecurity.

Food insecurity is a term used to describe a period characterised by a scarcity of food or a state of uncertainty on the ability to obtain sufficient and socially acceptable meals. Food insecurity is defined as a state in which individuals lack both the physical and economic means to get an adequate amount of food, hence hindering their ability to maintain a healthy and active lifestyle (FAO,1996 ;Ellison et al., 2021). Therefore, this time frame is influenced by a multitude of factors, including household wealth and assets, socio-economic and political conditions, livelihood methods, and climate change, among other variables. In the Zimbabwean context, a household

experiencing food insecurity is defined as one that requires food assistance for a duration exceeding three months annually (Ignowski, 2012).

Food insecurity can be classified into three main categories: transient, seasonal, and chronic. According to Ecker and Breisinger (2012), transitory food insecurity is distinguished by the intermittent unavailability of food throughout specific time periods. In the context of Zimbabwe, during the 2016/17 season, it was observed that 4.1 million individuals residing in rural areas experienced food insecurity during the peak hunger period, specifically from January to March 2017. This occurrence can be attributed to the aforementioned problem.

Planning and programming for transient food poverty poses challenges due to its inherent unpredictability. According to the research conducted by Sen (1981), the prevailing perspective on food insecurity mostly focused on the demand aspect, specifically the limited access to food among impoverished individuals and households. Conversely, the issue of food availability at a national level, which pertains to the supply aspect, was not given as much consideration. Food insecurity has been recognised as a challenge pertaining to the availability of food, leading to a transition in the focus of study from a global and national scale to the household and individual level. This movement reflects a change from a broad, macro-level comprehension of food security to a more specific, micro-level perspective. Furthermore, numerous studies have examined the home as the primary unit of analysis, as noted by Maxwell (1996), while others have emphasised individual food security and the challenges associated with power dynamics and resource allocation within households (Swift, 1989; Gittinger et al., 1990). The ability of individuals residing in a household to obtain food is intricately connected to their level of influence over household resources and income. Consequently, the conceptualisation of food security often shows a partiality towards individual entitlement, disregarding the intricate interconnections among the individual, the household, the community, the nation, and the global economy.

The commonly referenced definition of food security, as outlined in 1986 policy research conducted by the World Bank, posits that food security is the consistent availability of sufficient food to sustain an active and healthy lifestyle for all individuals (World Bank 1986). The food crisis in Southern Africa in 2002–2003, for example, was assessed as the outcome of a complex

interplay of political, social, and economic forces at many scales, rather than environmental stressors affecting output. As a result, drought and climatic stress played a minor role in food shortages (Mano *et al.*, 2003). Misselhorn (2005) created a theoretical framework for understanding the mechanisms that lead to food insecurity.

The primary driver of food insecurity is from the inability of communities and households to obtain food through means such as purchasing, exchanging (e.g., food for labour), or receiving gifts, rather than only relying on local production deficits. Economic, socio-political, scientific and technological, cultural and religious, physical, biological and chemical, as well as demographic reasons or drivers of food insecurity are identified in Figure 7. They have a short- or long-term effect, either directly or indirectly encouraging other food insecurity drivers. Food insecurity arises when there is a major decrease in production or when access to food is harmed, as indicated in Figure 6 below.

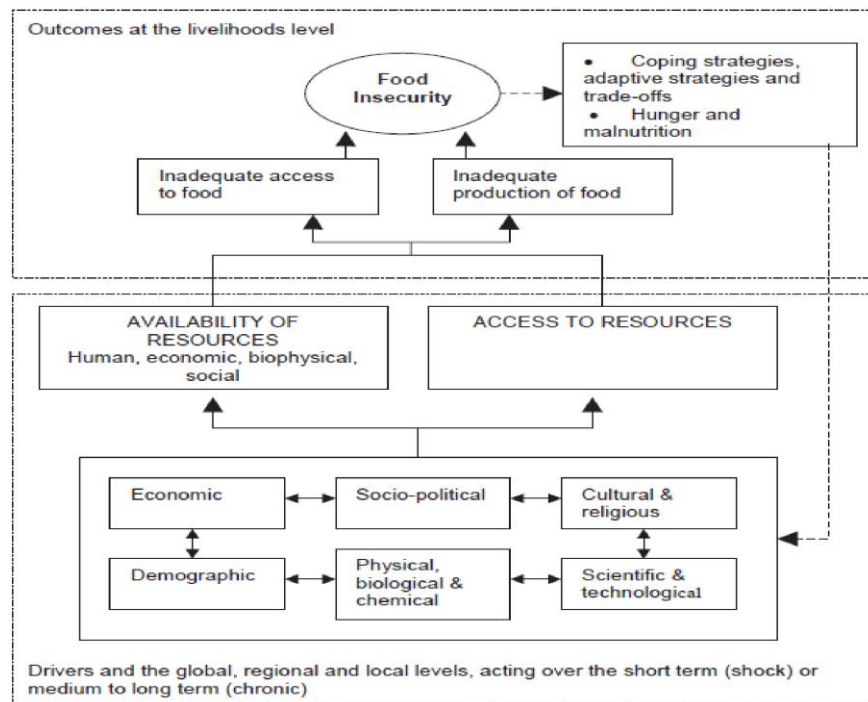


FIGURE 5: DRIVERS OF FOOD INSECURITY (MISSELMHORN, 2005)

According to Sen (1981), the conceptual Framework of Entitlements in famine theory acknowledges the significant influence of market forces on people's food security. These market

forces are often shaped by the socio-economic and political situations prevailing in their respective societies (von Braun et al., 2003). Aligned with this perspective, a fundamental premise of this research is that relying solely on agriculture-based livelihood strategies will not guarantee household food security. The issue of food security is multifaceted and necessitates an understanding of the interplay between different factors; including socio-political, economic, and environmental aspects, at both individual and societal scales.

2.3.4 Evolution of the food security concept

The evolution of the concept of food security can be traced from the time towards the end of World War II, where concerted international efforts were made to pay special attention to global food shortages. The Food and Agriculture Organisation (FAO) was established in the 1940s with the goal of unifying and improving worldwide efforts in food-related problems (Ncube, 2015). Global leaders agreed to cooperate and quicken efforts to end hunger during the 1974 World Food Conference, which was the first of its kind.

During the time, food security was described as the "sufficient global food supply of food at all times to sustain a steady expansion of food consumption and to counteract volatility in production and pricing" (FAO, 2006: 9-12). Every individual; regardless of gender or age, possesses an inherent entitlement to be liberated from hunger and malnutrition, as this is crucial for the enhancement of their physical and cognitive capabilities (World Food Conference, 1974). The availability of adequate resources to end hunger was acknowledged as key during the International Declaration on the Elimination of Hunger and Malnutrition (FAO 1996). Following the meeting, it was observed that hunger and chronic undernourishment persisted in many areas of the world, including North Korea (1984) and Ethiopia (1984), where food scarcity was a regular issue.

At the height of the Green Revolution, when scientists created high-yield varieties of basic foods like wheat and corn and brought them to developing nations, the World Food Conference took place amid a time of sharp price increases. As a result, the term "food security" was typically interpreted to refer to food supply on an overall level during the 1960s and 1970s due to significant gaps in the food supply and high food costs on the global markets. Nonetheless, a lot of emerging nations have widespread food insecurity (Sijm, 1997). The food security debate underwent a paradigm shift after the mid-1970s despite better supply conditions and low food prices, with the concept of food security changing and maturing into three overlapping paradigm shifts. The notion

of food security primarily focused on maintaining food supply and the price stability of basic foods in the early 1970s, which was a period of global food crises. This can be attributed to the significant volatility of agricultural commodity prices and the inconsistencies in the currency and energy markets at the time (Berry et al., 2015).

In recent decades, there has also been an increase in public awareness of important factors that affect hunger and malnutrition, such as growing power disparities in the food system and expanding ecological and climatic calamities. The changes raise fundamental concerns about how well the traditional four-pillar model conceptualises food security and whether it sufficiently addresses the broad range of issues that affect food security. Most scholars are adopting a "human development" framework to examine the issue of food security (Clapp 2022; Berry 2019). This perspective highlights the importance of enabling individuals to have control over their interactions with food systems and to address power imbalances within these systems. The approach is motivated by the need to address the growing disparities and ongoing hunger experienced by the most marginalised members of society (Clapp et al., 2022). Furthermore, Ericksen (2008), cited in Clapp (2022), discusses an increasing recognition of the interconnectedness between food systems and various world systems, such as ecological systems. This has led to a proliferation of scholarly works that examine food security through the framework of 'food systems'. This brings an interesting discourse in defining food security in the 21st century. This notion is currently recognised as a crucial element in addressing the growing disparities within food systems, particularly the unequal distribution of power among various actors involved in these systems. The presence of growing disparities and ongoing food insecurity among the most marginalised individuals in society has led certain academics to adopt a "human development" framework in examining food security. This perspective emphasises the significance of enabling individuals to have the ability to influence their own interactions with food systems and to tackle unequal power dynamics within these systems (Sen, 1985; Clapp, 2022).

Furthermore, there has been an increasing recognition of the interconnectedness between food systems and other world systems such as ecological systems. This has led to a rise in scholarly literature that examines food security via the framework of 'food systems' (Ericksen, 2008). Nevertheless, it is worth noting that food policy frameworks at the international level have not consistently and explicitly acknowledged these elements. This is despite the fact that certain

scholarly works on food security have explicitly established a connection between agency, sustainability, and the outcomes of food security. Additionally, practitioners in the field occasionally take these aspects into consideration. In academic discourse, the four-pillar framework remains prevalent in scientific literature, typically accompanied by additional frameworks to address any overlooked aspects. This is due to the absence of a formal integration of a six-dimensional conceptualisation of food security within policy contexts (e.g., Devereux et al., 2020; Battersby et al., 2018).

The second paradigm shift entailed a transition from a primary focus on food to a broader approach centred on livelihoods and the enduring sustainability of such livelihoods. While the initial shift primarily occurred between 1975 and 1985, the subsequent change predominantly transpired after 1985, driven by the lessons learned from the African famine that occurred during 1984-1985. The prevailing perception of food security posited food as a fundamental necessity, occupying a lower position in Maslow's (1954) hierarchy of requirements (Hopkins, 1986). The recognition emerged that individuals confronted with famine do not solely prioritise short-term nutritional intake or alleviating hunger, hence questioning the fundamental assumptions underlying this perspective (Frankenberger and Goldstein, 1990; Davies, 1996).

The livelihood approach places emphasis on the multifaceted nature of food insecurity and its connections to factors such as low productivity, ineffective and unresponsive institutions, and limited access to productive resources, market inefficiencies, and inadequate policies. In contrast, the conventional food first approach views food security as a singular requirement, detached from these broader considerations. The advantage of this strategy is that it emphasizes how important it is to comprehend all the variables that affect local livelihoods in order to successfully improve food availability, access, and consumption. More importantly, food security is viewed as a phenomenon involving multiple aims, with those who are food insecure driving the process of identifying and prioritising these objectives (Maxwell and Smith, 1992). In this study, the analysis of livelihood strategies and food security is an indication of the researcher's thinking that livelihood strategies have a significant impact on the attainment of household food security. Rather than confining rural livelihoods to agro-based activities, it is also of importance to consider the intrinsic role played by off-farm non rural livelihood activities in ensuring household food security.

The disparity between sufficient food availability at the national level and the lack of food security at the individual and family levels underscores the constraints of the food supply approach.. In a research by de Waal on the Sudanese famine of 1984–1985, it was noticed that many opted to go without food in order to protect their possessions and future livelihoods (Frankenberger *et al.*, 2000). There is a noticeable trend among development actors wherein the focus on national food production as a means of ensuring food security is being replaced by an emphasis on sustainable livelihoods as fundamental components of achieving food self-sufficiency. In numerous discussions surrounding food security, conventional methodologies have traditionally relied upon quantifiable metrics, such as predetermined levels of consumption (Siamwalla and Valdes, 1980), the consumption of less than 80% of the World Health Organisation's recommended daily calorie intake (Reardon and Matlon, 1989), or the provision of food that is both timely and nutritionally sufficient (Staat, 1990).

2.3.5 Understanding Food Security through a Food Systems Lens

A food systems approach encompasses the actions, results, and participants engaged in agriculture, storage, processing, manufacturing, distribution, retail, and consumption. It also takes into account the many pressures and factors influencing these processes (Béné and Devereux 2023). In addition, the High Level Panel of Experts on Food Security and Nutrition report of (2017) highlights that food systems encompass all the components such as environmental factors, individual, resources, procedures, structures and institutions as well as actions associated with the creation, transformation, dissemination, arrangement, and utilisation of food. Food systems also involve the consequences of these actions, which include socioeconomic and environmental results. Adopting a Food system approach enables a more effective integration with many issues related to the organisation, accessibility, and dissemination of the existing food system, as well as its impact on individuals and the environment (Nguyen, 2018). Furthermore, it can be highlighted that a Food systems approach enables the identification of both the immediate and underlying causes of issues, as well as the adoption of many strategies to implement in order to prevent unintended negative effects in other areas (von Braun, J. et al 2020).

Food security is the result of efficient food systems (Fanzo, 2023). These activities include the whole process from farming to consumption; involving the production and distribution of resources. It encompasses farming, initial and subsequent processing, packing, storage, transportation, and distribution. Food security also incorporates issues such as advertising and

selling, food service, household food management and waste disposal. Crucially, food systems include the results of these actions and how they are managed (Vermeulen et al., 2012). Zimbabwe's food system faces several issues that affect the attainment of the Zero hunger goal. The use of natural resources is now unsustainable, since there is a significant decline in biodiversity.

Climate change is causing more frequent and severe extreme weather events in Zimbabwe, which is making the populations there more vulnerable (Tinarwo 2021, Kabonga 2023). Additionally, climate change is also leading to the emergence of new illnesses and exacerbating issues such as food insecurity, poverty, health, and decline of the economic environment. Collectively, these exogenous disturbances have a significant influence on individuals' means of subsistence (Tinarwo, 2021). Given the contextual food systems and the factors influencing them, von Braun et al., (2021) highlight that sustainable food systems are characterised by their ability to provide food security and nutrition for everyone while also preserving the economic, social, cultural, and ecological foundations that enable future generations to have access to food security and nutrition.

2.4 Measuring food security at household level

Food security, like poverty, is a broad and intricate topic that affects several aspects of society (Jennifer et al., 2003). Measuring food security is a challenging and multifaceted task. This is because the complexity of food security lies in its association with availability and accessibility. It also depends on utilisation of sufficient and suitable food in a safe, nutritious and uninterrupted way (Barrett, 2010). The food security concept also encompasses the social and economic dimensions of food; including people's dietary requirements and choices in relation to their income, pricing, and safety net arrangements (Tadesse, 2020). These factors make it more challenging to measure the concept accurately (FAO, 1996). Thus far, the scholarly discourse surrounding food security measures has predominantly concentrated on evaluating the degree to which various indicators encompass the multifaceted nature of food security across diverse contexts (Maxwell et al., 2014; Haysom and Tawodzera, 2018; Vaitla et al., 2017; Ibok et al., 2019). The issue of measuring indicators appropriately has gotten little attention. Many indicators are based on interviewees' replies to food security -related questions. Direct interview-based food security indicators may provide inaccurate findings if respondents are hesitant to report their

genuine situation, either with the view to please the interviewer or owing to social and economic biases (Tadesse, 2020).

An analytical framework for measuring household food security is one tool that exemplifies the approaches and methods of analysing food security the best. The framework presents the key categories that are examined based on the factors and indicators that are used to evaluate the level of food security in a household from both quantitative and qualitative perspectives. Based on Sen's Entitlement paradigm, the first category to be examined is 'access to food' by different households (Sen, 1981). So, it follows that access to productive resources affects a person's ability to secure food, and this can be used to assess whether a household has access to sufficient food. The second category is related to the variety of diet and different kinds of food that various households consume; and is called "food consumption". By compiling data on the costs of the goods consumed, it is feasible to estimate monthly food expenditures. The goal is to ascertain whether or not households are able to meet their fundamental requirements for food and other necessities. The third category examines household nutritional status, which is a look at how people eat in their homes.

Food insecure households are those whose members consume fewer of these nutrients than is necessary for daily intake as determined by an analysis of the nutritional content of the food consumed. The fourth category investigates household livelihood methods to achieve food security. It studies daily activities in households to ascertain who engages in what activities, how they engage in them, and why. Due to their vulnerability to risks, stress, shocks, and uncertainty as well as their lack of resources to withstand these shocks and stressors, food insecure households will be characterised by unsustainable livelihood strategies (Mthethwa and Wale 2021). Food insecurity is a prevalent issue that impacts on numerous households globally, resulting from restricted availability of food through socially acceptable means (Mango et al., 2018). As a substitute, the degree of food security or food insecurity in a household must be assessed by collecting information on a range of particular circumstances, events, and actions that serve as markers of the seriousness of the issue (Sarkar, 2022).

The measurement of food security is a complex task due to its multifaceted nature and the absence of a universally recognised indicator that can comprehensively capture it. According to the United

States Department of Agriculture (USDA, 2000), it is not possible to fully comprehend the entirety of the food security issue and hunger alone through the use of a single indicator. According to Maxwell (1996), there are challenges associated with defining and interpreting food security, as well as measuring it in a manner that is trustworthy, valid, and cost-effective. These difficulties are faced by researchers and individuals involved in monitoring the hazards associated with food security (Arimond et al., 2011). On that regard, various researchers are suggested to use different indicators in measuring household food security. Due to its complex and multifaceted characteristics, the measurement of food security is a challenging task. Guided by Bickel; *et al* (2000) who suggests that the degree of food insecurity or hunger in a household must be assessed by gathering data on a range of particular circumstances, events, and behaviours that act as markers of the condition's various levels of severity, the researcher therefore, made use of focus group discussions, and interviews with key informants to apply the selected measuring variables. Transact walks, as well as complementary ethnographic research was carried out. This study focuses on the qualitative approach to measuring food security, looking at behaviours and perceptions of the rural farmers. The Households' self-reports were used to measure food security. The study also made use of the Copying Strategy Index as a measure of household food security.

2.5 Rural smallholder farmers

Approximately 66% of the rural population in the developing world; which amounts to 3 billion people, reside in over 475 million small farm families. These households utilise land that is less than 2 hectares (Nagayets, (2005), cited in FAO 2015). Many of these rural small holder farmers are food insecure and impoverished, with restricted access to markets and services (FAO, 2015). However, FAO (2015) further notes that despite facing limitations in their options, these small holder farmers diligently cultivate their land and supply sustenance for a considerable segment of the global populace. In addition to farming, they engage in a variety of economic activities, frequently within the informal sector in order to supplement their meagre earnings. Hlatshwayo, (2023) postulates that smallholder farmers who mostly reside on areas owned by tribal authorities; including areas such as Muzarabani which is under study, utilise their resources to produce for their own survival and to sell so as to enhance their livelihood.

Smallholder farmers are classified in a variety of ways, depending on the setting, country, and ecological zone (Machingura, 2007). Dixon et al., (2005), define smallholder farmers as a category of farmers with minimal resource endowments. However, Todaro (1989) characterises them as having small plots of land on which they raise subsistence crops, relying nearly entirely on family labour and rain-fed agriculture. One major trait of smallholder farmers is that they have access to land as a source of income while relying mostly on family labour for production (Ellis, 1988). They produce both for personal consumption and for the market (Ellis, 1988). In addition, smallholder farming occurs where the majority of the agriculture output is consumed directly. A few purchased inputs are used, and only a small fraction of the output is marketed or sold to the main markets, hence it has been equated to subsistence farming (Barnett, 1997). It also refers to rural farmers, often referred to as 'small-scale, resource-poor' or 'peasant farmers,' who farm predominantly with family labour and for whom the farm is the primary source of income in developing countries (Cornish, 1998).

2.6 Climate change

Climate change has been referred to as “the most complex and difficult environmental problem the world has ever faced” (McCright and Dunlap, 2000: 76-82). More heat is trapped in the atmosphere due to human-caused increases in greenhouse gas emissions such as carbon dioxide, methane, nitrous oxide, and hydro-fluorocarbons (Hope, 2009). In various parts of the globe, climate-related issues and farmers' livelihood strategies vary (Chitongo, 2019). This is similar to the findings by Serdeczny et al., (2017) and Tadesse et al., (2019) who posits that the impact of climate change in sub-Saharan Africa (SSA) is notably apparent through the rise in extreme temperatures, unpredictable rainfall patterns, and climate-induced natural disasters. These phenomena pose a threat to the lives of millions, leaving them vulnerable and without adequate shelter or food, resulting in substantial economic losses. Changes in the climate have also had substantial effects on agricultural productivity. For instance, several farmers have seen instances of crop failures, reduced yields, and heightened insect and disease threats (Iannella et al., 2021; Ofori et al., 2021).

Poverty has a direct impact on rural populations' vulnerability because most of them lack access to basic infrastructure and health services and reside in areas that are susceptible to risks like

floods, landslides, and droughts. A new set of realities are being presented by climate change; with greater climate variability, and society must adapt. The relevance of intervention in agriculture, which directly affects food security, is evident. If not accounted for in decision-making, this global climate crisis will impede efforts at multiple levels; including the proposed Sustainable Development objectives and any other development objectives and strategies that alleviate poverty and hunger while sustaining ecosystem services (Vermeulen et al., 2012).

Establishing food security will be extremely difficult, especially in Sub-Saharan Africa, where around 280 million people still experience hunger and poverty (FAO, 2011). Environmental degradation and loss of biodiversity are other critical issues (Frost et al., 2007). The world is faced with a growing demand for food as nine billion people are forecast to live on the planet by 2050, and many people's diets will alter as their income rises, which will make the situation worse (van Ittersum et al., 2013). The term 'climate change' speaks to significant fluctuations in weather patterns that fundamentally modify the prevailing circumstances within a certain environment. These conditions are mostly unfriendly to local plant and animal life because they cannot adjust to the new conditions as a result of such severe and long-lasting alteration. Although it may be more pronounced in some areas, climate change is known to have an impact on our globe as a whole. Increased seasonal dry spells, protracted droughts, decreased seasonal rainfall, irregular rainfall patterns, and floods can all be seen in most parts of the world. (Bhatasara, 2015).

More than three quarters of the world's population are at risk of losing their way of life as a result of these shifting weather patterns, according to commentators (Moss et al., 2010). The changing climate can be viewed as both a manifestation of unsustainable food production practices and a phenomenon that exacerbates the long-term viability of food systems (Clapp, 2022). There seem to be a general consensus across different scientific domains that the central factor leading to climate change is global warming (Shanahan, 2013; Pearce, 2016; IPCC, 2018). An increase in global climate temperatures, both on land and in the ocean, is how this phenomenon is manifested. The simplest proof of global warming is provided by thermometer records, which reveal that the past 30 years have been the warmest time in more than 800 years (IPCC, 2018). Various scholars point out that global warming is causing sea levels to rise and ice covering to shrink (Pearce, 2016). Ncube and Tawodzera (2019) suggest that climate change is an undeniable factor in a number of

global challenges faced today, including the proliferation of diseases within certain populations, consequently exacerbating health risks associated with disasters.

2.6.1 Climate change and food security in Zimbabwe

Many scholars now concur that climate change is having an effect on the environment in Zimbabwe. Since 1982, it has been noted that the nation has experienced droughts after ten-year intervals. Since they now occur more frequently in the 21st century, a ‘dry spell’ is a feature of practically every season. The country experiences protracted climate induced drought every two to three years (Mutambanengwe et al., 2012). Rainfall patterns have become inconsistent, and a persistent delay in the coming of summer rains has been observed across the nation (Bhatasara and Nyamwanza, 2018). As climate change continues to take its toll on the nation, the availability of food for its citizens is rapidly declining. In recent years, the country has seen an increase in floods and droughts, leading to a decrease in crop yields and the lowering of food security projections (Chitongo, 2019).

When rainfall comes, it tends to be highly concentrated within a relatively brief time-frame. In the recent past, Zimbabwe has seen the impact of three notable cyclones, namely Cyclone Eline in 2000, Cyclone Japhet in 2003, and Cyclone Idai in 2019. It is generally agreed that climate change is responsible for the increase in drought and cyclone frequency (Mhandara et al., 2013; Chaguta, 2010). According to a report by the United Nations Development Programme (UNDP, 2014), as stated in Chitongo's study (2019), climate change is occurring at an accelerated rate in arid regions. This phenomenon is resulting in significant declines in agricultural output, which is of great concern when considering the pivotal role that agriculture and its associated activities play in sustaining the rural economy. Certain academics contend that the alterations in climatic patterns linked to climate change are having a profound impact on agricultural activities in Zimbabwe, as well as on the inhabitants residing in regions that heavily rely on agriculture (Mugandani et al., 2012; Mutasa, 2008; Brown et al., 2012). According to Chaguta (2010), a significant number of nations in sub-Saharan Africa, such as Zimbabwe, heavily depend on rain-fed agriculture. Consequently, this sector of the economy is considered to be very susceptible to the impacts of climate change. The shifting of Zimbabwe's agro-ecological zones (AEZ) has been documented by Mhandara et al. (2013).

2.7 Theoretical perspective

2.7.1 Sustainable Livelihoods Framework (SLF)

This study is guided by the Sustainable Livelihood Framework. Allison (2014) asserts that the Sustainable Livelihood Framework (SLF) acknowledges the intricate nature of seasonal and cyclical livelihood strategies. The framework for sustainable livelihoods, which was created, and is being modified by numerous organisations for diverse initiatives, sketches out a livelihood strategy to addressing rural poverty. It outlines the key influences on people's livelihoods as well as their typical interactions (Haidar, 2009). The framework was born out of peasant studies conducted in the 1980s, which focused on the fundamental interest in food security and the emerging interest in sustainability (Scoones, 2009). It is an effective analytical tool that gives an understanding of how people live and maintain their way of life (Castalonge, 2008; Scoones, 2009). According to Mazikana (2023), the utilisation of the SLF is on the evaluation of the efficacy of current livelihood efforts aimed at mitigating poverty and addressing issues of food insecurity.

The SLF has been extensively used for a variety of reasons, including analytical frameworks, development objectives, and even policy choices in development initiatives at different levels. There is no unifying strategy to its implementation, and as previously said, it may be flexibly tailored to meet distinct local conditions and address diverse aims determined in a participative way. The SLF emphasizes the importance of addressing barriers to accessing assets and activities that align with existing patterns (Carney, 1998). The Sustainable Livelihoods Approach (SLA) promotes innovative thinking that surpasses conventional methods. It emancipates development practitioners from conventional approaches, which usually include just identifying issues and finding solutions (Bennington 2020). Furthermore, it highlights the need to enhance the resilience of livelihoods in the face of adverse trends or sudden shocks, while also enhancing rural development policies and practices. In addition, the approach also emphasizes that the capacity of households to engage in diverse livelihood choices is contingent upon the different types of assets they possess (Scoones, 2009). This entails that the wider the household's asset base, the higher the chances of the same household to embark on a wide range of livelihood activities. This is attributed to the relationship between livelihood assets and livelihood outcomes. Sustainable livelihoods are achieved when households possess the capacity to effectively manage uncertainties and shocks, enhance the assets upon which they rely, and bequeath resources for the benefit of future

generations (Ashley & Carney, 1999; Berchoux et al., 2019). In addition, Mazikana (2023) suggests that the SLF promotes individuals to contemplate the settings and connections associated with development activities in order to enhance the attention on the process. They are obligated to search for many entry points and to surpass a unique community viewpoint as well as a restricted sectoral perspective. This is a substantial departure from focusing on the inputs and outputs of the project, as well as the presumed mechanical connections between them. The sustainable livelihoods framework highlights the importance of comprehending institutions by analysing the institutional framework and building connections between the micro and macro levels, as well as formal and informal contexts.

Furthermore, unpacking the Sustainable Livelihoods Approach also provides a practical instrument for connecting the concepts of food insecurity, poverty, and the available opportunities to eliminate these challenges. The approach establishes a connection between a comprehensive perspective on poverty that considers multiple dimensions and places individuals at the centre. It is an analytical framework that focuses on the strategies assets, and capacities possessed by individuals. This analytical framework will aid in enhancing the measurement of food security. It serves as a good guide for livelihoods analysis, implying that livelihoods are made up of the abilities, assets, and activities required to maintain a living. The terms ‘livelihood assets’ and ‘capital’ are interchangeable. They are both vital components of the SLF because they provide the foundation for people to build their livelihoods and achieve their objectives (Babington, 1999). Assets and the environment (Ellis, 2000) determine the opportunity set of alternatives for livelihood strategies. The Sustainable Livelihoods Framework recognises that the poor may not only need money, but other material or non-material assets (Mishi et al., 2020).

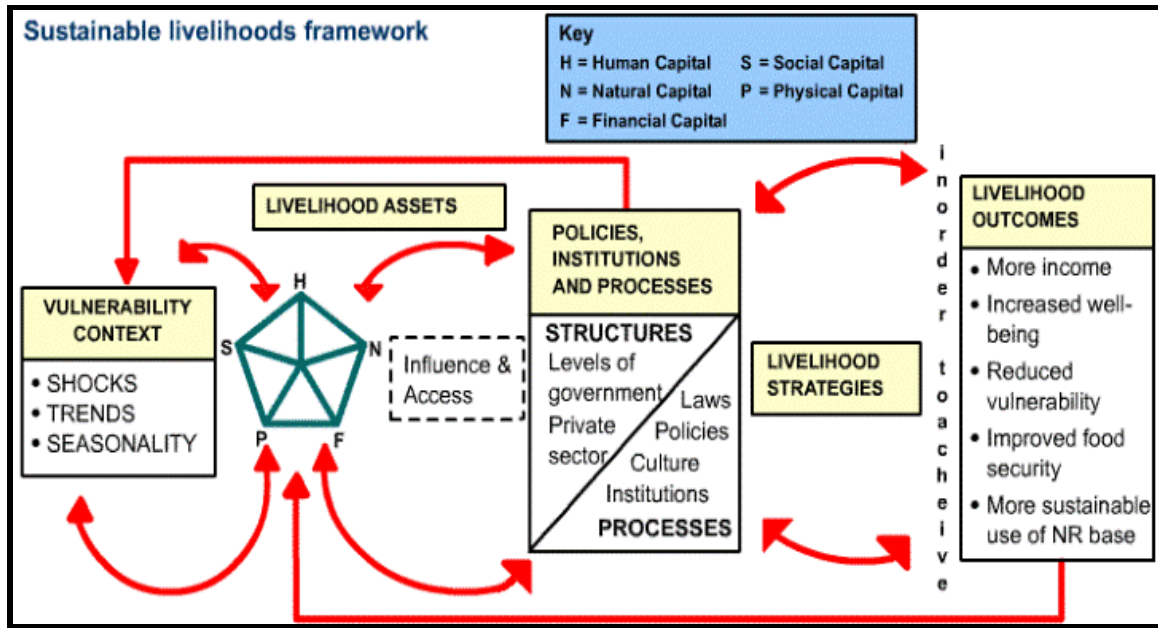


FIGURE 6: THE SUSTAINABLE LIVELIHOOD FRAMEWORK (DFID 1999)

Furthermore, it is crucial to acknowledge that community resilience indicators can be found in how rural societies adjust to drought situations. Therefore, under such circumstances, the Sustainable Livelihoods Framework becomes the crucial theoretical foundation for determining whether rural societies would be able to endure through shocks and stressors. According to Chambers and Conway (1992), the framework for analysing livelihoods that emerged from early discussions of sustainable rural development, helps to analyse rural development practices in marginalised areas as actively created household strategies.

The SLF, which is one of the many frameworks of rural development, is suitable for studies of this kind because it gives an overview of the changing interrelationships between the capabilities and capital that exist at the household level and the institutions and measures that interact with them as well as the broader political, economic, and social context. It is a conceptual tool that allows for analysis of both the economy (at the level of the home) and the institutional setting in which households operate. The adopted SLF is an appropriate tool for exploring the contribution of livelihood strategies to household food security.

Application of the Sustainable Livelihoods Framework may solve the shortcomings of conventional strategies for rural development and deepen our understanding of how rural farm

households structure their livelihood to cope with challenges such as food insecurity. In addition, Krantz (2001) suggested that emphasis should be on improving the quality of life for the impoverished population. This may be achieved by deviating from the traditional method of targeting certain areas like agriculture, water, or health as the starting point. In this study, the approach is used as an analytical framework to examine and comprehend the intricate patterns in the environment, socioeconomic interactions between households and institutions, access to resources and activities, and livelihood strategies in rural farm households. The main focus is on the rural small holder farmers' livelihood choices and how these choices either enhance their food security and healthy well-being or leads to further vulnerability.

The framework additionally provides a theoretical instrument for critically comprehending the essence of food security policies and their execution within a rural context. The concept of sustainable livelihoods has introduced a way of looking at food security .. One of the reasons for its appeal was its ability to encompass and integrate various threads of developing ideas and behaviours. The philosophical, practical, and organisational origins of this phenomenon have been identified (Ashley & Carney, 1999). The conceptual framework used in this study was largely informed by evolving perspectives on poverty, which acknowledge the varied ambitions of individuals, the significance of assets and communities, and the limitations and possibilities presented by institutional structures and processes (Alinovi, et al., 2010). In practical terms, this approach prioritises individuals over resources, buildings or organisations; highlighting the importance of participatory development and sustainable changes. The evolution of this entity occurred within several research institutes, non-governmental organisations (NGOs), and donor agencies, without being limited to any specific institution. The Sustainable Livelihoods discourse presented a comprehensive and fruitful study agenda for scholars in the field (Alinovi et al., 2010).

The framework is a valuable instrument for evidence-based intervention and has strong logical underpinnings, especially in a world of rapid change with inevitably constrained resources to support development interventions (Morse et al., 2009). The SLF is a potent integrating concept that provides a means to integrate socioeconomic and ecological considerations in order to enhance the community's assets. Additionally, the framework is utilised to investigate producers' livelihoods (Richard & Turner, 1994, Gallop et al., 2003; Anton, 2005; Can, 2005; Hossain et al.,

2006). The Sustainable Livelihoods Framework (SLF) facilitates the development of a comprehensive approach to addressing various concerns. It examines the susceptibility of farmers to external environmental threats and shocks, as well as their origins.

Additionally, it analyses the different forms of capital that farmers possess, namely human, physical, natural, financial, and social capital. This intervention has the potential to enhance the prosperity and resilience of smallholder farmers. This framework also examines the influence of policies and institutions, including organisations, governments, private sector behaviours, laws, policies, culture, and institutions, on the livelihoods of farmers. It investigates how farmers react to both threats and opportunities as well as their desired outcomes, which may include the sustainable utilisation of natural resources, increased income, and enhanced well-being, reduced vulnerability, and improved food security (Sarkar, 2022).

The concept of Sustainable Livelihoods has emerged as a prominent development discourse, encompassing a wide range of interpretations and perspectives among various stakeholders. (Scoones and Wolmer, 2009). In addition to various other aspects, the term has acquired connotations related to multifaceted interpretations of poverty, an approach to development that emphasises assets, and a concentration on institutions and policies, as well as participation and empowerment (Ashley and Carney, 1999; Carney, 2002). The concept of ‘Sustainable Livelihood’ refers to the acquisition of resources and engagement in income-generating activities, which encompass the possession or access to reserves and assets that assist to mitigate risks, alleviate unexpected disruptions, and address unforeseen circumstances (Bairwa, 2014; Singh and Hiremath, 2010).

Additionally, it should be noted that the concept of ‘Sustainable Livelihood’ pertains to livelihood activities that possess the ability to withstand and recuperate from various stressors and shocks. These activities also aim to preserve and improve both local and global assets, which serve as the foundation for sustaining livelihoods. By doing so, sustainable livelihoods contribute to the transmission of inheritances and the provision of opportunities for future generations (Ashley & Carney, 1999). The importance of sustainable livelihoods in relation to food and nutrition security is widely acknowledged (Frankenberger & McCaston, 1998).

The 'Sustainable Livelihoods' concept is key in addressing rural households' food insecurity. Scoones (2009) asserts that a comprehensive review of literature or development project documentation will reveal a multitude of references to livelihoods approaches, views, methodologies, and frameworks. The word 'livelihoods' is a flexible and adaptable concept that may be coupled with many other terminologies to create entire areas of development study and application.

Additionally, focus is on various occupations such as off and on farm activities, which are integral to sustaining livelihoods. Furthermore, social differences such as those based on gender and age play a significant role in shaping livelihoods. The concept of livelihood pathways and trajectories is explored, highlighting the different directions individuals may take in pursuit of their livelihoods. Lastly, the discussion delves into dynamic patterns, specifically the importance of sustainable and resilient livelihoods.

In addition, it is essential to use a socially-differentiated analytical approach to livelihood initiatives, even while focusing on a specific community like Muzarabani. Sometimes, livelihood portfolios involve a clear and specific strategy for a household to improve its livelihood. This could include activities such as intensifying agricultural practices, diversifying their sources of income through non-agricultural and off-farm activities, or migrating to maximise the household's future opportunities. In addition to asset and livelihood portfolios, the SL framework also takes into account the contextual circumstances in which households engage in their livelihood activities. This context pertains to the institutional processes and organisational structures that have the potential to either facilitate or restrict local lives, inevitably influencing them to some extent. These factors include the policies and practices implemented by governmental institutions, the existence or absence of non-governmental groups, and the cultural norms and practices related to concepts such as patriarchy.

2.7.2 Limitations of the Sustainable Livelihoods Framework (SLF)

McLeod (2001) posits that the Sustainable Livelihoods Framework's efficiency aids practitioners, development agencies, and academics in comprehending the intricate dynamics of food insecurity. However, various scholars such as De Haan and Zoomers (2005) and Fine (2000) argue that for the framework to be valuable to organisations, it is imperative to delve deeper into its process of definition and ascertain its legitimacy in defining poverty. De Haan

and Zoomers (2005) and Fine (2000) draw attention to the lengthy argument about the SLF's intellectual viability, particularly with regard to the use of the term capitals.

There are concerns that 'social capital' is a meaningless notion devoid of politics which benefits organisations like the World Bank, which has occasionally used it to describe horizontal social networks rather than the trickier vertical ones. The use of 'capitals' obscures certain trends that develop through time, not because people switch between different types of capital but rather because they pursue culturally ingrained behavioural patterns (Ncube 2015). It is possible that different persons reach the same lifestyle through entirely distinct 'pathways,' which makes conventional development intervention very challenging (Batterbury, 2008).

Notwithstanding its benefits, the SLF has some puzzling scientific and practical challenges, such as how to identify who the poor are and what constitutes poverty (Krantz, 2001). In most places, poverty is not distributed equally. A significant number of scholars contend that certain members of every community have it better than others. The difficulty arises from the fact that many techniques are employed to determine poverty lines. This shortcoming, however, has been overcome in this study by limiting the use of the wealth ranking exercise to the purpose of identifying the poor and allowing the community to establish pertinent wealth criteria based on their perceptions and experiences before categorising the various households in the community. The utilisation of this methodology mitigates the necessity for conducting externally administered home surveys. Nonetheless, it is imperative to incorporate a comprehensive representation of community members in order to prevent any potential bias introduced by community leaders.

The fact that SLF frequently uses households as its primary unit of study is another drawback. The relationship between various household kinds and various asset types, the context of vulnerability, markets, organisations, policies, and legislation, among other things, receives the majority of the emphasis. According to Krantz (2001), there is a danger of failing to pay enough attention to intra-household disparities in economic control, interests, opportunities, and decision-making powers which frequently have gender as their underlying cause. When women are the head of the household, they are more likely to be impoverished than when they are the economically and socially inferior members of wealthy. According to Ludi and Slarter

(2008) DFID's first application of SLF failed to include cultural aspects such as worldviews, beliefs, traditions, status, and identity. They failed to consider social interactions or social distinction.

Early iterations did not provide insight into how households make decisions, how societies resolve conflicts of interest, how sustainability is negotiated; for whom, and for how long, or why certain institutions restricting access to assets for the poor have developed and are maintained. They also did not address why social groups are excluded from access to certain assets. However, by expanding on the original SLF's advantages and incorporating knowledge from significant joint research on rural livelihood systems, these difficulties have been overcome. Scoones (1998) believes that although the SLF is holistic, its extensive study may not be applicable in all circumstances as a selection has to be made and mistakes can be made in that selection.

According to Baumann's (2000) critique, the SLF's advantages as an analytical framework, are weakened by the exclusion of political capital as an endogenous asset. The main problem that arises as a result is making sure that the analysis is not value-free and power-neutral. Hence including 'political capital' motivates academics and researchers to deliberately investigate asset access, asset rights, and intra- or inter-household power structures. According to Baumann (2000), considering political analysis transforms the SLF from a descriptive to an operational framework and lessens the risk that practitioners and analysts will make; which is the mistake of considering their analysis to be objective. Ludi and Starting (2008) note that this issue has subsequently been resolved as a result of the framework's inclusion of political capital. Nevertheless, the virtues of the framework surpass its limits, and in this particular study, the shortcomings are alleviated through the integration of the food systems and resilience approaches. Perspectives of the SLF regard individuals as active agents possessing assets and capabilities which they employ to seek their own livelihood objectives, rather than perceiving them solely as victims or beneficiaries

2.7.3 How the SLF informed the study

The study was informed by the SLF in several manners. The framework emphasizes the importance of integrating data from many sources using an interdisciplinary approach, which also involves utilising different types of data collection and analysis methods. The study thus employed a qualitative approach, guided by the Sustainable Livelihoods Framework (SLF), to gather and

analyse data from many sources regarding the livelihood choices and decisions made by rural farm households in the study area, as well as the impact of these choices on their available livelihood possibilities. The utilisation of a unified strategy in the examination of livelihoods yielded a more comprehensive and persuasive study when compared to the limitations of individual methods. According to Serrat (2017), individuals exhibit varying responses to different questions that might be qualitative or quantitative in nature. For instance, certain audiences may require statistical evidence to be persuaded, but others may not find numerical information compelling. These pertain to comprehensive and contextual data obtained through qualitative research methodologies. Therefore, this study focused mainly on qualitative data to provide a narrative based on the perceptions and experiences of the small holder farmers. The utilisation of triangulation and crosschecks on the outcomes derived from several methodologies has the potential to enhance the level of trust in the overall study. The phases of the Sustainable Livelihoods Framework (SLF) not only influenced the study design, but also structured the arrangement of the inquiry into sub-themes; which in turn led the process of gathering and analysing data. The paradigm prompted the researcher to adopt a comprehensive and dynamic approach in examining the topic being investigated, considering all potential factors that may have influenced the construction of livelihoods in the rural communities of Kapembere and Muringazuva wards and how these livelihood choices either enhance the food security status of the households or alternatively contributed to the vulnerability of the households.

The SLF acknowledges individuals, regardless of their socioeconomic status, as active agents possessing assets and capacities. These individuals engage in purposeful actions to pursue their own livelihood objectives, rather than being viewed as passive beneficiaries of governmental programmes and external assistance. Consequently, this influenced the decision to utilise the households as the primary unit of analysis in the study. The objective of the study was to gain insight into the impact of the livelihood decisions made by agricultural small holder households on their food security status and level of vulnerability. The examination of the many stages and connections among the different components of the SLF yielded valuable discussion points that facilitated the interpretation of the observed findings.

During the study's design phase, the researcher recognised crucial elements of individuals' livelihoods that were not explicitly accounted for in the Sustainable Livelihoods Framework (SLF). However, these components were considered highly essential in understanding households' decisions to exploit opportunities, as well as other choices they made and subsequent life outcomes. The utilisation of the SLF was subsequently incorporated in order to embrace the essential components that were absent before. The inclusion of culture, religion and social networks as independent but interconnected components was incorporated into the research framework. This decision was made due to the recognition that 'springs' within the research area are integral to the cultural landscape, and that culture plays a substantial role in their accessibility and governance. Culture encompasses various aspects such as beliefs, identity, festivals, language, traditions, and sacred sites. These elements can provide insights into historical practises, the connection between certain spring uses or customs and ancestors, and their significance in festivals. Consequently, cultural influences can impact individuals' adoption of sustainable approaches in utilising these resources and the degree to which they value them. These cultural assets or factors may lack direct economic worth, yet they hold significant importance in individuals' lives, decision-making processes, and overall well-being. Additionally, the research also took into account the concept of power and power interactions, which were not explicitly depicted in the SLF. These factors encompass the dynamics of power inside households, including examining the interactions between household members as well as the gender dynamics within a household.

Furthermore, the SLF adopts a neutral stance towards power dynamics, which stands in contrast to the significant impact that power inequalities have on shaping individuals' lives and contributing to food security or vulnerability . The researcher was not provided with explicit guidance by the SLF about the inclusion of historical factors. However, the relevance of such historical factors may be inferred; given the presence of shocks, trends, and seasonality within the framework. In instances where individuals have experienced a historical context characterised by challenges related to external interferences or colonialism, these variables can exert an influence on their reactions to interventions or their utilisation of certain resources. The study also took into account the influence of political capital, despite its absence in the SLF. Political capital encompasses several elements such as citizenship, enfranchisement, and affiliation with political parties, which

play a crucial role in obtaining and implementing rights pertaining to other livelihood assets (Baumann, 2000). The aforementioned criticisms were resolved by incorporating supplementary concepts into the study's SLF whenever they were deemed pertinent. Hence, the utilisation of the SLF in isolation was shown to be insufficient for identifying all relevant aspects associated with the study.

2.8 Chapter Summary

The chapter gave a theoretical perspective and conceptual understanding of livelihood strategies, on which this study is anchored on. The key concepts surrounding livelihoods and the Sustainable Livelihoods Framework were discussed. The chapter further looked into literature relating to food security and livelihood strategies, exploring the key concepts and theoretical perspectives that underpin the study. It provided a glimpse into the food security situation in the world, touching on the factors that influence global food security. A close analysis of available literature on food security concepts, determinants of food security, coping strategies and the determinants of food security was explored. The current situation of global food security is a significant concern in numerous emerging nations. However, a considerable body of research conducted so far has mostly evaluated food security through quantitative lens, with a specific emphasis on quantitative indicators. Consequently, there is a limited body of research conducted to assess the food security obstacles experienced inside individual households. The existing body of literature indicates that smallholder farmers in rural communities commonly participate in many livelihood activities. Existing literature also showed that the livelihoods of these rural communities are always evolving and changing due to a number of factors that have been brought up. However, very few studies attempted to analyse the relationship between livelihood strategies and household food security. Furthermore, there is little evidence on how the livelihood pathways chosen by rural households either enhance food security or actually lead to further vulnerability of the household.

Chapter Three: Research Methodology

3.1 Introduction

This chapter discusses the methodological aspects of the study. The chapter highlights the research approach as well as the design and methods employed in this study. It discusses the study setting, sampling, and the data collection tools. Lastly, the chapter brings out the ethical issues encountered during the data collection and analysis stages.

3.2 Research Approach

The researcher's objective of comprehending the role of livelihood choices in enhancing household food security in Muzarabani was pursued within the interpretivist paradigm. This choice of paradigm determined the study's ontological and epistemological stances, as supported by Grbich (2012) and Yin (2016), and guided the conduct of this ethnographic investigation. The term ontology pertains to the concept of "what exists" (Wainwright, 1997) and encompasses the examination of the fundamental nature of reality and its inherent qualities (Creswell, 2013). The interpretivist approach allowed the researcher to gain a better understanding of how households construct, modify, and interpret the social reality in which they live.

Furthermore, the study also relied on the ethnography methods. According to Brewer (2000), ethnography is a research approach that involves studying individuals within their natural environments or "fields." This method utilised data collection techniques that aimed at capturing the social significance and everyday activities of the participants. The researcher actively participated in the collection of data. It is important to note that the researcher did not impose external meanings on the data. The ethnographic method was employed in order to fully understand the contribution of livelihood strategies to household food security. The ethnography gave the researcher direct access to the culture and practices of the participants. Ethnograph is a useful approach for learning first-hand information about the behavior and interactions of people within a particular context (Brewer, 2000). By becoming immersed in a social environment, the researcher had access to more authentic information and spontaneously observes dynamics that took place in the study setting. Ethnography methods proved to be open and a flexible method. It offered a rich narrative account of a specific culture, allowing the researcher to explore many different aspects of the participants and the setting.

The research methodology yielded comprehensive insights into individuals' perspectives on various livelihood activities, including their perceptions of the environment in which they reside in and the influencing operating environment they work in. According to Reeves et al. (2008), ethnographic research is characterised by its primary focus on investigating the essence of a certain social phenomenon, rather than aiming to test hypotheses related to it. The system largely operates with unstructured data derived from a limited number of examples, necessitating a comprehensive study that requires the explicit interpretation of the meaning and purposes of human acts. Ethnographic analysis primarily consists of the utilisation of verbal narratives and explanations. According to Denzin and Lincoln (2002) as well as Creswell et al. (2007), qualitative techniques hold significant importance since they surpass the realm of factual information and superficial observations. This assertion holds validity within the context of the present study, as it is primarily centred on elucidating the significance of the experiences encountered by the participants regarding to their livelihood choices and how these contribute to food security or influence the risk to food insecurity at the household level.

3.3 Research Design

A research design is a methodological framework that is employed in a systematic manner to meet the requirements of a research endeavour (Creswell, 2009). The study employed the qualitative ethnographic research design. According to Creswell (1998), a qualitative research strategy can be described as a systematic exploration of the significance and interpretation that individuals or groups attribute to social or human issues. The study design allowed the researcher to organise data gathering and analysis process in a qualitative manner. Additionally, this design facilitated the interpretation and presentation of the research findings in a comprehensive manner. The study employed a methodological approach and qualitative research design that aligns with the study's objective of comprehending the role of livelihood strategies in contributing to household food security and vulnerability. Looking at the determinants for livelihood choices, the approach focused on the community's experiences, and explanations of why they indulge in various livelihood strategies.

Qualitative research has the potential to span multiple disciplines such as human, ecological, and social sciences, thereby enabling the exploration of social, economic, and ecological behaviours,

attitudes, and opinions pertaining to the decision-making processes of rural farm households. This approach also facilitates the examination of various factors that exert influence on these decisions (Denzin & Lincoln, 2000). The Sustainable Livelihood Framework was employed to provide the framework for analysis. The frequency or uniqueness of the phenomena within the study area was also determined by comparing the results to previous research. It is vital to explain how the nature of the research problem, specific goals, and applied theoretical framework influenced the choice of methodologies.

The qualitative approach helped the researcher to gain understanding of the context and experiences of rural farmers. The approach allowed the researcher to explore; not only what people eat, but also why they eat certain foods, how they access them, the challenges they face and how they cope with food insecurity. The Qualitative approach is particularly useful in capturing diverse perspectives on food security. This allowed the researcher to engage with a range of stakeholders; including farmers, technical persons, consumers, policymakers, and civil society organisations. By involving these different groups in the study, the researcher gained a more comprehensive understanding of the subject under investigation.

It can further be postulated that the determination of the most suitable research design to effectively address the research objectives necessitates consideration of the assumptions made by the researcher throughout the study, as well as the methodologies employed for data collection, analysis, and interpretation (Creswell, 2009). The researcher spent some time on intervals in the field, engaging with the smallholder farmers between November 2021 up to November 2022. The design of this study was based on the Sustainable Livelihoods Framework (SLF) and the Household Self Report (Scoones, 1999; Nyborg, I., & Haug, R. 1995) as the critical tools applied in assessing the contribution of livelihood strategies to the household food security statuses or vulnerability of the small holder farmers of Muzarabani District of Zimbabwe. Household self-report measures rely on participants' self-perception and introspection to provide information about their internal experiences and behaviors. Data related to demographic factors, household and community livelihood assets, livelihood pathways and livelihood outcomes were gathered.

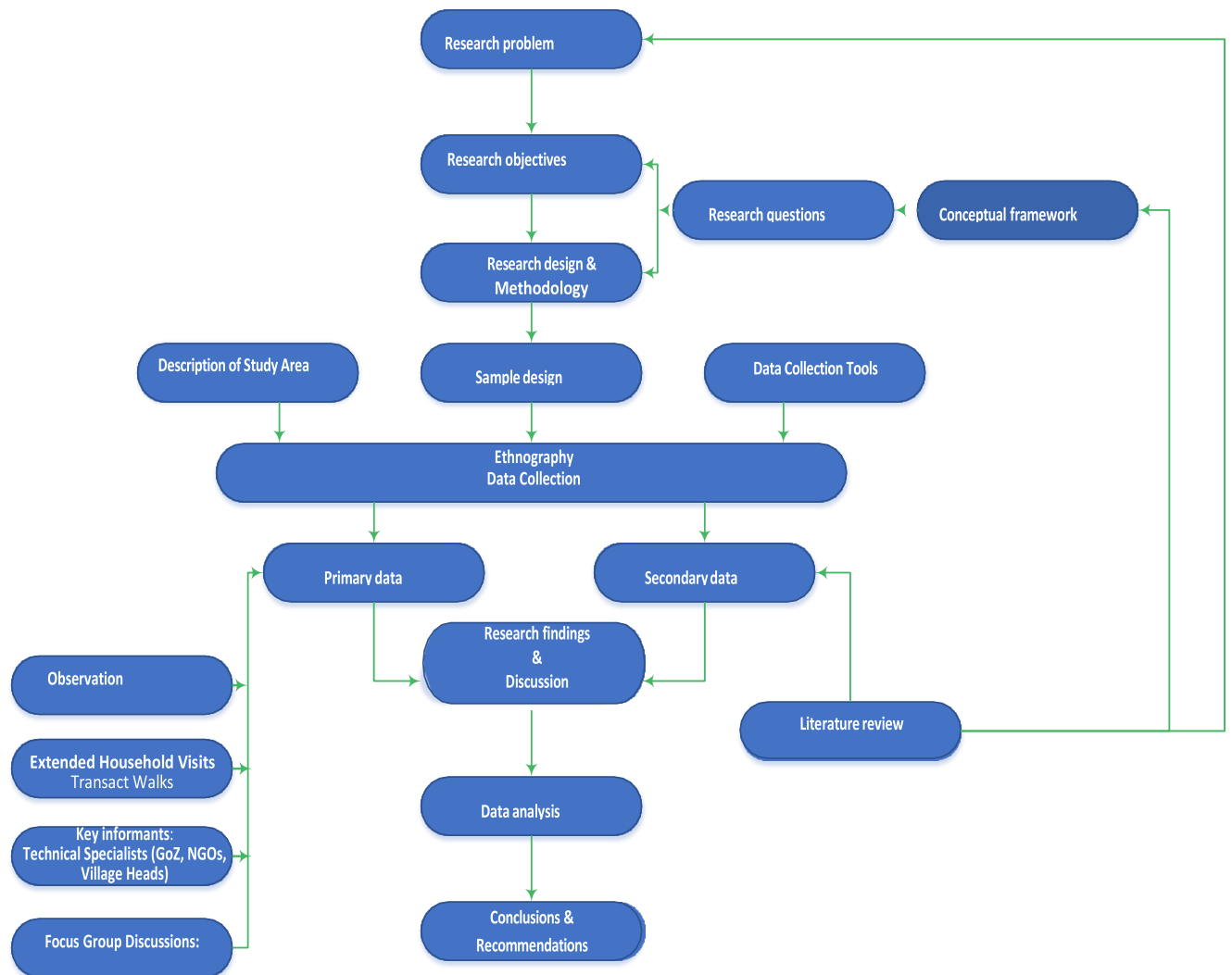


FIGURE 7: RESEARCH DESIGN

Research Timing and timelines

The researcher entered the field at three intervals between November 2021 and November 2022. With the help of four enumerators who assist with data collection and observation, the period, he experienced the planting season, the lean season and the harvest season and interacted with farmers, traders and casual labourers. During the lean season, the researcher managed to have first-hand experience of how the households in Muzarabani District survive when there is a threat of food insecurity. Managing to get into the field during the three intervals allowed the researcher to

observe and learn how the households survived during protracted periods. It was an enlightening encounter, taking part in some community activities and learning from the households.

To have a better understanding of the circumstances in Muzarabani District, an exploratory excursion was first conducted in April 2021. The information acquired throughout the initial visit helped with the planning of the study's operations. An informal meeting with the two council members who represent the two wards and the respective village chiefs in the district was held during the initial visit. The community leaders expressed their willingness to participate in this study. The strategies and methods for conducting the study were discussed with the research participants. Various stakeholders were consulted and they supplied valuable data on coping mechanisms practiced in the research district. Following the initial visit, the research focus was revised and adapted to encompass the impressions and insights that were identified during the initial engagement with the communities under study. This initial contact with the community was meant to familiarise with the area and get access with all gate keepers. During the same visit, the researcher met with officials from Muzarabani Rural District Council (RDC), the District Administrator's (DA) Office and the Agricultural Technical and Extension (AGRITEX) Department. These government departments approved the study to proceed as initially planned.

3.4.2 The study area

Muzarabani District is in Mashonaland Central Province. It lies approximately 150 kilometres from the capital city of Harare (WFP, 2022). The district shares its northern boundary with Mozambique, while its western boundaries are adjacent to Mbire and Guruve districts. To the south lies Mazowe district, while to the east is Mount Darwin district. The district encompasses a land area of approximately 423,307 hectares (WFP, 2022). According to ZimVAC (2021), the district consists of 29 wards. However study focused on Wards 5 and 8; namely Muringazuva and Kapembere respectively. The study areas experience an average annual precipitation varying from less than 450 mm to over 1,000 mm (WFP, 2022). Approximately half of the wards are located within agro-ecological region V, characterised by a scarcity of rainfall with an average annual precipitation below 450mm. This region is susceptible to droughts and extended periods of dry spells throughout the midseason.

Like most parts of rural Zimbabwe, household economy in both Kapembere and Muringazuva turn around three major sectors namely off-farm and small commercial farming and subsistence agriculture. ZimVAC (2021) posits that the farming systems are rain-fed, dominated by subsistence farming. On average, households own between 0.30 to 40 hectares in case of small commercial farms. Household capital input comprise of hand tools and seeds from the previous crop. Outmoded techniques of production are still common, and mechanical changes occur so gradually in the smallholding sector that it is barely perceptible. ZimVAC report (2021) posits that nearly, every year, Kapembere and Muringazuva face localized food shortages and endangering development interventions. The district encompasses many agricultural sectors, with communal farming being the most prominent. Communal farming is primarily concentrated in the valley areas III, IV, and V (WFP, 2022). The wards of Kapembere and Muringazuva exhibit a relatively low population density and are predominantly inhabited by rural communities facing economic hardships, characterised by limited access to resources and low levels of literacy.

Agriculture is the main source of livelihoods in the district. The district lies in 3 agro ecological regions i.e., region IIA, III and IV. The upper part of the district lies in region IIA and receives between 700mm and 1,050mm and is suitable for intensive farming. The lower part of the district lies in region IV and receives mean annual rainfall of 450 – 650mm and is suitable for extensive farming based on livestock and drought tolerant crops. Food security is relatively better for the upper part when compared to the lower part of the district (ZimVAC, 2021).

The selection of Kapembere and Muringazuva wards was motivated by numerous factors. The two wards are located in rural locations that are characterized by semi-arid climate, inadequate production levels, poverty and unemployment (ZimVAC, 2021). Thus, the two wards were due to their unique demographic, ecological, social, political and economic characteristics. Pilot studies administered in Kapembere and Maringazuva identified local concerns regarding the failures of livelihood strategies resulting in high level of poverty. Feasibility for research and satisfied risk assessment criteria (for instance, databases were readily accessible and there was also a low risk of investigator-respondent conflict) were other factors which determined the selection of Kapembere and Muringazuva wards.

3.3.3 Study population, sampling procedure and data gathering tools

In this study, inclusion was limited to small holder farmers living in Kapembere and Muringazuva wards of Muzarabani in Zimbabwe. In order to guarantee the credibility of the sample and its representation of the key segments of the target population, a maximum variation sampling approach was used. (Patton, 2002). This involved selecting participants based on key demographic traits, such as age, sex, income level, villages, including level of education, as well as knowledge of farming and livelihoods. The recruitment and selection of participants ceased when saturation was achieved, indicating that the data obtained offered a comprehensive and significant understanding of the many livelihood methods used in the region and their effects. Additionally, it was determined that doing further interviews would not give any new information. As a result, individuals who possessed valuable insights into the Muzarabani case were specifically invited to participate and contribute their knowledge. All households nominated in the sampling were engaged in some form of livelihood strategies. The identified case study households provided a selection of extended visits. 65 households were visited over time. Each selected household was at least interviewed two times, and effort was made to discuss, with household heads both male and female. The focus of these visits was to solicit basic information around household characteristics of the magnitude of household food insecurity status, livelihoods, and coping strategies.

Sampling procedure

A multistage sampling method was used in choosing wards and villages in Kapembere and Muringazuva wards of Muzarabani. This method helped in choosing few geographical areas and this reduced the costs and time needed to gather data for this study. Furthermore, Kothari & Garg (2014) posit that this method is suitable for large sampling elements. The multistage sampling method led to administrative proficiency by allowing the data collection process to cover two distinct geographical large areas. Under this method, purposive sampling technique was utilised to choose 2 wards in Muzarabani District. These wards were selected on the basis of the agro-ecological conditions prevailing in the respective wards. Out of the 2 wards, 14 villages were selected (7 village per ward). Sixty-five (65) household heads were purposively selected from the list of families from each village registers. Considering the homogeneousness of livelihood strategies in the two districts, only 5% of the households from sampled villages were included in

this study. Christian (2021) posits that due to conditions such as resource limitations and time; a sample of 5% of the population is satisfactory in household food security research. The data was gathered from a sample of 65 household heads, 10 ward officers and 7 individuals who were drawn from government departments such as the Ministry of Social Welfare, Agriculture and Muzarabani District Council. Thus, a total of 82 participants provided data for this study. Sixty-three (63) of the participants were females, while 29 were males. The household heads extension officers, government and local authority officials participated in several focus group discussions and interviews carried out between November 2021 - August 2022.

3.3.4 Data collection methods

Secondary data

Secondary data on household livelihood strategies were gathered by going through important documents and booklets available at Muzarabani Rural District Council. Information was also obtained from the ZimVAC reports. These sources provided material on livelihoods strategies in the study areas. Furthermore important background material on characteristics of households in the two wards was also derived from these sources. Other relevant secondary data were obtained from journal articles, NGO pamphlets and the Ministry of Lands and Agriculture.

Primary data

The study used a blended mix of Participatory Rural Appraisal (PRA) methods and tools in data collection. These include observation and transect walks, open ended interviews, focus group discussions (FGD) and informant interviews. A checklist was employed during FGDs. Respondents for FGDs were purposively chosen, guided by their skills, experience and knowledge of food security and livelihood issues. Table 3.1 below shows the research questions and the data collection methods matrix used in this study.

Table 3.1: Research Questions and Data Collection Methods Matrix

Objectives of the study (For what purpose?)	Methods of Data Collection (How)	Source/ Target group
To assess the impact of Muzarabani smallholder farmers' livelihood strategies in enhancing household food security.	FGD Open ended Interviews Desk Review	Village leaders Ward Councillors, District Administration Office, EMA, NGOs, Agritex Officers in the two wards
To identify the factors that determine rural small farm households' livelihood decisions in Muzarabani District.	FGD, Desk Review Open ended Interviews Observation (During extended household visits)	Biophysical and human assets like water sources, livelihoods and infrastructure. Households
To examine the factors that may enhance or limit the effectiveness of livelihood strategies in ensuring household food security.	Participant Observations Focus group discussions In-depth Interviews	Current livelihoods strategies, laws biophysical and socio-economic impacts of climate adaptation strategies and various stakeholder roles in promoting sustainable livelihoods

3.3.4.1 Participant and non-participant observation

Aldiabat (2018) posits that observation is the process of collecting and recording data by observing and noting events, behaviors, or phenomena in an objective and systematic manner. It is a vital method used in research, scientific inquiry, and everyday life to gain an understanding of the world around participants. Observations were used to collect data for this study. In some instances, the researcher made use of a camera, voice recorder, and field notebooks. The district office also allowed unrestricted access to the local communities, which made data collection easier. The researcher became part of the community and this facilitated the observation of various livelihood activities that the small holder farmers engaged in. Between November 2021 to November 2022, the researcher was part of the two communities at different intervals. He managed to stagger the field visits such that he was able to experience the different seasonal activities that the households engage in during a calendar year.

Observation enabled the researcher to effectively observe, perceive and comprehensively assimilate any pertinent information pertaining to livelihood strategies adopted to address households' food security. Furthermore, livelihood outcome was observed as the researcher visited the households.

The researcher observed the groups from a distance without participating in some of the group activities. During non-participant observations, the researcher was mainly observing not only what people were doing, but also what people were not doing. During these periods, the researcher visited local markets, attended community meetings as well as farming demonstrations. Liu and Maitlis (2010) suggest that non-participant observation entails the act of observing participants without engaging in active participation. This approach is employed to gain insights into a phenomenon by immersing oneself inside the community or social system under investigation, while maintaining a degree of detachment from the observed behaviours. Consequently, the data obtained from observation were integrated with the data acquired from in-depth interviews, extended household visits, questionnaire, and focus group discussions. Data triangulation enabled the collection of reliable and valid data because the weaknesses of one method were addressed by the use of a complementary method.

According to Cohen et al. (2007), the use of observation produces data that is more valid and authentic when compared to data obtained using mediated or inferential procedures. In addition, the utilisation of the observation approach facilitated the researcher in gaining a novel perspective on commonplace behaviours that may have otherwise been assumed or overlooked through alternative methodologies. The researcher employed an open-ended and inductive approach to comprehensively grasp the many lifestyle situations and food security condition in the studied area. The observation technique was also employed to identify instances of overlooked data or individuals who were unable to freely express themselves during focus group discussions (FGDs) and household questionnaires. Table 3.2 below shows the observation matrix used in this study.

Table 3.1: Observation Matrix

What to observe	Where	Comment
Off farm and on farm livelihood strategies employed members strategies by community	Anywhere in the community, especially in areas close to meeting venues	Direct observation
Community based livelihood activities	8 villages in the two wards	Participant observation
Various Physical and Natural assets the communities are endowed with	8 villages in the two wards	Direct observation Participant observation

3.3.4.2 Transact Walks

Cohen et al. (2007) define a transect walk as a tool for describing and showing the location and distribution of resources, features, landscape, and main land uses along a given transect. The researchers conducted transact walks alongside Agricultural Extension Officers, one officer from the Methodist Development and Relief Agency, and local community members in each ward at different intervals. The researcher visited several community gardens and fields in Kapembere and Mufudzi villages. These gardens included both those accessible to the general public and those specifically catering for the needs of marginalised and disadvantaged populations. With Agricultural Extension Officers, the transact walks were conducted in the two wards. These walks took place between November 2021 and November 2022. During the transact walks, the researcher managed to map a number of community assets such as dip tanks, boreholes, community projects.

3.3.4.3 Key informant interviews (KIIs)

The importance of key informants in the production of ethnographic study samples cannot be overstated. Through purposive sampling, the researcher identified key informants from the local authority, the Department of Agriculture and Rural Extension (Agritex), Development officers, Village heads, as well as District officials from various organisations including the Methodist Development and Relief Agency, Zimbabwe Red cross Society, Sustainable Agriculture Technology, Spotlight Initiative and the Civic Forum for Human Development that were supporting farmers (two village heads, two Agritex officers, two ward development officers and three development workers). These Key informants were able to give more insights into the contribution of livelihood strategies to household food security. Furthermore, they also helped to build a context on the factors surrounding the livelihood choices and determinants of livelihood strategies adopted by the households in the two wards. The interviews were conducted between June and August 2022

An interview facilitates a dynamic exchange between the interviewer and the interviewee, allowing the interviewer to gather information from the interviewee (Gay et al., 2011). In this study, the utilisation of Key Informant Interviews (KII) enabled the researcher to get crucial data that could not be obtained solely through observations. The researcher employed purposive sampling to choose individuals for the interview process. These interviews also elaborated on institutional perspectives and values on food security and livelihood outcomes. The researcher also made use

of Key Informant Interviews (KIIs) as a method of data collection due to their ability to facilitate direct, in-person engagement with the participants. He employed face-to-face interviews with participants who were purposively selected in order to gather nonverbal perceptions from respondents on specific topics that were discussed. The interviewer provided explanations for any question that the participants could not have comprehended. Positive relations were established with the participants in order to facilitate open communication and ensure that they felt comfortable when seeking clarification as needed. Figure 9 below shows one of the interview sessions that were conducted between June and August 2022.



FIGURE 8: KEY INFORMANT INTERVIEW (FIELDWORK, 2021)

The utilisation of Key Informant Interviews (KIIs) gave the researcher an opportunity to investigate and inquire into the perspectives of participants, thereby eliciting comprehensive and detailed insights pertaining to the dynamics and transformations in rural poverty. Gay et al (2011) posited that interviews can be utilised as a means to ascertain the attitudes, interests, feelings, worries, and values of the participants. Nevertheless, the interviews conducted in the study were found to be time-consuming. The interviews were scheduled in advance to ensure that the respondents would allocate their time accordingly. Additionally, this enabled the researcher to effectively schedule the interviews. Key informant interviews were done with traditional leaders, who were important figures representing decision-making institutions in communities. These

leaders were either local decision-makers themselves or held prominent positions within non-government organisations or community groups.

3.3.4.3 Focus Groups Discussions (FGDs)

Through focus group discussions, the researcher collected data on the various livelihood strategies that the smallholder farmers engaged in, the factors influencing the choice of livelihood strategies as well as other causal factors that shape their livelihood options and their conceptualisation of household food security. Goss and Leinbach, (1996) suggest that FGDs can comprise of up to fifteen people. However, Macintosh (1993), states that the recommended number of people per group is usually six to ten. The researcher made use of FGD in order to gather data from the respondents. In order to share and discuss experiences on the dynamics of household food security and livelihood strategies, two groups of about nine and twelve people respectively were assembled from the rural households. Two FGDs were conducted, one in Kapembere and the other one in Muringazuva ward. The two communities from the two wards were informed about the study through their respective councillors and village heads who also helped to mobilise participants. Focus group discussions enabled the participants to openly express themselves. This presented knowledge that improved the ability to understand the perspectives of various actors in Muzarabani. The community is still predominantly patriarchal. To ensure adequate representation of women in the FGD, the researcher deliberately balanced participation by gender.. The study was therefore structured to group participants based on their gender and age. This allowed the researcher to get authentic data in a versatile, interactive, and favourable setting.

Gibbs (1997) states that it is vital to enable data to be collected in the words of the respondents. Focus group discussions ensured that diverse viewpoints were brought up during the discussions and the group could reply to, and debate those viewpoints (Lewis et al, 1997). Each FGD had about 8-11 participants who took part in each ward. Many ideas were created and discussed by the three groups, and these contributions aided in the comprehension and exploration of the critical issues around the livelihood strategies of the rural households in the two wards.



FIGURE 9: FOCUS GROUP DISCUSSION IN KAPEMBERE WARD (FIELDWORK, 2022)

Respondents gathered at predetermined locations to take part in the FGDs sessions. The conversations were started by the village headmen who served as the leaders of their respective villages and the respondents were introduced to the researcher. It is at this moment that the researcher would then take lead of the discussions, starting with giving a brief background on the study, the objectives, as well as laying out issues to do with ethics governing the study. The purpose of the FGDs and the format of the sessions were further clarified. At the gathering, ethical issues were also clarified. The responders were made aware of the consent process, and their consent was requested to record audio and take images. Nonetheless, a decision was taken to combine a female adolescent who had attended one of the FGDs with the male youths. The respondents were given access to the FGD guides. The research assistants assisted by transcribing down the responses from the discussions. The researcher also made use of voice recorders to ensure that no data was lost in the process.

3.3.4.6 Literature review and document analyses

Secondary data was collected from various literature sources such as Zimbabwe Vulnerability Assessment Committee (ZimVAC) Rural Food Security Assessment Reports from 2003- 2022, FAO/WFP Crop and Food Supply Assessment Mission Reports for 2019, 2020, and 2021, books, journals, internet sources and reports. The utilisation of secondary data proved beneficial for the

researcher as they facilitated a comprehensive review of pre-existing information, theories, and perspectives put forth by various authors. This enabled a deeper comprehension of the study area, as well as the various subject matters and fundamental concepts explored within the study, such as the Sustainable Livelihood Framework, livelihood assets, livelihood strategies and the desired outcomes of enhanced income, food availability and accessibility. Additionally, it served as a resource for establishing and implementing the fundamental concepts employed in the research.

Oliever (2012) posits that the utilisation of secondary data collection methods serves the purpose of aiding researchers in gaining a comprehensive understanding of the academic and research domains that pertain to the subject of their study. The utilisation of secondary material has become imperative due to the need to examine literature in a comprehensive manner, hence shedding light on many perspectives and experiences as presented by pertinent sources (Oliever, 2012). All these reports provided information and most recent analysis on the food security situation of the rural households in Muzarabani district. The researcher also went through previous dissertations, journal articles, and reports from the NGOs operating in the two wards. They also enriched the study through providing food security situation, livelihoods activities conducted by the small holder farmers as well as the general understanding of the livelihood outcomes.

3.3.4.7 Extended Household Visits

The researcher conducted extended household visits to the sampled households. The times the researcher visited the households, learning about their daily livelihood activities across the year. The extended household visits were staggered within a period of twelve months so as to enable the researcher to understand the different livelihood options available to the small holder farmers during the different seasons. During the extended household visits, the researcher conducted face to face interactions with the small holder farmers. The questions were designed in such a way that allowed the researcher to capture all the possible responses pertaining to livelihood strategies and their contribution to household food security, including how much they contribute to the food security status of their households. The researcher further asked questions around the choice of livelihood strategies, their importance and determinant factors around household food security. During these extended visits where the researcher conducted face to face interviews, the researcher to visit 65 purposively selected households that were in the sample in order to witness the livelihood

processes and strategies. The researcher booked appointments with the households before so that they could also make time for the visit. Household heads were also targeted respondents, these are people who are the leaders of their households. The use of open-ended interviews enabled the researcher to gain insights into the key livelihood strategies that the small holder farmers engage in. The researcher triangulated the data from the extended household visits together with the data from the other collection tools. Follow up interviews were conducted repeatedly until a point of data saturation was achieved. To uphold ethical principles, participants were initially briefed about the purpose of the research and were assured that the information was for research purposes only and that anonymity of respondents were assured. Participants were also given the right to opt out of the interviews should they feel uncomfortable with the issues being discussed.

The open-ended interviews were on the following themes:

- a) Looking at understanding the concepts of food security and food insecurity as well as the impact of food insecurity in households.
- b) Exploring the livelihood strategies have been adopted by communities to mitigate the challenge of food insecurity
- c) Examining the contributing factors to the choice of livelihood strategies by the rural households in district?
- d) Monthly income and household spending on food per month
- e) General understanding of sources of food, dietary diversity and coping strategies
- f) What support the government and other organizations have rendered to the same communities to promote their livelihood strategies?
- g) Looking at potential threats or factors that affect the efficacy of livelihood strategies in ensuring food security
- h) Examining the contribution of the livelihood strategies on food security

3.4 Data analysis

The researcher implemented data management protocols at every stage of the study to ensure high-quality data. According to Roper & Shapira (2000) data analysis should start while collecting data so that the researcher can identify new themes and determine whether to pursue them further. In this regard, the researcher began data analysis as soon as the data collecting commenced. The data

was encoded and used to support the study's themes (Strauss & Juliet, 1994). Data was further subjected to thematic content analysis. The data was analysed thematically, looking for frequent words, phrases, themes and patterns by application of content analysis procedures (Wrench et al, 2008). Scott-Jones and Watt (2010) suggest that ethnographic analysis is a two-stage process that begins with data organisation and finishes with analysis. The analysis of participants' views, attitudes, understanding, values, and experiences helps to improve participants' understanding of livelihood strategies and household food security (Mare, 2007). The initial phase of data analysis involved the utilisation of coding techniques, which facilitated a transition from specific statements to broader conceptual elucidations of the collected data. In order to collect the information conveyed in the interview transcript, conceptual labels were applied to nearly every line. The utilisation of interviewees' own words, referred to as *vivo* code, was employed to focus specifically on the interview's perspective (Aldiabat, 2018). Subsequently, the interviewees' words were allocated codes in order to facilitate the development of analogous concepts, which served as the initial stage of an analytical procedure. The acquired data obtained through observation and interviews underwent line by line coding, also known as open coding, followed by an analysis. Thorough and meticulous coding analysis enabled a distinct interpretation of the transcript.

Two analytical methodologies were employed. Initially, the acquired data was organised and subsequently subdivided into coherent themes based on the research objectives. Furthermore, the researcher engaged in a systematic examination of the data in order to derive meaning from it. This involved analysing the information by deconstructing it into smaller components, and afterwards reconstructing these components to comprehensively understand and interpret the interconnections and correlations within the data. The process of comparing, contrasting, and classifying the text data prior to, during, and subsequent to the data gathering phase facilitated the establishment of interconnected webs in Muzarabani. Grounded Theory (GT) proved to be a valuable tool for the researcher, as it facilitated the identification and organisation of themes and sub-themes in accordance with the predetermined research objectives.

Preliminary analysis focused on the identification of actors and the intricate connection between the food security status and the livelihoods of the residents of Kapembere and Muringazuva wards in Muzarabani district. The primary objective of Grounded theory was to maintain a high level of conformity to the original transcribed text, while also eliminating any barriers that may hinder

users' comprehension. The researcher's judgement was involved in both the process of transcription and the selection of extracts to be utilised. The acquisition of a transcribing service was sought from professional translators who were actively engaged in their field. The interview questions were designed to provide minimal advice to the participants. This enabled them to express their own perspectives and priorities regarding certain specific topics. The process of identifying and categorising relevant events or experiences of the interviewee involved the use of a conceptual label referred to as a code. The table 3.3 below shows the Data-Analysis Matrix used in this study.

SLF components	Dimensions	Further-dimensions
Livelihood assets	• Social, • human, • physical • natural • financial	Household characteristics include the age class and size of the heads of families, as well as their education level. Physical infrastructure, agricultural equipment, and residential structures are all important factors to consider. Water
Livelihood strategies	Livelihoods activities	Livelihood activities (undertaken and, interested by project's beneficiaries)
Livelihood outcomes	Increased income and, Food availability and accessibility	Income level and, sources and crop production and animal husbandry, Increased livelihoods options
Transforming structures and processes	Institutions and the assistance they provide	Goods and services provided

Table 2.3: Data Analysis Matrix

3.5 Ethical Considerations

There were a number of ethical issues that were considered in this study. The participants were informed about the goal and the importance of documenting their livelihood activities. Authorities and stakeholders were approached for approval of the research activities. The researcher followed official protocol by seeking authorisation from the Muzarabani District Chief Executive Officer, District AGRITEX Officer and village heads. The researcher sought village leaders and residents for approval. The researcher also kept public field notes to emphasize that the collecting data was for academic research. DeWalt and DeWalt (1998) argue that field notes should be taken in public. Furthermore, informed consent was sought from all participants before the collection of data.

Patton (2002) conceptualises informed consent as the procedural, risk and benefit considerations that respondents undergo prior to agreeing to participate in a research project. To align with Patton's conceptualisation, the participants in this study were apprised of the research objectives and duly told about any potential hazards connected with their participation. The participants were requested by the researcher to autonomously determine whether to engage or discontinue their involvement in the study at any point throughout its duration. Participants in focus groups and households were notified about the research study and informed that participation was voluntary. All participants signed consent forms before they participated in the study.

The concept of confidentiality entails that the researcher is the sole individual granted access to the data obtained (Patton, 2002). Confidentiality encompassed the condition that the participants maintained anonymity and ensured the absence of any association between their responses and their real-life identities. The researcher ensured strict privacy and confidentiality. Data was securely saved and used solely for academic purposes. The researcher also informed Muzarabani district officials of the findings of the study.

The participants in the research were provided with the option to maintain anonymity. Christians (2000) asserts that it is the responsibility of the researcher to maintain the anonymity of participants and ensure the confidentiality of their responses. The researcher emphasised the importance of maintaining the anonymity of participants who took part in key informant interviews, focus group discussions and those who completed questionnaires. The level of anonymity was further enhanced in cases when there was no discernible connection between the responses and the respective respondents. Kawulich (2005) suggests that individual identities must be described in such a way that community members cannot identify the individuals. All respondents in this study were coded, those who were key informants, were coded as “KII”, while those who participated in household visits were coded as “P”. Those who took part in Focus Group Discussions were coded as “Focus Group Discussion Respondents”. This was one way of ensuring anonymity of research participants.

Ultimately, the complete identification and contact information of the researcher was disclosed to all participants. The researcher's affiliation was explicitly stated as a PhD candidate enrolled in the Department of Development Studies at the University of Pretoria in South Africa. The purpose of this feature was to streamline the communication procedure for individuals who desired to

establish contacts with the researcher. The use of name cards or business cards with the researcher's name, contact information, and university affiliation proved to be immensely beneficial in unequivocally disclosing the researcher's particulars.

3.6 Chapter summary

This chapter discussed the research design for this study and provided a rationale for choosing a qualitative approach. The chapter further explicated the process of analysing the data collected for this study. The chapter presented the physical and conceptual delimitation of the study. It clearly outlines the research methods that were adopted in this study. The chapter further gave a detailed account of the research methodology employed by the researcher, which is an ethnographic approach. Furthermore, the chapter brought the philosophical approach underpinning the study, premised on the Interpretivist paradigms. Data collected were crosschecked, sorted, summarised and categorised into themes based on objectives and checklists outlining the information collected.

Chapter Four: Zimbabwe and Muzarabani Context

4.1 Introduction

Climate change has rendered land increasingly marginal for agriculture, thereby posing a major threat to the economy and the livelihoods of the poor due to Muzarabani's heavy dependence on rain-fed agriculture and climate sensitive resources. This chapter profiles Kapembere and Muringazuva wards in order to make a comprehensive assessment of livelihoods strategies adopted in the district and their effectiveness in enhancing food security or as a cause of vulnerability of the households. The profiling looks at the two wards separately, while providing an intertwined analysis in terms of the geographical conditions, socio-economic characteristics, household food security statuses demographic characteristics, supporting structures and the political overview of the area. The chapter looks at the livelihood profile and endowments of the two wards, highlighting on the various on-farm and off-farm livelihood strategies that the households under study engage in. Furthermore, the chapter explores the asset portfolios which provide fall back options in times of food deficit.

4.2 The broader Muzarabani District profile

The study focuses on two wards in lower Muzarabani District, which are Kapembere and Muringazuva. However, these wards must be understood within the broader context of Muzarabani district at large. The district is located in northern Zimbabwe and borders Zambia to the north and Mozambique to the east. Muzarabani Rural District is situated in Mashonaland central province of Zimbabwe and is one of the eight districts. The area encompasses an estimated 2 774 square kilometres. According to the Food and Nutrition Council (2022), the district has 29 wards. These wards are demarcated by ward boundaries, which consist of eight communal lands, eight commercial farming wards, three resettlement wards, and one urban ward. Three separate geographic regions make up the district. The study area was the lower Muzarabani valley of the flat Zambezi River to the north. The lower side of the district lies on the leeward side of Mavhuradonha Mountains in the Lower Zambezi Valley which is classified under ecological Region Five.

The etymology of the name Muzarabani is found in the local Shona language and can be broken down to establish its meaning as: *mu* (i.e., inside), *zara* (i.e., full) and *bani* (i.e., low-lying), hence its full meaning being ‘in a low-lying area’ (Chanza 2014). Lower Muzarabani comprises of a total of 14 wards, which are further classified into two distinct categories: drought and flood-prone areas, as well as flood-free zones (ZimStat, 2012). The Mavhuradonha Wilderness which is characterised by nature sanctuary, large-scale commercial farming, communal farmlands and other land use activities make up the entire district. Derman (1993) points out that the lower part of Muzarabani supports considerable maize and cotton cultivation as cash crops, in addition to the production of small grains. However, the yields for both maize and cotton have been significantly low, with an average of one tonne per hectare for cotton and 0.7 for maize. (ZimVac, 2019).

Cash crops like cotton, groundnuts, and sorghum provide the majority of the household's income, with the sale of livestock and goats and seasonal employment with cotton businesses providing the remainder. The area experiences periodic drought and intense dry periods even during the rainy season. The rainfall is too low and uncertain for cash crops. The region is suitable for small grains which withstand drought conditions. WFP (2018) notes that the region is suitable for livestock production due to its terrain and climatic conditions. Fig 10 below shows the map of the Muzabani district.

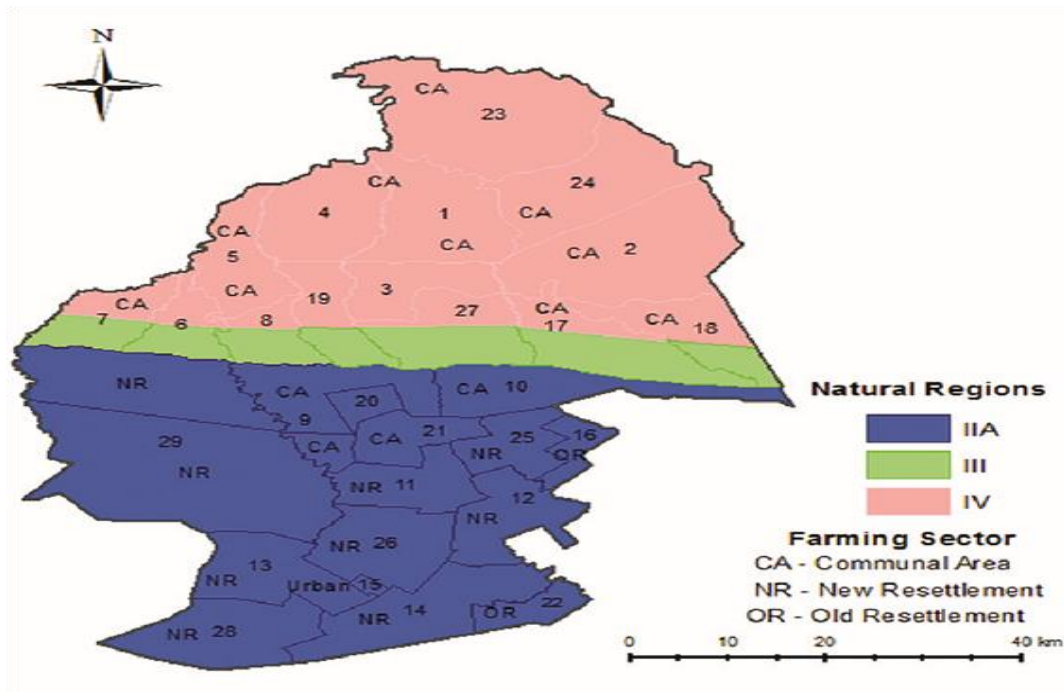


Figure 10: Muzarabani District Map: (OCHA 2016)

The climatic conditions in the area are semi-arid, characterised by an average annual precipitation ranging from 600 to 800mm. The region experiences a brief rainy season spanning from November to March, followed by an extended dry season lasting from April to October (WFP, 2016). When there is a drought, the rainfall decreases to 250–450mm (Department of Meteorological Services, 2018). The lower part of the region is generally dry, with low rainfall received throughout the year. The yearly precipitation varies between 450mm and 600mm for Lower Muzarabani, and between 750mm and 1000mm for Upper Muzarabani (Kasimba, 2018). The rainy season in Muzarabani typically commences in early October and ends in April. However, local households reported a delayed onset of rainfall in late December, with precipitation ceasing earlier than usual. Consequently, the overall duration of the cropping period has been significantly reduced. When the number of cropping days for different crops is multiplied by the average length of the rainy season, the consequences are disastrous.

The previous ten years have seen a failure to meet rainfall needs for maize and cotton crops to reach full maturity. Maize is the staple crop of Zimbabwe and low production effectively set off food insecurity conditions (Mutami, 212). Maximum temperatures range from 30 degrees Celsius to 40 Celsius in summer, while the minimum ranges from 15 to 20 degrees Celsius in winter. The soils are Sodic, with a few patches of Kalahari Sands. The district had a population of 134 076 people (National Statistics Agency, 2023). Based on the analysis conducted by the World Food Programme (WFP) about chronic and transitory food insecurity, it has been projected that a total of 44,800 individuals residing within the district are consistently experiencing food insecurity. These individuals are deemed chronically food insecure, as they consistently require external assistance to fulfil their dietary needs. Additionally, it is anticipated that a total of 58,000 individuals experience temporary food insecurity, with their food insecurity being a recurring issue during the famine period (January - March) and subsequent aftershocks (WFP, 2023).

Three major perennial rivers Hoya, Utete and Musengezi are the main sources of water for communities during dry seasons. There are other seasonal rivers, namely, Musingwa and Nzoumvunda which empty their water into the Zambezi River. This process facilitates the “deposition of alluvium or Lacustrine sediments” (Chanza and De Wit, 2015). The rivers in Muzarabani play a fundamental role in sustaining the livelihoods of the majority of people in the

region (Chanza and De Wit, 2015). In terms of topography, the district is generally low-lying. The soils are rich and fertile and they make wetlands (*matimba*) more productive (Kasimba, 2017). Muzarabani Rural District Council (2015) annual report indicated that, the lower Muzarabani escarpment is home to around 64% of the district's overall population. The region under consideration is characterised by a scarcity of precipitation and plant life, as well as difficulties in reaching certain locations and accessing essential amenities such as educational facilities, medical centres and clean water sources. These challenges can be mostly related to the inadequate road infrastructure, particularly during periods of heavy rainfall. According to Muzarabani Rural District Development Committee (2015), the upper Muzarabani region accommodates the remaining 36% of the population.

4.2.1 Overview of the the Socio-economic Condition of Kapembere and Muringazuva

The vastness of district led the research to focus on only two wards in lower Muzarabani; Kapembere and Muringazuva. The two wards are unique in their variation and they are chosen to be a representative of other wards in the district. The characteristics of the wards cover the major outlook of all wards in the district. According to Murwira et al. (2012), the region experiences a relatively low and inconsistent annual precipitation, typically ranging between 250 mm and 300 mm.

4.2.2 Kapembere ward

Kapembere; also known as ward 5, is located approximately 18 kilometres from Muzarabani Business Centre along the road to Mozambique. Located in the south-eastern part of the business centre the ward is surrounded by three rivers, namely; Musengezi, Mudzurure and Hoya. Murwira (2012) and Chanza and De Wit (2015) state that it may be inferred that Kapembere experiences periodic droughts and extended periods of aridity during the interlude of the summer season, spanning from December to March. The soils in the district are characterised as chromic alluvium soils, exhibiting a sandy texture. According to Manyani (2013), the nitrogen content of these soils is low. Soil with a sandy texture exhibits reduced water retention capabilities, hence posing challenges to crop cultivation. The ward exhibits limited suitability for dry-land cultivation of certain crops, such as maize, mostly because of the unpredictable nature of rainfall patterns.

Furthermore, the ward experiences a growing scarcity of precipitation, resulting in a progressive depletion of vegetation. During the summer season, the regenerative capacity of grass is hindered by a combination of factors including unpredictable rainfall patterns, high temperatures, and increased population density comprising both human inhabitants and their livestock. The region is primarily characterised by the prevalence of thorny vegetation, specifically Mopane, Acacia, and Baobab trees. In Kapembere, the prevalence of contemporary dwellings constructed with materials such as bricks, cement, and asbestos is notably limited. The majority of residential structures are constructed using a combination of stone, wooden poles and mud.

4.2.2 Muringazuva ward

Muringazuva complements Kapembere in providing tenets of Muzarabani district. The ward is approximately 9 kilometres from Muzarabani business centre on the south-eastern part of the district, being one of the bordering wards from Mavhuradonha mountain range. Like Kapembere ward, the soils in Muringazuva area are sandy-textured chromic alluvium soils. Low nitrogen content is present in these soils (Manyani, 2013). Production of crops is more challenging in sandy-textured soil because it has a low capacity to retain water. It receives 250 mm to 300 mm of low-intensity, erratic rainfall annually (Murwira et al., 2012). The ward is ideal for livestock production in vast production systems, but is somewhat unfavourable for dry-land farming of certain crops like maize because of the inconsistent rainfall. The water retention capacity in the area is typically inadequate, leading to prolonged periods of low river flow and excessive siltation. As a consequence, the local community's livelihood practises in the ward are adversely impacted (Manyani, 2017). Figure 12 below shows the location of Kapembere and Muringazuva in Muzarabani.

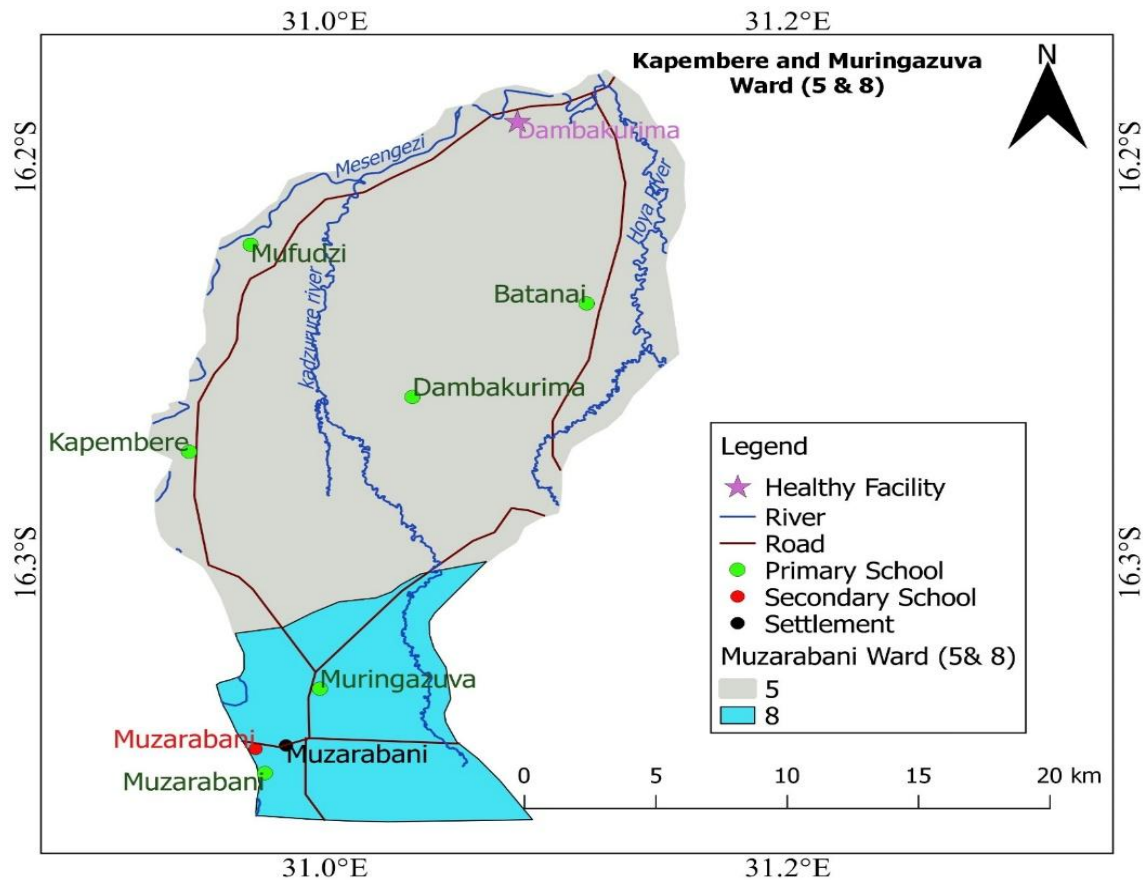


FIGURE 11: KAPEMBERE AND MURINGAZUVA MAP (SURVEYOR GENERAL 2022)

4.2.3 Political and social-cultural aspects of Kapembere and Muringazuva Wards

Muzarabani District experienced swift political and socio-economic transformation in the past. Settlements were few and dispersed (Chanza and De Wit 2015; Byers, et al., 2001). People from different ethnic backgrounds live in the region. The Korekore people were the first occupants of the region. Most of the current occupants are migrants who arrived in the region from Southern Zimbabwe (Great Zimbabwe) starting in the mid-1600s (Chanza and De Wit, 2015; Byers, Cunliffe and Huddok, 2001). Even though tsetse flies and mosquitoes were a danger at the time, these communities wanted to take advantage of the rich soils and rich rock salts. Irrigation facilities increase agricultural output and it is another factor that drew a great deal of immigrants to the region in the 1970s (Chanza and De Wit, 2015). The concurrent utilisation of integrated tsetse fly control initiatives and prophylactic measures using pharmaceutical interventions to immunise animals against *trypanosomiasis* facilitated the viability of livestock husbandry within the region during the 1970s. According to Chanza (2014), the local population perceives their connection to

the area as a means of establishing their historical, economic, and cultural identity. This strong feeling of belonging often outweighs the potential hazards connected with residing in the area.

The region encompassing Muringazuva and Kapembere is commonly linked to a population residing in valleys or lowlands, known linguistically as the *Goba* or *Gova*. This term denotes an association with wetlands or riverine valleys (Chansa, 2014). The aforementioned group pertains to a Shona dialect cluster consisting of individuals residing in the lowlands, which constitute the lowveld region of the country. Evidently, the inherent risk associated with residing in such a particular setting is explicitly represented in the nomenclature '*Muzarabani*'. The inhabitants of the valley perceive their association with the region as a means of establishing their historical, economic and cultural identity. This connection is so profound that it often diminishes concerns regarding the potential hazards associated with residing in the area, as the sense of place and belonging takes precedence. Hence, it is imperative to acknowledge that the cultural and traditional orientation of the populace plays a pivotal role in comprehending the geography of Muzarabani.

Muzarabani District is governed by a total of three chiefs. Among them, there are two paramount chiefs, commonly referred to as “*madzishe*”, and one sub-chief, known as “*mambo*”. The valley territory situated to the east and west of the Musengezi River is under the jurisdiction of Chief Kasekete and Chief Hwata respectively. This geographical region includes the areas of Kapembere and Muringazuva. Interestingly, the area derives its name from Chief Muzarabani, who is subordinate to Chief Kasekete. According to Marariki (2011), the origins of the political dynamics surrounding this contested chieftainship may be traced back to the era of colonial governance. According to Chansa (2014), the author recounts that chiefs who demonstrated disloyalty towards the colonial authority were relieved of their positions and substituted with individuals who displayed greater cooperation. The traditional authority in the region is intertwined with the authority of the local government. Chizeya and Mutunda serve as elected councillors, representing Kapembere and Muringazuva respectively, within the Muzarabani Rural District Council.

4.2.4 Households Profile in the two wards

Two main different household categories, which were all premised on peasant farming, were identified in the Kapembere and Muringazuva wards. The two categories are worker-peasants who

sometimes offer casual labour for money and the full-time peasant farmers who rely on farming only. Within these two main categories of households, there were female and child headed households. It is imperative to discuss these households so that it becomes easier to later discuss vulnerability and resilience within the community. In terms of land ownership, the general size of a plot for a household in the two wards ranged between 5 to 6 hectares. The households engaged in various livelihood activities on their farms and plots. These activities were diverse, especially among those who engaged in combined agriculture which encompassed both crop production and animal husbandry. Most of these livelihood activities aimed at increasing household income and they sometimes required extensive labour. Large household size was seen as a source of labour in most rural farming households (Kasimba, 2018). However, due to the seasonal nature of agricultural activity, workers were idle at certain periods, resulting in reduced productivity.

The national average household size from 2012 census was 4.2 people per household (ZIMSTAT, 2012). This is not much different from the statistics in Kapembere and Muringazuva where more than 50% of the households have at least 4.2 people per household. This observation indicates that the two wards typically exhibit a prevalence of large-sized households. However, relatively large households pose a challenge in terms of providing food and dietary needs (Chifamba, 2019). During periods of drought, such households faced problems associated with increased expenditure on food in order to adequately feed their families. This can also be brought up as a causal factor to food insecurity at the household level. Table 4 below shows the demographic disaggregation by size of household in the two wards.

Table 3.1: Demographic Disaggregation by Household Size (Field Work, 2022)

Size of Household	One	Two	Three	Four	Five	> Five	Total
Percentage of Respondents							
Muringazuva	3%	1%	10%	17%	11%	58%	100%
Kapembere	2%	4%	6%	19%	18%	51%	100%

The study found that there are a number of child-headed households in the two wards. According to the profiles of the two wards, a total of 42 and 39 child headed households existed in the two

wards (WFP, 2022). Child-headed households often experience severe poverty (Phillips, 2011). One of the key characteristics of such households is the prevalence of poverty. In these households, poverty frequently manifested through food insecurity, school dropout, sub-standard accommodation and even homelessness.

An interview with one village head showed that children from child-headed households usually got married early due to lack of adult mentoring and guidance to help them navigate through life. They also got married early because some of them indulged in sexual activities at an early age after the death of their parents. The study also revealed that most child headed families were deprived of productive assets. Numerous scholarly investigations have demonstrated that households led by children commonly encounter severe impoverishment and financial instability (MacLellan, 2010; Korevaar, 2009).

According to Meintjes et al. (2010), children residing in child headed households have higher levels of income poverty and encounter limited access to essential services in comparison to children residing in adult headed households. The study revealed that child-headed households predominantly subsisted on a lesser quantity of food in comparison to households headed by adults. Additionally, these individuals faced resource scarcity, which restricted their range of livelihood opportunities. Furthermore, a significant portion of this population was heavily entrenched in a perpetual cycle of poverty and food insecurity. In order to generate cash for their households, children in child headed households participate in a variety of activities which include contract employment on farms, hawking and begging (Kurebwa and Kurebwa, 2014; Germann, 2005a; Chase et al., 2006). The potential consequence of this situation is that children's education is affected, since some children opt to discontinue their studies in order to participate in these income-generating activities.

The results show that peasant workers came from low-income families and they lacked access to education, healthcare and other basic necessities. As a result, they were forced to work long hours in the fields for meagre wages. Many of them lived in poverty and struggled to provide for their families. Despite these challenges, peasant workers remained resilient and continued to work tirelessly to make ends meet. Most communal farmers had valuable knowledge of local crops and

farming practices. They used traditional methods to cultivate crops and also produced high-quality foods that were essential for their survival. The study found out that for peasant or farm workers in Kapembere and Muringazuva, limited access to education and training was a long-standing issue that many poor peasant-workers faced, leaving them with few options for sustainable livelihoods. Kurebwa and Kurebwa (2014) posits that lack of educational opportunities in rural areas, particularly in developing countries like Zimbabwe, exacerbates the problem. Kamete (1998) notes that peasant workers in Zimbabwe face limited livelihood options due to a lack of access to education and training, which perpetuates the cycle of poverty within these communities.

Furthermore, the results show that the absence of formal education or vocational training hindered Kapembere and Muringazuva subsistence farmers' ability to gain new skills that could have enabled them to secure higher-paying jobs or start their own businesses. Without proper knowledge on how to improve crop yields or manage livestock, they were unable to increase productivity levels and break away from subsistence farming practices. As such, they remained trapped in low paying jobs; with limited opportunities for advancement. Moreover, inadequate education also translated into lower social mobility outside agriculture-related work, since employers preferred hiring individuals with better formal schooling credentials over those without any qualifications. In short, limited access to educational opportunities restricted farmers' chances for economic prosperity while it reinforced longstanding generational cycles of poverty within these communities.

4.2.5 Demographic Disaggregation of Respondents by Gender

Gender disaggregated demography results showed that 69% of respondents were female and 31% were males in Kapembere ward, while 33% were males and 67% females in Muringazuva ward. There were more female respondents because men travel to urban centres to seek employment opportunities, especially during the off season. Women remained on the farms, cultivating the fields to supplement their husbands' income.

The societal role of women in the two villages of Kapembere and Muringazuva is mostly influenced by their various responsibilities. In the majority of situations, women assumed the dual role of managing domestic affairs while engaging in paid employment. The results revealed that a

significant majority of women devoted a greater number of hours engaging in labour-intensive activities when compared to men. The results show that this coping strategy contributed to the vulnerability of households and further exposed households to the risk of food insecurity. In a study conducted by Veeran (2000), an assessment was made about the valuation of women's employment. The findings of the study indicated that women's labour is not perceived as valuable when considering financial benefits or its contribution to the economic progress of communities. Research findings have indicated that a significant number of women residing in Zimbabwe experience negative consequences as a result of their impoverished circumstances. Women encounter several forms of gender-based discrimination in economic, legal, cultural and social domains. Consequently, this has a detrimental impact on individuals' lives, namely in terms of their involvement in community development endeavours and their ability to make autonomous choices.

Women headed households engaged in subsistence farming; gardening and aslo exchanged their labour for food. The study found out that women and children were disproportionately affected by poverty, which significantly restricted their access to opportunities in the areas of healthcare, education and employment. However, poverty's wide-ranging repercussions go beyond physical deprivation; they also limit women's childcare responsibilities, preventing them from contributing meaningfully to society. UNICEF (2022) states that poverty restricts women's responsibilities in childcare and it limits their potential impact on community development. Gendered preconceptions undermined the agency of women and also kept them from reaching their full potential. Furthermore, the research revealed that families headed households had diminished levels of access to many forms of livelihood capitals, including natural, social, physical, financial, and human capitals, in comparison to male headed households. Cultural traditions beliefs compeled women to provide household food, energy and water, and their roles were affected by climate change. In both wards, women continued to fulfil traditional roles as mothers and care givers within their families.

While men migrated in pursuance of economic prospects, women tended to exhibit a greater propensity to remain within their domestic sphere in order to assume caregiving responsibilities for children as well as elderly or infirm family members. These results corroborate Chingarande

(2020) who assets that a significant proportion of households in Zimbabwe is led by women. Women remain among the most economically disadvantaged people (Chigwenya et.al, 2012). This phenomenon can be attributed to the restricted availability and authority that women possess over resources, such as land and other essential resource bases within society (Chingarande, 2004). In regions where women do have access to and control over resources such as land, their ability to derive substantial benefits from these resources tends to be constrained. Human Development Report (1998) shows that a significant proportion of women residing in rural areas of Zimbabwe possessed land ownership rights. However, it was noted that these women encountered restricted advantages in terms of reaping the benefits associated with the produce derived from their land holdings. The study further found that financial struggles often lead to a lack of education opportunities for both adults and children which perpetuate the cycle of poverty within households. The combination of all these factors makes it difficult for female heads of household to secure stable income sources or improve their lives without external assistance (Musekiwa, 2013).

4.3 Institutions, infrastructure and supporting services

4.3.1 Communication network in Kapembere and Muringazuva

A good communication network and access to basic services and social and economic amenities is vital in ensuring sustainable livelihoods and in turn food security (Kasimba, 2018). Households which had access road networks and transportation infrastructure were more readily able to establish connections with various social services, including markets, healthcare facilities and educational institutions. Furthermore, the enhancement of household health and education together improved physical accessibility and facilitated increased participation in non-agricultural income-generating activities. The provision of access to this resource has the potential to provide favourable socio-economic outcomes for individuals who are able to utilise it (Chigwenya et al., 2012). Therefore, the proximity to a nearby road or transportation system is associated with enhanced food security among households. Field observations show that buses and scall carsplid the routes in the two wards, linking with Muzarabani business centre and Harare. This facilitated access to markets by farmers in the two wards. A gravel road cuts across the two wards going towards Chadereka ward. The road is serviced once a year by the rural district council. The District Development Fund (DDF) - a European Union (E.U.) funded government infrastructure programme was responsible for setting up the initial roads early in the nineties before the rural

district council took over. Over the recent past, transport coverage in the district has improved. However, there are still other parts in Muringazuva ward that are not accessible when it rains because of flooding.

In terms of telecommunication and internet coverage, there is spatial network coverage in the two wards; with Econet Wireless (telecommunication service provider) being the most reliable service provider. Netone; which is a government parastatal, comes second. The mobile phone coverage is scattered across the two wards. As noted during interviews the telecommunication networks do not have full network coverage. Access to the internet is limited because the bandwidth is weak. Most people go to the Muzarabani business centre to access reliable mobile phone coverage. There were no transmission posts or boosters in the area. Econet erected its own along the mountain range. However, one participant noted that few people used the internet, except for a few who struggles to connect to social media platforms.

The use of internet is also limited by lack of electricity to power internet-providing devices such as smart phones and computers. In terms of postal services, there was basic coverage; with Muringazuva primary school and Kapembere secondary school being the main service points of mail access for the two wards. There is also a Zimpost office at Muzarabani business centre where residents of the two wards travel to post mail. The facility is also equipped with internet services, which were established under the Presidential scheme in 2016 (GoZ 2017). Thus, communities access internet services at the Zimpost Office. However, focus group discussions revealed that most of the people in the two wards do not rely on postal services, since participants claimed that it was not reliable. Rather, they preferred to send mail through buses and vehicles that carried passengers and goods. In terms of radio coverage, the area had access to Radio Zimbabwe, National FM, Star FM, Z-FM and Capital FM. They also had access to ZBC TV coverage, although the signal was weak (MeDRA Baseline Report, 2018). Participants revealed that they relied on news from the national radio stations and television broadcaster.

4.3.2 Physical infrastructure and public amenities in Kapembere and Muringazuva

Physical infrastructure and public amenities are also key in enhancing livelihoods. Muringazuva and Kapembere wards did not have access to main grid electricity (at the time of the study). Before the 2008 elections, electric poles were put in place, but they were never linked to the grid. Most of these poles are however dilapidating and falling down. Some of them were vandalised. Both Kapembere and Muringazuva wards are located a distance away from the district's main hospital, which is at St Albert's Mission. The district hospital is approximately 70 kilometres away from Muzarabani Business Centre. There are no health centres in the two wards and people travel to Muzarabani clinic when they get sick. Some residents in Kapembere, who live close to the ward boundary, access their health facilities at Dambakurima Clinic, which is approximately 10 kilometres away. Most of these households crossed flooded rivers during the rain season in order to access health centres (see map 4.1). There is one secondary school in Kapembere and some students go to Muzarabani Secondary, which is at the business centre. Others cross the river and go to Hwata secondary school, which is in Gutsa ward.

In terms of primary education, both wards had primary schools, namely Kapembere and Muringazuva. The schools were not well resourced and they had basic infrastructure. During focus group discussions, participants alluded that the quality of education at the schools had deteriorated due to underfunding. This exposed children to various vices and crimes. Inadequate infrastructure caused students to use sub-standard infrastructure. All the schools in the two wards benefited from World Vision and Methodist Development and Relief Agency (MeDRA) programmes that promoted Water Sanitation and Hygiene activities in the two wards and they received boreholes. Most households had access to Upgradable Blair Ventilated Pit Latrines (UBVPL), which were constructed by MeDRA between 2012 and 2018. Access to basic portable water and sanitation facilities, resulted in the decrease in the levels of contamination and diarrheal diseases in the district. The community boreholes in the two wards consistently provided water for the majority of the year. However, during the dry season, a decline in the water table caused the boreholes to become depleted. Consequently, certain residents were compelled to travel considerable distances in order to obtain clean water. Additionally, some individuals resorted to excavating wells in rivers as an alternative source for domestic purposes such as drinking, washing, cooking, bathing, and tending to their domestic animals. According to the Districts Agritex statistics (2020),

Muringazuva had 17 boreholes and two dip tanks, while Kapembere had eight boreholes and two dip tanks.

4.3.3 Government Input Schemes to Support Crop Production

5.3.3.1 Command Agriculture

Zimbabwe had a drought in the 2014/15 season caused by the "El Nino" effect (Mavhura 2017). The drought affected most parts of the country; including Muzarabani District which is already a drought prone region. In response, the government implemented the Command Agriculture Programme, also known as the Special Programme for Import Substitution (Pindiriri et al., 2021). The initiative operated as a Public Private Partnership, with the primary responsibility of the government being to organise and enrol farmers, as well as to acquire the produced goods via GMB. The policy was enacted in response to a growing problem of food insecurity, which was marked by significant government spending on food imports, inadequate harvests, and low agricultural productivity caused by ongoing droughts, a worsening economy, and a flawed agricultural policy that prioritised political control over development (Gwatidzo and Muyengwa, 2020).

The objective of command agriculture was to cultivate 400 thousand hectares of land across the whole nation (Pindiriri et al., 2021). The entire land area allocated for cultivation consisted of 264,000 hectares for irrigated farming and 136,000 hectares for rain-fed agriculture (Pindiriri et al., 2021). The programme aimed to help 2,000 farmers who either owned mechanised farms of at least 200 hectares with irrigation infrastructure or resided in close proximity to water sources (Odunze and Uwizeyimana, 2019). The Command Agriculture Scheme included a contractual farming requirement that obligated the recipients of the initiative. Under the Command Agriculture Scheme, farmers would be provided with agricultural production inputs and advance loans, including maize seed, agrochemicals, fertilisers, mechanised farming equipment, power costs, and cash. These provisions would be available for the whole period of the scheme. Each farmer's agricultural input package amounted to a total of US\$250,000 for the whole three-year length of the initiative. As part of the agreement, each farmer was required to produce and deliver five tonnes of maize grain per acre to reimburse the government for the resources they got.

The effect of command agriculture is a highly debated subject due to the stark contrast between perception and reality, as well as the disparity between anticipated outcomes and actual benefits (Mazwi et al, 2019). The primary goal of the Command Agriculture Scheme was to enhance maize

output in response to a consistent decline in maize production from 2,148 million tonnes in 2000 to 512 thousand tonnes in 2016 (FNC, 2016). The objective was to meet the national grain demand, which ranged from 1,800 to 2,000 million tonnes according to FAOSTAT (2016). In order to achieve this goal, the Command Agriculture Programme aimed to cultivate 400 thousand hectares (Kanengoni, 2017; Majoni, 2017). However, only approximately 160 to 170 thousand hectares of maize were actually planted during the 2016/2017 agricultural year (Majoni, 2017; Mutenga, 2017 and Mazwi et al., 2019), which is less than half of the intended planting area. In Muzarabani area, the scheme targeted the A2 farmers who are in the upper part of the district. However, the study found out that the participants in the Command Agriculture Scheme were not mainly resource-constrained. These A2 farmers were in a better position in terms of food security and economic security when compared to the small holder farmers in lower Muzarabani. They have larger farms and better farm equipment such as tractors. When asked about the scheme, P3, an Extension Worker wards indicated that:

Food insecurity and poverty are mostly concentrated in the communal areas like Muringazuva and Kapembere. However, Command Agriculture was not targeting such households. Kapembere and Muringazuva have been included under the Presidential and vulnerable households input schemes where they were receiving farming inputs. However, the coming of the inputs was not consistent. Over the years, several households from the two wards and the district as a whole would not get access to the inputs (Interview with P3, 2022).

The Command Agriculture Programme targeted large and medium scale farmers with sufficient farm implements (Pindiriri et al., 2021). According to the Ministry of Finance (2018) report, farmers under Command Agriculture Scheme were supported with seed, fertilizer, chemicals and fuel for maize and wheat production. The Programme was further expanded to include the cultivation of soya beans and the rearing of cattle. The objective of the Command Livestock initiative is to enhance the efficiency and output of beef, dairy, and small livestock (including goats, pigs, sheep, and poultry). It also aims to restore and enhance livestock infrastructure, improve market accessibility, and focus particularly on the farming sectors in the southern region of the country. Nevertheless, farmers were obligated to reimburse by allocating a portion of their gathered yield. (Pindiriri et al., 2021). However, this did not benefit the rural small holder farmers of Muzarabani because the programme targeted big farms. The failure of the Command Agriculture

had negative ramification on household food insecurity. Most households who expected to receive inputs from the government during the 2023 cropping season ended up reducing the hectares of cultivated fields. The reduction resulted in significant decrease of food harvested during that season. Thus, the Command Agriculture Scheme had a negative effect on household food security in Muzarabani District.

5.3.2 The Presidential Input Scheme

These two schemes which are almost similar were implemented in Muzarabani District, with the two wards under study also benefiting from the subsidies. According to a report by Muzarabani Rural District Council, under the schemes, each household received maize seed and fertilizer. However, in 2016, the households also received sorghum seed as part of the scheme. The findings from the study indicate that the delivery of the inputs was not consistent. This was reiterated by one of the respondents who highlighted that:

Some years, we receive inputs from the president, while some years the season comes and goes without receiving anything. For example, in 2015/2016, we did not receive any inputs. In 2017 we were given inputs. The problem we have is that you cannot bank on the inputs we get because we are not guaranteed of getting them (Interview Respondent P 33 ,2022)

Such a scheme is important for poverty alleviation and food security policy interventions (Pindiriri et al., 2021). There are critical issues to consider which affected the implementation of the free Presidential Input Schemes in the two wards. The programme was characterised by inequalities which emanated from political persuasions. Most households with well-known opposition supporters were excluded from the programme. The results also revealed that some of the beneficiaries of the Presidential Input Scheme side-marketed fertilisers and other inputs which they received from the programme. Thus, in order to address the challenges affecting Command Agriculture, government should put in place laws that prohibit side marketing of inputs. Heavy custodial sentences should be imposed on the perpetrators who abuse the scheme. Despite the numerous challenges the scheme is facing, the study concluded that the Presidential Input Scheme has a positive impact on household food insecurity in the study area. For effective implementation of the Presidential Input Scheme, this study recommends that the Zimbabwean government should provide sufficient resources to support the programme, consider changing the mode of funding by

involving banks such as CBZ and the Agricultural Bank. Beneficiaries should borrow inputs from the banks and repay the funds at very low interest rates.

4.3.3 Institutions supporting livelihoods in the two wards

Since the major of livelihood activities in the district are farming based, most of the smallholder farmers in Kapembere and Muringazuva depended on agricultural extension services. The provision of extension services serve as a formal means by which agricultural technology and knowledge is disseminated to rural farming households. Extension services provide agricultural households with technical assistance on various agricultural methods (Manzeke et al., 2024). Therefore, the availability of agricultural extension services plays a pivotal role in effectively utilising various productive resources, including land, inputs, and other related factors. The enhancement of agricultural production through increased access to agricultural extension services contributes to the improvement of food security among households. Findings from key informant interviews revealed that farmers residing in the two wards received support from the Department of Agriculture's extension services. The KIIs further revealed that each ward had an extension worker to provide advisory services on improved farming and smart agricultural practices. In an interview with one of the farmers from the two wards, it was highlighted that the extension officers effectively communicated appropriate and inventive concepts to promote the adoption of enhanced seeds, livestock, and technologies for natural resource management.

In addition, farmers were provided with education regarding the appropriate utilisation of inputs for various crops. The utilisation of enhanced seed varieties improved farming practices in the two wards. However, unavailability and the prohibitive prices of enhanced seed varieties need to be addressed by subsidising farming inputs. The utilisation of fertilisers increased in demand, irrespective of the challenges associated with accessing loans. Furthermore, one of the participants highlighted that the availability of extension services was not very helpful to communities because the department of AGRITEX was under-resourced. The extension officers and veterinary officers helped to protect the agricultural infrastructure in the wards. Kapembere and Muringazuva areas had functional dip tanks. Since the economies of the two wards were based on agriculture, access to markets was a key livelihood component that every community required.

The findings derived from the FGDs in the two wards indicated a positive correlation between proximity to the agricultural marketplace and the importance placed on the adoption of farming and non-farm livelihood options. This phenomenon mostly occurs due to the positive correlation between distance to the market and transportation expenses. Consequently, families exhibited a reluctance to engage in the production of goods that were considered less important on the market. Households situated at considerable distances from commercial hubs or locations with significant economic activity faced limited access to markets due to their lack of transportation infrastructure, which hindered their ability to transport their agricultural produce. During interviews which were conducted with farmers in the two wards, the general agreed opinion amongst respondents was that most of the households in Kapembere and Muringazuva wards chose livelihood activities that have high availability of market such as poultry and gardening so that they were able to retain profits and look after their households.

4.3.4 Assets, Capital and Entitlements profile in Kapembere and Muringazuva

Before going into detail with livelihoods strategies in the next chapter, it is imperative to profile the nature of assets and entitlements disposition status in the case studies. Livelihood assets had a crucial role in how households engaged in different livelihood strategies and activities in order to maintain their food security. These assets were essential for families to participate in production, labour markets, and engage in reciprocal exchanges with other households. Relevance of the resources to households' livelihoods was also taken into consideration. A descriptive analysis of household's access to capitals for subsistence (natural, physical, financial, human, and social) was conducted. Some critical productive assets which were found in the two wards were mapped during data collection.

4.3.4.1 Natural resources and common stock assets

Natural resources are part of major common assets in the two wards. Natural resource stocks such as land, water, animals, biodiversity and environmental resources are resources upon which people rely for their subsistence and are referred to as natural capital (Cohen; et al., 2019). According to Scoones (1998), the condition of these natural resources has a significant impact on rural livelihood outcomes. Access to land is considered a basic prerequisite for farming among many other natural resources. Furthermore, ownership over land is often associated with money, social position and

power. Land also had a greater priority among rural households in the research area. Rural farming households depend on a variety of livelihood capitals for their survival, but natural capital like land and the resources such as water, wood for fuel, and others imbedded in it provide a unique contribution. The FGDs revealed that all of the households in Kapembere and Muringazuva wards were engaged in agriculture, making land an all-important livelihood resource. Significant portions of their food supply and income came from crops and livestock, either directly or indirectly. Figure 15 below gives an outline of the asset ownership in the two wards.

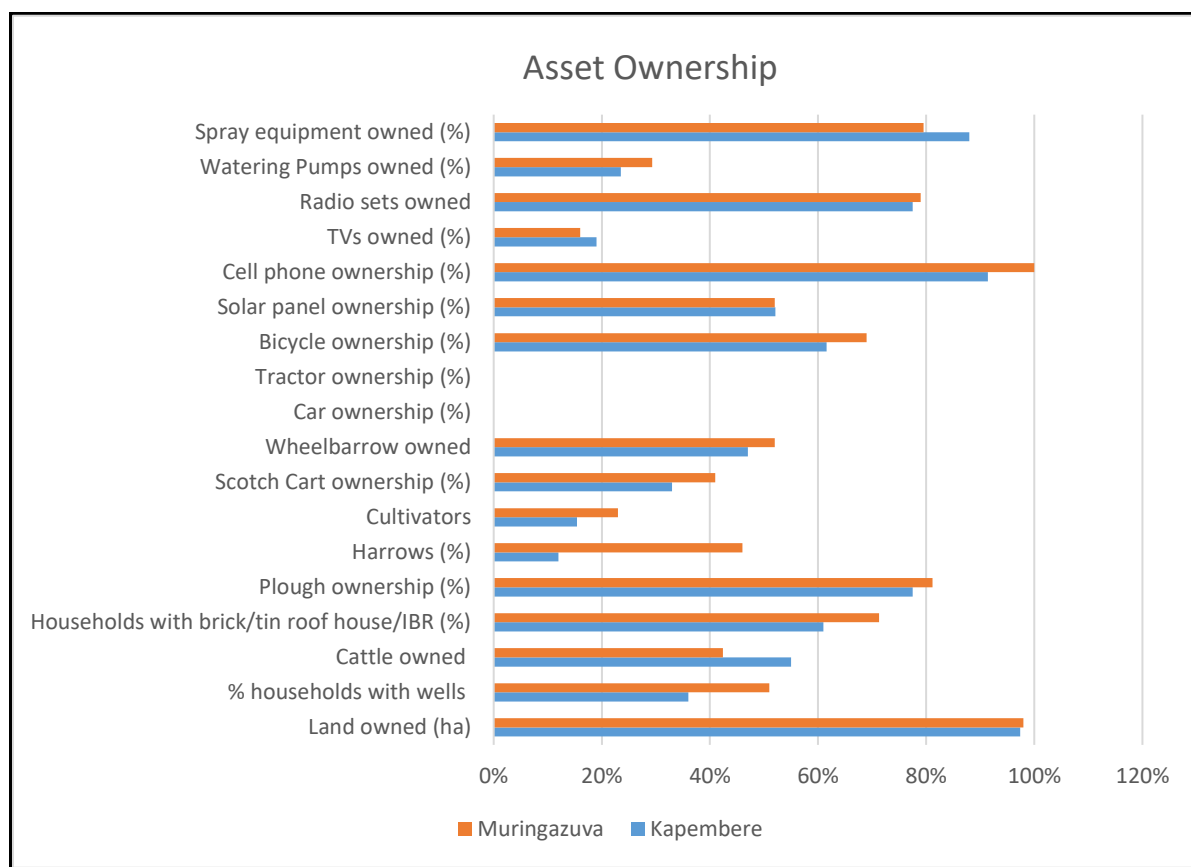


FIGURE 12: ASSET OWNERSHIP IN KAPEMBERE AND MURINGAZUVA (SOURCE: FIELD WORK 2022)

The vast majority of households (97.4%) in Kapembere and 98% in Muringazuva had access to land as a crucial resource, despite differences in size and quality. Only three (2.6%) of the sampled households in Kapembere and one household in Muringazuva did not have land for agriculture. There was no freehold land tenure in the two wards where land is communal and owned by the

government. Access and land entitlements were granted by the chief and the family. According to Nyoni (2016), traditional authority such as kraal heads, headmen, and chiefs were responsible for allocating land inside the communal areas. This distribution served as a safety net for those who had lost their jobs and for the population's natural expansion. In an interview with one of the village heads in Kapembere, it was revealed that foreigners could be granted land by the chief and get integrated into the community. Only business land at service centres was bought from the Rural District Council. Deep wells, cattle, poultry, ploughs, harrows, cultivators, scotch carts, wheelbarrows, bicycle, solar panel cell phone, televisions, radio sets, watering pumps and spray equipment were some of the assets found in the study area. All these were crucial assets for building a strong asset portfolio if put to good use together with a strong support in the form of infrastructure.



FIGURE 13: A RURAL FARMER WORKING ON THE FARM (SOURCE: FIELD WORK 2022)

4.3.4.2 Social capital

The results show that social capital was another important determinant of household food security in the two wards. Degefa (2005) highlights that social capital is crucial for survival during food scarcity. It is, therefore, crucial for any community to have strong access to social capital. This is because some rural livelihood activities demand a lot of labour and may be difficult for a single household to complete independently. In this study, the social capital of those families in the two wards was assessed by counting the number of social networks they had, ranging from the most basic network with family and friends to the farmers' cooperative. Basically, all households are

part of the broader community village where they take part in collective events and activities such as “*mushandira pamwe*” also known as “*nhimbe*”. These are community initiatives where some community members go out to a fellow community member’s household to help the harvest, plant or with some seasonal work. It was further revealed during focus group discussions that some of the social networks they belonged to included church groups, political groupings and village burial societies.

The results revealed that these forms of social networks are formed by a small number of households residing in close proximity to one another. Although social networks serve essential social and cultural functions, such as the sharing of resources, the maintenance of social cohesion and the exchange of information among members, they also play a significant role in the economy. According to findings from focus group discussions and interviews, Eighty percent of the sampled households were reported to be part of this small social network. There were discussions over cooperatives in the two wards. It was noted that some of the participants belonged to community-based livelihood groups that were formed through the support from a local Non-Governmental Organisation called Methodist Development and Relief Agency. These groups were income generating initiatives formed at community level to help these households raise their income and improve their dietary diversity. The results indicate that the level of participation in social groups and microfinance associations is rather low, with just 40% of families engaging in such groups or associations. The results reveal that households that had access to wider social networks were more food secure than households that had limited social networks. The results corroborate Chifamba (2019) who also discovered that social networks play a central role in household food security.

4.3.4.3 Access to finance /capital

Financial capital plays a crucial role in sustaining livelihood programmes. Kollmair and St. Gamper (2002) assert that financial capital encompasses various resources, including easily accessible stocks such as cash, bank deposits, and liquid assets like livestock and jewellery. Additionally, it comprises regular cash inflows from sources such as labour income, pensions, government transfers and remittances which provide individuals with the ability to select different means of subsistence. The primary source of financial capital for households in Muringazuva and Kapembere was derived from the sale of crops and cattle.

The study also found out that households in the two wards possessed a wide variety of financial assets which included savings, earnings, loans, and monetary value derived from the sale of household assets such as agricultural produce (including livestock and crops) and natural resources like wild fruit and firewood. In an interview with a representative from MRDC, it was noted that in many instances, these households tended to allocate their incomes towards non-liquid assets, such as cattle, grain and other forms of tangible wealth, as opposed to monetary savings. This allowed them to save their money rather than keep it as cash. Partly, this was also to the lack of confidence in the banking sector in Zimbabwe, where previously depositors had lost their money due to changes in economic policies and unfavourable politics.

Furthermore, enhanced accessibility to credit services had significant importance for rural households facing financial constraints, particularly in situations where they lacked income and sufficient funds to acquire agricultural supplies or participate in non-farm activities such as petty trade. Hence, the availability of credit from local rural financial institutions, such as microfinance institutions and savings and credit societies, played a crucial role in enhancing the likelihood of achieving food security among households. Data from FGDs highlighted that over ninety eight percent of the households did not have access to finance capital. The formal banks could not give the loans because communal lands were not accepted as collateral security. However, there were other available microfinance facilities at the growth point, which remain beyond the reach of most households. This was largely due to the high interest rates and the lack of flexibility in payments.

4.4 Livelihood Strategies in Kapembere and Muringazuva

4.4.1 Gender & Livelihoods in Muzarabani

Conversations around the gender division of the different roles played by women and men in livelihood activities revealed that in many cases, despite receiving very little external support, women engaged in more livelihood activities than men. While males dominated household decision-making, support for women's participation in non-agricultural livelihoods was found to be extremely limited. Participants expressed concerns about the low level of male support and participation in non-agricultural livelihoods. The study revealed that men prioritised tobacco farming and gold extraction, which had the potential to substantially increase household income.

The results indicate that the individuals' engagement in non-agricultural livelihood pursuits had been restricted to sporadic employment or assisting their parents in pre-existing businesses. One of the primary reasons frequently mentioned was the absence of essential skills and resources required to participate in lucrative livelihood activities, particularly during the agricultural season spanning from April to October. The survey additionally observed that among several households, children were considered as a source of labour for both agricultural and non-agricultural activities. Table 6 below shows the gender disaggregated livelihood activities.

Table 6: Gender Breakdown of livelihood Activities (Field study 2022)

Men	Women
Brick moulding	Casual labour
Fishing/poaching	Basket and mat weaving
Vegetable gardening	Beer brewing
Hunting	Poultry/small livestock rearing
Bee keeping	Vegetable gardening
Mining	Tailoring
	Peanut butter making
	Beer brewing
	Vending of agricultural produce
	Gathering of wild fruit

While gender gaps are a threat to effective agricultural production, these gender gaps can be solved in sustainable management approaches through promotion of women empowerment and gender equality. Chifamba (2019) posits that gender inequality and the subsequent barriers and gaps are diverse in every situation. Thus, any programmes, projects and strategies for sustainable agriculture need to be grounded in a gender context analysis that considers existing gaps, as well as prospects to solve them, particular to the situation. Building financial and human capital through training and education along with supporting access to credit and increasing connectivity through market centres and rural road networks would be critical for encouraging rural men and women to change out-dated subsistence activities to higher returning activities that result in the improvement of rural livelihood.

4.5 The Food Security Situation in Muzarabani

People's livelihood sources shape how they acquire food (Fashogbon and Oni, 2012). The findings of the study indicate that most of the households in Kapembere and Muringazuva wards access their food for household consumption through their own production, labour, trade and remittances. Figure 12 below shows the sources of food for the households in the two wards. From the sampled households in the two wards, the study findings show that in Kapembere, own production accounts for 58% of the food they consume, which is mainly grains, while in Muringazuva, they produce 60% of the food they eat. The other source of food listed is through casual labour where they work in the nearby farms which accounts for 15% in Kapembere and 15% in Muringazuva. Still on that, the study found out that households in Kapembere access some of their food through trading with other households in the district and outside, and this accounted for 12% of their food while in Muringazuva trading accounted for 9 %.

Remittances and donations were also listed as other sources of food. These mainly come from family members who are in other districts and towns, including donations from churches and the government. In Muringazuva, remittances accounted for 7% of their food which in Kapembere it was 5%. In Kapembere ward, the sampled households indicated that from the food they consumed in their households, 10% of it was purchased, while in Muringazuva it was indicated that only 9% of the food consumed by the households was purchased from existing traders. This data from the field raises a lot of questions regarding to the ability of the participants to generate their own food and ensure household food security. If households cannot generate enough food on their own, their

income level and the availability of food on the market determine their access to food.. However, rain-fed agriculture-based households were found to be market-dependent because their annual production could not support their year-round consumption. These findings further bring out the vulnerable food security status of the households because in most parts of the year, they were food insecure. Participants revealed that they were food secure during the rainy season when their dietary diversity was increased due to availability of green mealies, vegetables and other seasonal crops.

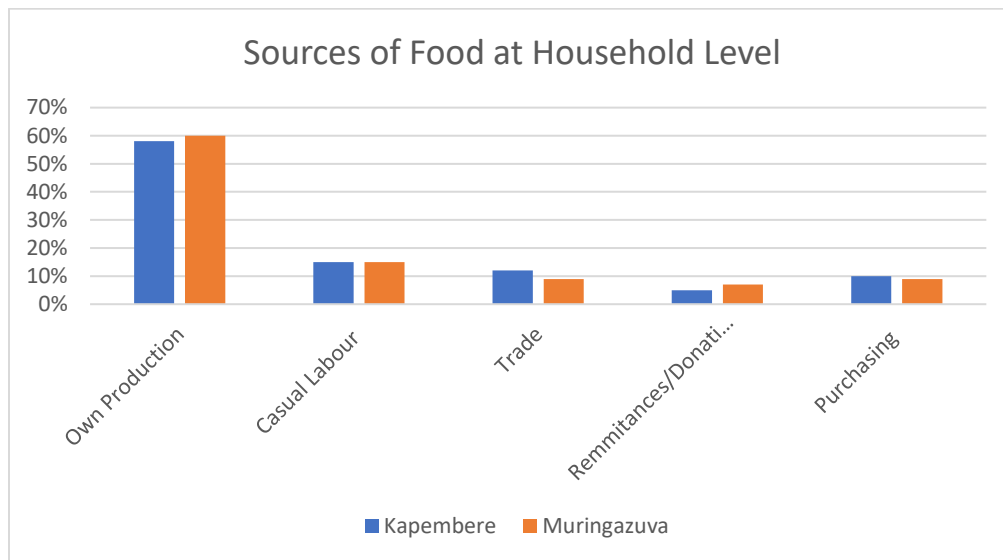


FIGURE16: IDENTIFIED SOURCES OF FOOD AT HOUSEHOLD LEVEL (SOURCE: FIELD WORK 2022)

According to the WFP Muzarabani District Profile (2022), about 88.4% of the population live below the poverty line. The poverty prevalence is much higher than the national rural average of 76% (WFP, 2022). The report further highlighted that crop production is the main livelihood source and as crop productivity is decreasing over the years, poverty levels have been increasing. The participants of the study in the two wards were requested to report their home food security status, which was assessed by quantifying the frequency of meals consumed each day within the farming community. The findings revealed that 53.3% of the participants in Muringazuva and 50.1% in Kapembere reported having access to food on a minimum of three meals per day. Conversely, 40% of the respondents in Kapembere and 33 % in Muringazuva indicated that they consume only one meal per day. This disparity may be attributed to the low economic status of the household or the large size of the family. It is worth noting that a significant proportion of the

households sampled consist of more than 7 individuals. The findings suggest that most rural households in the study area had convenient access to food for almost 4 months of the year averagely, especially when they receive normal rainfall, the types of foods they reported as constituting a balanced diet lacked sufficient nutritional content. The food includes white, refined maize meal and moving away from small grains and whole grain maize meal, soya mince, and canned products (fish) imported from Mozambique and other brands that come from Harare.

However, 75% of participants in Focus Group Discussions (FGDs) from both wards argued that rice imported from Mozambique contained traces of plastic which is likely to be harmful. The data provided by the respondents demonstrates that the fulfilment of all four pillars of food security is not evident. Similarly, there was consensus among other households that they were unable to financially afford the purchase of high-quality and safe food products. This was reiterated by participant 4, a widow who looked after a family of her seven orphaned grandchildren. She highlighted that:

The challenge we have is food and other basic commodities are expensive. We struggle with food throughout most parts of the year. The price of good and highly nutritious food is high. In the end I end up buying what I can afford, also considering the quantities so that we can push for some days. Some years ago we were taught about nutritional value of foods, and why it is important to consider that when we buy food for our own consumption. However, the truth is that when I go to the shop to buy, I will always buy cheaper food which can last for more days (P42022).

The findings of the study are in line with a study by Nyamwanza (2012) on rural livelihoods which suggested that the frequency and intensity of various shocks, including those of human, physical, social, economic, natural, ecological, and political nature, pose significant threats to livelihoods of poor and vulnerable households in the study area. Furthermore, Ziervogel and Calder (2003) assert that climate unpredictability is a significant and widespread challenge for rural households and communities. Inconsistent rainfall, droughts, loss of biodiversity, lack of markets, poor rural infrastructure, lack of labour, lack of access to financing options, and lack of technical extension support were identified as the primary factors that had direct impact on agricultural production, health, livelihoods, assets and infrastructure. This further exposed poor households to the threats of food deficit in the two respective wards. Drought has a negative impact on crop and livestock production, which is essential for ensuring food and livelihood security. It is therefore critical for these households in Kapembere and Muringazuva wards to develop resilience against all of these

possible shocks and threats to food security. On the same note, KII1 a Programme manager, with a local NGO indicated in an interview that:

Sometimes these households over-invest in these livelihood activities with the hope of returning their investment. However, this is not the case since there are a lot of compounding factors to the success of an Income Generating Activity. Sometimes there are market fluctuations, especially with the flooding of produce from Mozambique and South Africa (KII1 2022).

The results revealed that the rural farming households in Muzarabani continued to struggle with the threat of food insecurity due to a myriad of factors that hindered agricultural production. This is in line with a study by Connolly-Boutin and Smit, (2016) which suggests that the ability of rural households to act and manage food security risks is frequently hindered by poverty, reliance on ineffective institutions, and limited coping strategies. Of course, a number of variables that are directly tied to the demographic and socioeconomic aspects of a household and more general problems outside the control of the household affect a household's access to food. This further prevents researchers from having a single method that can adequately capture the multidimensional nature of the problem when studying the concept of food security at household level. Consequently, in this study, effort was made to profile the rural farm households' level of food security using different variables such as Self-report and the Coping Strategy Index . One of the consequences entails the occurrence of food insecurity subsequent to the occurrence of extensive crop failure.

4.6 Chapter summary

The chapter profiled the district, starting with the broad geographical location, the climatic conditions as well as the demographic characteristics. After the broader Muzarabani profile, the chapter then narrowed down to the case study, which is Kapembere and Muringazuva. The profile illuminated factors that affects livelihoods such the state of infrastructure, climate, communication, assets and entitlements. A vivid picture of Muzarabani and the two wards used as a case study is important to understand the livelihood strategies employed by the communities to address food insecurity. The chapter has established the rurality of Muzarabani, setting the context of analysis of the livelihoods' pathways in chapter five. The chapter also gave a glimpse of the various livelihood strategies which the farm households in Kapembere and Muringazuva wards engaged in. In addition, the chapter delved into the food security situation of the district, highlighting the key trends and the various sources of food for the Muzarabani farm households. This knowledge

on the sources of food for consumption is critical in understanding the dynamics surrounding household food security in the study area.

Chapter Five: Households On-Farm and Non-Farm Livelihood Strategies

5.1 Introduction

To achieve household food security, it is necessary to actively engage in a variety of livelihood activities. This chapter examines the various livelihood strategies the smallholder farmers in Muzarabani district engage to reduce the risk of household food insecurity. In addition, the factors that determine the rural small holder farmers' livelihood decisions are also examined in this chapter. Understanding these determinant factors allows the researcher to fully comprehend the link between livelihood choices and food security as well as household vulnerability. Furthermore, the chapter focuses on the households' farm based as well as non-farm-based livelihood strategies in Muzarabani. It examines the patterns of these livelihood strategies, in terms of access to various productive assets, the degree of livelihood diversity and the viability of these activities and strategies. In order to fully comprehend the impact of the livelihood strategies, the chapter lays out the livelihood profile of the households under study. The chapter further brings out various emerging themes that help to fully grasp the livelihood profile of the rural farm households in Kapembere and Muringazuva wards.

5.2 Livelihood Strategies

Livelihood strategies refer to the various endeavours undertaken by households to establish a varied range of activities and social support mechanisms in order to ensure their survival and enhance their overall quality of life (Habib et al., 2023). Rural households employ a range of livelihood strategies in order to enhance their food security status and overall well-being. In addition, it is worth noting that the selection of these strategies is contingent upon the resource endowment of the households and the local institutions; including favourable policies that facilitate the employability of such activities (Fikre 2020; Mushore 2021). Rural households engage in off-farm and non-farm activities to mitigate the various risks and uncertainties linked to agriculture, including soil quality variations, pest infestations, price fluctuations, erratic rainfall, floods, erosion and weather-related incidents (Kassegn & Abdinasir, 2023).

5.2.1 On-Farm Livelihood Strategies of Kapembere and Muringazuva wards

The interviews with Key Informant interviewee 4 who works with the Social Welfare office of Muzarabani Rural District Council revealed that the operating environment; including the policies, are critical for the success of the various livelihood activities that farmers are involved in. Similar to other rural areas in Zimbabwe, the majority of households examined in Kapembere and Muringazuva rely significantly on a combination of agricultural crop production and livestock rearing as their primary means of subsistence. The findings of the study are clear on the role of agriculture as the major livelihood activity in the study area. However, considering issues around low productivity, prevailing climatic conditions, exorbitant prices of inputs and fluctuations in prices of agricultural products, a lot of questions were raised on whether agriculture still remains a viable livelihood activity due to the risks and vulnerabilities associated with agricultural practices which will be discussed below.

5.2.2 Crop Production

The findings revealed that most households in both Maringazuva and Kapembere relied on agriculture based livelihoods. Chitongo (2019) posits that agriculture-based livelihood strategies include the many agricultural activities and decisions undertaken by families to support themselves and enhance the economic capital of the household. The households in the two wards were asked to determine their involvement in agricultural activities. The findings indicate that all farmers in the area are engaged in some kind of agricultural activity, as described in the section below. According to the findings of the study, 89% of respondents from Kapembere and 91% of respondents from Muringazuva wards had a clear understanding of farming as a vital livelihood option to increase food security. When discussing crop production with the participants, the results pointed to the fact that most of the farming activities relied on natural precipitation for their rainfall. However, results from the study indicate that over reliance on rain fed agriculture made the farm households more vulnerable to food insecurity because of low rainfall. In addition, findings of the study show that 6% of sampled households in Muringazuva and 10 % in Kapembere view other livelihoods other than farming as more critical for their food security and well-being. The main crops grown in the two wards included maize, sorghum, cotton, pearl millet, as well as cash crops such as sesame seed, ground nuts, and round nuts. The farmers who participated in focus group discussions provided diverse justifications for cultivating certain crops. They

recognised the need of managing both household's food requirements and the imperative to earn revenue. Food crops were prioritised to meet family requirements, but the significance of cultivating cash crops to generate revenue for purchasing agricultural supplies, food items, and covering household costs like children's school tuition was also acknowledged.

Findings also show that 3% sampled households in Muringazuva and only 1% of households in Kapembere do not rely on either agriculture-based livelihoods or non-agriculture-based livelihoods for the provision of food and income. These are mainly households comprising of elderly individuals who rely on cash handouts and remittances as sources of food and livelihood. Given the large number of households from the two wards that highlighted the significance of crop production as a means of enhancing food security, it is important to continuously promote investment in smallholder agriculture and crop production. This corroborates with Rubhara et al., (2020) who highlighted in a study on cash crop production and smallholder farmers that smallholder farmers play a critical role in sustainable food and nutrition security of the country through the production of nutritious food. Figure 17 below highlights general knowledge on the role of agriculture in raising income and improving food security amongst households in the two wards.

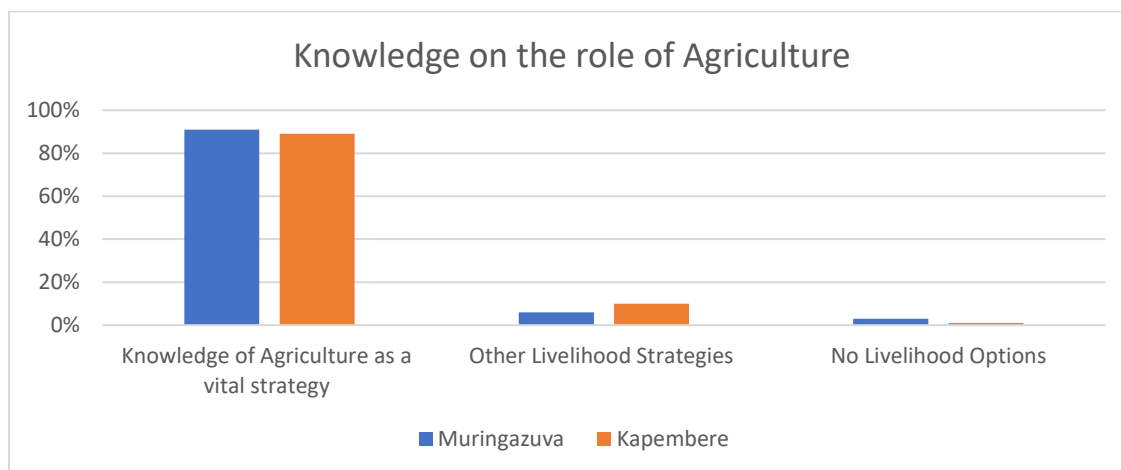


FIGURE 14: KNOWLEDGE ON THE ROLE OF AGRICULTURE (SOURCE: FIELD WORK 2022)

In terms of gender, a combined total of 27 men and 21 women confirmed that farming was their primary source of reliance and livelihood in Kapembere and while 28 Men and 29 women in Muringazuva ward also asserted the issue. A total of 48 respondents composed of both males and

females from Muringazuva and 44 respondents from Kapembere ward stated that they have access to food because of agricultural-related activities.

In terms of household composition, the study found out that households with more than five adult members preferred to expand the cultivated area for cash crops and cereal grains because of the surplus labour available. This forms part of the extensification process. The extensification of agriculture is also taking place at a time when rain-fed crop cultivation is affected by climate change and increase in inputs prices. Thus, extensification of the farming systems is also exposing households to the risk of food insecurity. Furthermore, it is important to highlight that the results show that households with more family members encountered food deficit often than families with fewer family members. This was quite common in both wards, where results from household visits showed that the bigger the family, the higher the risk of food scarcity, especially during the lean season. In terms of the magnitude of extensification, only 19% of households in Kapembere were involved while in Muringazuva it accounted for 22%. When asked about the extensification process and the increase in acreage, findings from the study indicate that amongst the households practicing extensification, there was an average increase of land use which ranged between 0.5 hectares to 2 hectares. One participant further highlighted that there was limited arable land and this affected agricultural extensification. In addition, the findings showed that in terms of crops grown under extensification, Sesame was gaining traction and interest in the study area, followed by sorghum and then maize. However, FGDs and interviews with Participants 5, 6 and 7 who are farmers indicated that the motivation behind agricultural extensification was market rather than production driven. Such a phenomenon further exposes the households to food deficits throughout the year.

Furthermore, during an interview, one respondent highlighted that labour is a critical component of crop production. However, given that crop production has been going down, large families always struggle to have food on the table every day. However, in the two wards, responses from the interviews and FGDs indicate that there are fewer households that are practicing extensification in the two wards (Only 9 Households in Kapembere and 7 Households in Muringazuva). This is attributed to the droughts and low rainfall often received in the district. This was reiterated by Participant 5 who highlighted that:

Some years back because of our numbers in our family, we used to cultivate big pieces of land, we would even ask our neighbours for their land. We thrived a lot because we would produce more. However, this is no longer the case because we no longer receive enough rains. Secondly, the inputs are expensive, we receive support from other external people here and there, but it is not consistent. This makes farming generally expensive for us. So, we end up using seed from the previous harvest. In most cases, we do not use fertilizers because of the prizes, we end up using cattle manure (Participant 5 2022).

The findings above give a clear picture of the reality for most farmers in Kapembere and Muringazuva wards. Their agricultural output has been decreasing due to a number of factors. These include climate change which is causing droughts and flooding. Seasons have shifted tremendously. Previously, the two wards used to receive early rainfall in September but due to the shifts in seasons, the two wards receive early rains in November. This has shortened the farming season with negative implications on yields. All these contribute to vulnerability of the households to food insecurity and other shocks and stressors. These findings are similar to the findings by Mavhura et al., (2017) on the vulnerabilities that the rural communities of Muzarabani face which condemn them to persistent food insecurity. In addition, the results showed an increase in population in the two wards which has resulted in the reduction of the farming hectares. During an interview with KII 3, it was highlighted that farmers reduced the agricultural land from 5 hectares to 2 hectares on average in the two wards. The reduction in the size of cultivated areas has negative effects on agricultural output. Despite the reported production of many different crops in the two wards, their sustainability is constrained by the fact that their farming is rain-fed, which is negatively impacted by climatic variability and change. This is similar to the findings of a study by Svubure et al. (2016) who highlighted that rain fed agriculture is not sustainable, given the effects of climate change. These findings corroborate Kunzekweguta et al., (2016) who highlighted that in a good season, the amount of rainfall available is only sufficient to meet the food requirements of households from one season to another, thereby rendering households vulnerable if they receive low rainfall.

5.2.2.1 Cotton Production

The results from the two wards revealed that farmers grow cotton as the only high value crop in the two wards. Results indicate that 9 % of households in Muringazuva grow cotton while Kapembere has 13.4% of households growing the same crop. In addition, the findings show that

those farmers who are still growing cotton received inputs from the Government of Zimbabwe and other private actors including Cotton Company of Zimbabwe (COTTCO), Alliance Cotton, Southern Cotton and Zimbabwe Cotton Consortium. However, the study shows that the total number of farmers who received inputs were very few. One of the respondents highlighted that the majority of households shy away from the contract farming model which they associate with huge debts which emanate from the inputs one would have received. In addition, FGDs in both wards indicated that most households used to produce cotton as a means of generating income to sustain their families. However, cotton production is no longer the primary source of income for the majority of households primarily due to the crop's declining market price. Participants also raised the issue of competing incentives for the income raised once a year from the sale of cotton. In terms of output, one participant highlighted that in the two wards, cotton production average 0.2 tonnes per hectare, which translates to almost 1 tonne or 4-5 bales per farming household.

Participants of FGDs from the two wards highlighted that they have witnessed the decline in the cultivation of cotton over the past few years. The reasons stated for the decrease in cotton production were many. The respondents highlighted that in addition to the low prices, cotton cultivation was labour-intensive and challenging to grow due to the decrease in rainfall in the district. In addition, results from the study also showed that some of the recipients of the cotton seed consumed the seeds as food during the lean season. When asked about the reason for consuming cotton seed, participant 8 highlighted extreme hunger in the household and the seed was the closest they had to food. However, she mentioned that farmers who consumed the seed feared that the government would want them to return the seed which they ate. In addition, Nyambara (2019) and Nyandoro (2022) talk about the profitability of cotton farming in Zimbabwe, where they bring in a central question around factors that have affected cotton production. They emphasise the risks around the contract farming as well as the low prices which are unattractive to the farmers. In an interview with Participant 9, a lead farmer who still grew cotton highlighted that:

We still stick to contract cotton farming due to lack of access to other income generating livelihood strategies. However, the crop is prone to pest and diseases, we are told this is related to the changing climate in the area. This has further affected the grade of cotton crop, as it requires considerable amount of rainfall for a better yield (Participant 9,).

Furthermore, the findings indicate that the private sector has supported the sustainability of smallholder cotton cultivation in Muzarabani via contract production programmes, which have increased the availability and consumption of external inputs. However, one dominant issue that came out was the issue of side-marketing, which occurs when contracted producers fail to fulfil their contractual commitments and sell the contracted harvest to a non-contracted customer. This has become a significant danger to the growth of contract farming in the study areas. KII 3 highlighted that side marketing has been a common issue amongst the households producing cotton. Side-marketing became lucrative because side-buyers paid for the crop in cash, and they did not have many requirements, such as the grower number which legitimised the sale of the crop under the mainline system.

5.2.2.2 Maize production

The vast majority of households (100 percent in Muringazuva and 96.8% in Kapembere) grow maize. However, due to decreased production of maize which is attributed to adverse weather conditions and climate change, they only plant maize in order to get the green cobs and not for maize meal. According to Rubhara (2020), there has been a considerable decrease of maize production by 46% nationwide in the 2016/2017 season. Furthermore, there has been a significant decrease in the area under maize production (ZimVAC, 2023). The food insecurity situation in Zimbabwe is influenced by several variables, including drought, marketing policies, rural poverty and lack of inputs. KII 3, an AGRITEX extension officer highlighted that:

The decrease in maize production is a result of a number of factors, namely low output prices for maize compared to cash crops, such as tobacco. Furthermore, the Grain Marketing Board provided late payments to maize farmers, and this could have contributed to a decrease in total maize production, as farmers opted for cash crops where they receive timely payments. This is why some farmers in Muringazuva and Kapembere have been growing some cotton and sesame. (Agritex Extension Officer, 2022)

In addition, he mentioned that, since the year 2015 only a considerably smaller area of land was used to grow short season variants of maize in both Kapembere and Muringazuva wards. The interviews showed that the average output for maize ranges between 0.5 to 1 tonne per season. In the best season, those better-off households attain a tonne of maize. The extension officer highlighted that:

Most households fail to get 10 bags of maize. This is mainly attributed to inconsistent rainfalls, droughts and lack of access to farming inputs such as fertilizers and adequate seed. The decision to transition from maize cultivation to small grain production is supported by several scientific justifications. Sorghum and millet are considered to possess more ecological compatibility with semi-arid regions in comparison to maize due to their enhanced capacity to withstand drought conditions (KII 32022)

Furthermore, one of the key issues that emanated from the interviews with regards to maize production in the two wards was the high cost associated with its production. This was reiterated by the extension worker who highlighted that for most household, getting the right seed varieties is a far-fetched thing. There are short season seed varieties that are suitable for semi arid areas like lower Muzarabani. However, findings showed that the majority of the farmers did not prioritise getting the right seed because of prices. It was highlighted by a number of respondents from the two wards that maize is generally expensive to produce, given that one needs to purchase seed and fertilizers as well as insecticides because they are also affected by army worms.

5.2.2.3 Small Grains (Sorghum, Pearl millet, Sessame)

Data from the open-ended questionnaires indicated that Sorghum is grown in 53.5% of Muringazuva households and 40.9% of Kapembere households. Most respondents except P3, P4, P6 and P1 from the household visits claimed that they grow sorghum and pearl millet because they are drought-resistant and easy to store. In addition, respondents indicated that they witnessed an increase in the influx of people coming from other places such as Harare coming to buy the sorghum and millet. This was reiterated by one respondent P 11 who highlighted that the market of sorghum and even pearl millet had improved in the last couple of years. However, participants P6, P7, and P23 further noted that low yields of small grains acted as a major obstacle and challenge for smallholder farmers in the two wards. The results further indicated that it was a challenge to increase the production of small grains on a large scale when compared to maize. This lower productivity has a detrimental effect on the uptake of small grains among communal farmers in the semi-arid regions (Food and Agriculture Organization (FAO), 2022). Chifamba (2021) argues that small grains suffer from a significant obstacle of poor yields per hectare in comparison to maize, leading most farmers to choose maize cultivation regardless of their geographical

location. Participants further highlighted that red-billed quail birds posed a threat to small grain harvest.

The increase in the uptake of small grains has been witnessed due to the massive campaigns by the Ministry of Agriculture, together with other stakeholders. Communities that have successfully embraced cultivation of small grains showed significantly improve in household food security statuses. It was further reported that since 2019, Delta Corporation made requests to farmers to cultivate red finger millet, which was subsequently utilised in the production of traditional beer known as *Chibuku* in vernacular. The farmers residing in the two wards similarly aligned their agricultural practices with the prevailing trends and started growing finger millet. Focus group discussion further highlighted that during the 2017/2018 season, Delta was unable to successfully procure crops from all farmers, resulting in a significant surplus of agricultural produce for some of them.

A significant number of households from the two wards (54% Kapembere and 66% Muringazuva) have migrated to the growing of white sorghum since it offers a higher level of cash income from companies such as Delta Cooperation. According to respondents from KIIs and FGDs, from the two wards, a number of households were therefore prioritising growing sesame and sorghum since these had a higher market value. One participant indicated that lack of viable livelihood diversification choices contributed to the migration from maize cultivation into small grain production. However, due to the underdevelopment of local markets for small grains, the rural farmers in Muzarabani have limited opportunities to sell surplus crops, reducing potential income that could be used to purchase a variety of foods or invest in their other livelihoods. Figure 17 below shows piles of finger millet which remained after Delta Corporation failed to purchase the crop from the farmers.



FIGURE 15: PILES OF WHITE FINGER MILLET (SOURCE: FIELD WORK 2022)

Furthermore, the results indicate that sesame seed production has taken the place of cotton farming. From the study sample 52% of households in Kapembere and 59% in Muringazuva were involved in production of Sessame. The farmers from the two wards highlighted that they preferred growing sesame because it had a better market. in Mozambique. When asked about pricing, those who grew sesame in the two wards indicated that they sold the crop at USD 1-1.50 per kilogramme. However, Participants P23, P26, P27 and P28 who were part of the farmers who grow sesame highlighted that it had a restricted market. They relied on the companies that gave them seed and Mozambique based markets. P24 highlighted during an interview that they did not have bargaining power when selling sesame because if the available market did not buy it they did not know where else to sell it. The results revealed that Sesame seed (known in Shona as *Runinga*) has emerged as a prevalent cash crop cultivated by a significant proportion of households. The study showed that the Sesame growing scheme started in Kapembere, which is why there were more sesame growers when compared to Muringazuva ward. The declining price of cotton has prompted individuals to conduct a comprehensive cost-benefit analysis, leading them to conclude that cultivating chitove (*Runinga*) was a more prudent choice. However, the productivity of sesame in the year 2016 was once again adversely affected by drought conditions.

5.2.2.4 Groundnuts and round nuts

Other crops grown in the two wards include groundnuts and round nuts which are typically referred to as “female crops” because they were traditionally reserved for women. These crops were mainly consumed in the household. The study found out that 71% of households in Kapembere and almost 80% in Muringazuva grow groundnuts and round nuts. Key informant interviewee I6, highlighted that because of the weak marketing arrangements for groundnuts and round nuts, not all the produce is marketed formally. The participant further highlighted that less than 10% of the two crops end up at the Grain Marketing Board. This is because of the low prices and the inefficiency of the government parastatal in paying the farmers on time. The respondents who grow groundnuts and round nuts indicated that they sell at the black market, mainly to people who come from places out of Muzarabani. In addition, the results show that over 60% of groundnuts and round nuts produced in the two wards were consumed by producers themselves (mainly as green, roasted and in the form of peanut butter –in the case of ground nuts). The farmers indicated that they used returned seed that did not require intensive management practices. In terms of prioritisation, the study found out that the farmers did not prioritise growing ground nuts and round nuts which they normally grew alongside maize. In addition, during an interview, P31 highlighted that growing ground nuts invited rodents and mice which came in their numbers to feed on the crop. This also affected the maize crop in the fields, causing massive damage to the crop. In addition, the planting and preparation processes of round nuts and ground nuts through cultivation, furrowing, and the winnowing processes were considered to be labour intensive. Furthermore, respondents from interviews and FGD revealed that this took away labour from the growing of other crops such as maize, which is the main staple crop in Zimbabwe. The study found out that such a scenario left the household more vulnerable to food insecurity because of inadequate production of own maize. Much of their access to the staple would then depend on purchase which was highly affected by price fluctuations.

5.2.3 Types of Farming

5.2.3.1 Mixed Farming

In terms of agricultural practices, the results of the study show that the households in the study area practise mixed farming. This is actually the dominant practice in both wards. Several factors were highlighted as the primary reasons for the adoption of mixed crop-livestock as the main

livelihood strategy for rural families in the research. During focus group discussions and households' visits, respondents highlighted that the two activities are interdependent. Livestock contributes to crop production in various ways. The operations of most agricultural activities such as ploughing and threshing require draft power. This is needed for ploughing and transportation of crops from the fields to home; and from home to the market. Donkeys and oxen are mainly used as draftpower. Furthermore, animal products such as milk and its by-products play a significant role as components in the dietary habits of the study group, often taken in conjunction with cereal-based dishes. Respondents P8, P9, P11, and P12 highlighted that they enjoyed fresh milk and sour milk from their cattle. However, this is only relative to those who actually own cattle. The availability of these animal products offered numerous pathways which enhanced food and nutrition security of households in the study areas.

In addition, animal products play a vital role in crop production by providing organic nutrients via their manure. These nutrients contributed to the maintenance of soil fertility, particularly in garden plots. Farmers used cow dung to fertilise their fields prior to ploughing the ground for crop cultivation. In the same way, crop production also contributes to livestock production. When the crops were harvested, livestock were released to feed on the crop residue left on the fields. Thus, crop production and livestock rearing strategies were considered as the primary livelihood pathways in the study areas. Access to crop and livestock were also considered as important indicators of social status. However, there is a trade-off between the production of crop and keeping of livestock as they competed for available land resource. Lack of adequate grazing lands was one of the identified challenges threatening the viability of farming activities. The findings show that some areas which could be converted into farming lands were reserved for pastures. The shrinking in hectrage had trade-off effects on yields, forced farmers to use more inputs, and in some cases it resulted in soil abandonment. All these challenges had negative ramifications on household food security.

5.2.3.2 Gardening

Gardening was one of the most prominent livelihood options pursued by women residing in the lower Muzarabani region. The results show that farmers were starting redirecting their focus towards growing crops on rivers and stream banks due to limited access to water. The stream banks were highly fertility and capable of retaining moisture, thus, enabling crop cultivation to be

sustained throughout the year in certain instances. This has led approximately 76% of households in Kapembere and 81% in Muringazuva to start engaging in this type of farming which is commonly referred to as "*Mudzetse* farming," (translated as farming amongst the frogs) or "*Matimba*" (digging) basically similar to stream bank cultivation. Participants concurred that stream bank cultivation has immediate and long-term effects. Stream bank cultivation is likely to results in soil erosion which in turn is further likely to causes siltation of water bodies downstream. Also, farm chemicals such as fertilisers, pesticides and herbicides were being washed into water bodies, thus, polluting the water. In the long run, this practice is likely going to worsen water challenges in the two wards.

Participants also practiced gardening, where they grew vegetables. These gardens were not very big, normally stretching for 0.5-1 hectares per household. This meant that in most cases output per hectare was insufficient for household dietary consumption and for selling. One of the participants highlighted that:

We normally grow green mealies, tomatoes, peas and vegetables such as cabbage, covo, rape, *tsunga* and spinach. We sell most of our produce at the growth point, or we also sell to people who come to the gardens to buy. We eat some of our produce, which makes things better at home, because when we have mealies, or vegetables, we are able to cook for the children. However, the challenge is the portions are smaller and also the river is now drying faster than it used to do. We think this is caused by increase in these gardens as well as some mining activities just down the river there (P21, 2022).

Furthermore, the respondents from the two wardshighlighted that they sometimes received seed, fertilizers and pesticides from government and NGOs as part of gardening and agricultural programmes after a flood, and these crops were cultivated along the flood plain, giving them larger yields than the typical crop output. The *Mudzetse* farming system witnessed significant disruptions as a result of recurrent droughts and intense flooding events. In addition, it was also noted that floods contributed to severe erosion and land degradation in various locations across the two wards. Kapembere was heavily affected by gullies due to severe flooding. In addition, it was noted that severe droughts led to scarcity of moisture, resulting in reduced water availability for sustaining plant life within these gardens.

Looking at the operational side of the gardening activities, the study findings show that farming and gardening are generally labour intensive and are mainly supported by labour from family members. The greater number of people in a household, the more agriculture output they produce. Given that rural households rely on human capital as the labour force for a variety of tasks, it is regarded as an essential productive resource when studying rural livelihoods. These findings corroborate with Odero (2014), who posits that it is actually a crucial and critical component because people are both the subject and the object of development.

In addition, the findings of the study indicate that most households spend more time in their gardens; even during the rainy season where they are supposed to be focusing on growing cereals. During focus group discussions, one of the respondents highlighted that much of the produce from the gardens were sold, although they consumed some of their produce. The results show that gardening directly enhanced household food security through providing access to a wide range of nutritionally-rich foods, increased purchasing power from savings on food bills and income from sales of garden products, and fall-back food provision during seasonal lean periods. However, given the time spent in the gardens, which is basically all year round, the study, found out that households that are involved in gardens actually have reduced acreage of other crops such as maize. This in turn meant that in most cases, they would rely on purchasing maize. Given the price fluctuations and the lack of availability of maize during some months of the year, these households end up vulnerable to food availability, stability and economic access.

5.2.3.3 Livestock Production

Livestock production is another on-farm livelihood activity which households in Kapembere and Muringazuva engage in. Despite the lack of adequate land for animal grazing, the households from the two wards engaged in livestock rearing. They combined small livestock and cattle. Their livestock portfolio included cattle, sheep, goats, chickens, guinea fowls, donkeys and free-range swine. When asked about these types of livestock and why most of the households keep them, one of the participants revealed that:

These are rather low maintenance animals; they do not require much attention. The breeds we keep are accustomed to the harsh climatic conditions. These animals are resistant to most diseases. However, high livestock mortalities are recorded at intervals; especially in poultry. Several households have lost a number of their

chickens to bird flu, newcastle, mycoplasma and fowl pox amongst others (Interview, P7).

The importance of livestock amongst the rural farmers of Muzarabani cannot be over emphasized. This is similar to the findings of a study by Fereja (2016), who posits that other than crop cultivation in most of the rural communities, livestock is the only asset owned by the poor, although it is highly susceptible to climate variability extremes. In Muzarabani area, the effect of climate change has heightened the susceptibility of livestock to diseases, reinforcing the existing factors that are affecting livestock production systems. Livestock is a significant agricultural practice in most rural communities like Muzarabani and is often regarded as a crucial resource for rural livelihoods and food security (Assan, 2014). When asked about the significance of livestock and their contribution to household food security, the farmers gave similar responses

The respondents from focus group discussions showed that livestock is a form of savings to rely on in times of drought or during emergencies. In addition, it was highlighted that livestock also has multiple purposes for food security. Firstly, the farmers use their cattle as source of draught power and as a mode of transportation. Participants highlighted that livestock provides food products such as meat, egg and milk. These products have played a critical role in improving household food and nutritional statuses. In addition, the farmers in the study area use livestock manure to enrich their soils.

The results also showed that the average ownership of livestock per household in the two wards is lower when compared to other districts. From the study sample, the average ownership of cattle in Kapembere ranges between 3 cows, 5 goats and free-range poultry, while in Muringazuva the average ownership is slightly higher, ranging between 5 cows, 7 goats and free range poultry. Comparing livestock ownership with other surrounding wards shows that the two wards had fewer livestock. During FGDs, most farmers indicated that the main markets for livestock were the informal markets. The buyers include local butcheries, individual private buyers and other farmers within the ward and district. However, there were instances where farmers come from other areas such as Bindura, Harare, Mvurwi and Centenary. However, this was affected in the past five years due to high inflation and the passing of a legislation by the District Livestock Unit that prohibits the movement of livestock from the district. The results show that like other farming practices, livestock production is also highly susceptible to harsh climatic conditions and diseases. During interviews, farmers farmers such as P4, P7, P12,P19,P22,P16 and P20 noted that there was spread

of anthrax between 2015-2017. The disease resulted in the death of cattle in the two wards. This affected draught power and ultimately household food supply and production. In addition, findings from the study revealed that farmers rarely slaughtered their cattle for the supply of meat. Cattle were only slaughtered when there were compelling reasons such as sickness. Thus, it is within this context that this study concludes that apart from the provision of draught power, livestock are rarely slaughtered for meat.



F 16: A GOAT FARMER (SOURCE: FIELD WORK 2022)

During the FGDs and the interviews in both wards, it was commonly put forward by all respondents that livestock is a key indicator of wealth amongst the households. Despite the threat of diseases, every household still dreams of owning livestock. This is because livestock provides financial cushioning during tough times where they can be liquidated. One of the respondents from Kapembere ward illustrated that livestock ownership was part of a cultural practice. The possession of livestock was positively associated with the probability of a household achieving food security. Participants highlighted that livestock contributed to their welfare in many ways. Livestock products were consumed, utilized, or sold for income. If consumed, livestock

products facilitated improved food security and nutrition. Income from livestock sales were used for consumption, thereby, indirectly contributing to food security and nutrition. In the absence of developed financial markets, livestock also provided a savings mechanism, potentially enhancing household resilience. Participants concurred that livestock ownership was particularly important for rural women. According to the World Food Programme (WFP), (2017) the provision of productive assets such as livestock, along with additional support for consumption, training in life skills, savings, and health education, can result in substantial and enduring enhancements in consumption levels, income generation, and opportunities for individuals living in extreme poverty.

The presence of livestock has a significant impact on crop output in different ways. The findings of the study indicate that livestock plays a crucial role in various agricultural endeavours, including the utilisation of draught power for ploughing and threshing, as well as the transportation of crops from the field to the household and subsequently to the market. Livestock products such as milk and its by-products, play a significant role as essential components in the dietary practices of the studied group, often taken in conjunction with cereal-based food items. Given the scarcity of crop-based food during the lean season; the enhanced output of animal products, particularly milk due to improved pasture conditions as well as the integration of crop cultivation are crucial for ensuring sustainable food access for households

However, the findings of the study show that most households produce small livestock like goats, sheep, chickens and pigs and only a few own cattle due to their limited access to capital and land rights. These findings are similar to those of a study on the role of *Ziziphus Mauritiana* and network interventions in Muzarabani District by Katanha (2014). The findings of the study indicate that the prevailing droughts in the lower parts of the district; including Kapembere and Muringazuva wards, has resulted in over-grazing and shortage of pastures and water for livestock support. These findings are also similar to those of a study by Chanza (2014), who highlighted that manifestations of climate change impacts on agriculture are evident in crop failure, desiccation of water points, drying of pastures and death of livestock. In this context, climate change can be blamed for having caused adverse impacts on livestock production, which is one of the major livelihood strategies in this area. One of the key informant interviews highlighted that:

In Zimbabwe, rural areas often have the highest concentration of cattle, goats, and sheep. However, smallholder herds in these areas often have low

production due to inadequate nutrition and poor animal health. This is also the case with Muringazuva and Kapembere wards where the livestock is affected by foot and mouth, Newcastle and bird flu (KII 12, 2022)

During focus group discussions and extended household visits, it was expressed that livestock is still viewed as a sign of one's achievements, a source of social class and an economic asset with great cultural significance. The findings from the focus group interviews and in-depth discussions indicated that animals, particularly cattle and goats, played a significant role in providing households with milk, meat, and skins.

The smallholder farmers said that cattle and donkeys were their primary means of providing draught power, due to the high cost of tractor tillage charges. The purposes of livestock keeping were further explained by P9 who revealed that:

Animals especially cattle are very important to our livelihoods in our families as these are our source of capital. Animals play an important role when we want to raise money to pay school fees, hire labour to work in the field, buy agricultural inputs, food needs of the households, milk for children as well as in social gatherings that include weddings, funerals and paying bride prize (lobola) (Interview with P 9, 2022).

The above-mentioned evidence highlights the importance of livestock rearing amongst small holder farm households in Kapembere and Muringazuva wards. The results also demonstrate that livestock keeping enhances not just the financial resources and social standing of farming families, but also their nutritional well-being by guaranteeing a wider range of food options. While livestock ownership is considered a symbol of wealth, the study found out that households tend to withhold livestock during lean seasons where they avoided selling it as a coping mechanism. This; in a way, exposed most households to food insecurity. However, during focus group discussions with the participants, it was brought out that sometimes the livestock ends up dying due to lack of adequate pastures and water, for example during the 2015-2016 season. This further exposed the households to more vulnerability because they lost assets which are important for draught power and also for the products they give the farmers.

5.4 Off-Farm Livelihoods Strategies of Kapembere and Muringazuva wards

Households that are both food secure and food insecure exhibit dissimilar levels of livelihood diversity in terms of their sources of income (Bitana et al., 2023). It is worth noting that households experiencing a food insecurity threat often depend on agricultural casual labour as a source of income, in contrast to the food secure group which has additional sources of income such as formal salary/wages, livestock sales, remittances, and vegetable production. As highlighted in the early sections of this study, Muzarabani District falls under agricultural Region V which is characterised by low annual rainfall activity and among the country's low lying areas. This makes households dependence on agriculture more vulnerable due to low rainfalls. Hence, off farm activities come in to complement farming. These off-farm livelihood strategies include activities such as; petty trade, gold panning, hunting and gathering, beekeeping, beer brewing and casual labour. Rural households engage in off-farm and non-farm activities to mitigate the various risks and uncertainties linked to agriculture, including soil quality variations, pest infestations, price fluctuations, erratic rainfall, floods, erosion, and weather-related incidents (Kassegn & Abdinasir 2023). The link between the sale of household crops and food security was found to be unfavourable, as rural households tended to sell their agricultural produce during the post-harvest season when market conditions dictated low prices. Consequently, they were compelled to purchase food from the market at higher prices during the lean season, leading to a depletion of their assets in order to meet their needs during this period. The aforementioned statement underscores the importance of expanding the range of revenue sources within households (ZimVAC, 2021).

The findings of this study indicate that farm households pursue varying off farm livelihood options that were determined by natural, social, financial, physical and human capitals. In addition, the study also found out that the factors influencing the choice of livelihood pathways and options vary from household to household. This was mainly attributed to the varying asset endowment and available knowledge regarding the livelihoods amongst the households. One of the participants highlighted that in order to cushion households against food insecurity and poverty; they participated in off-farm livelihood activities.

To mitigate these hazards, we engage in non-farming livelihood options, especially outside of the growing season (May to October). This allows me and my family to have excess money and be able to go through the whole year. Normally, we do not receive enough

rainfall which can guarantee a good harvest to carry us through the following year. We always supplement with these non-agriculture activities. The money we get helps us to buy food, medication and send our children to school. Sometimes we use the money to buy seed and equipment to use especially in the gardens (Interview with Respondent P34Zinyanga, 2022)

In addition, researchers like Ellis (2000) and Barret et al. (2005) concur that families pursue different livelihood strategies for survival and sometimes for generating wealth. The research participants provided insights into how various off farm livelihood strategies impact income while ensuring household food security. It was found that families without capital engaged in livelihood activities for survival or satisfying household requirements. These households did not generate significant income or assets from their efforts. Due to poverty and urgent demands, many families were unable to accumulate enough money to purchase assets or agricultural inputs for the next season. This was captured through an in-depth discussion with P28 who noted that:

I am involved in a lot of things especial during off agricultural season and during dry spells. I do piece jobs in neighbouring farms, hunting sometimes as well as gold panning However, I do not get much that can be saved for future investments or asset accumulation. Usually, whatever profit I make from these various activities, I prioritise food needs and other demands of the household (Interview with P28, 2022).

In addition, the study findings show that some of these off-farm strategies are seasonal, and they sometimes depend on the climatic conditions; for example, the picking of wild fruit which is a seasonal activity. During a focus group discussion, one respondent highlighted that there were years when it was difficult to get fruits in the forests, especially when meagre rainfalls were received. In such a year the rural households did not have extra income from gathering wild fruit such as *Masawu* and *Marula*. Table 6 below shows various livelihood activities in the study areas.

Table 5.1: Predominant off Farm livelihood strategies (Field Study, 2022)

Livelihood Strategy	Description
Casual labour	Mainly women and young people migrate to work in commercial farms in return for food items, clothing or cash. This happens mainly during the farming season between November and May
Brick Moulding	After the rainy season, repairs of homesteads and domestic structures commence. Mostly men engage in brick moulding for sale to community members or NGOs involved in community infrastructure projects.
Beer Brewing	Following the harvest season, beer brewing and sales gather momentum. This is on limited scale due
Petty Trade	This involves buying and selling of a wide variety of goods ranging from food items to non-food items. Usually conducted at a small scale
Gold panning	Common in areas along river banks or shallow streams, gold panning has grown to be popular especially during the economic crisis in the country.
Fishing/poaching	An illegal activity which takes place during after the harvest season in rivers and dams in the district. The nearby game reserves provide ground for poaching of wildlife for sale either in Mozambique or consumed locally.
Other microenterprises	These include beekeeping, sewing/garment tailoring, soap making, oil pressing etc. which are undertaken by skilled persons who may have received training and support from NGOs in the past.
Wild fruit gathering	Gathering of <i>Masawu</i> (<i>Ziziphus Mauritania</i>) and <i>Mawuyu</i> (Baobab fruit) and Marula fruits (<i>Mapfura</i>). This is a seasonal activity which contributes significant income for most households. The fruits are consumed in households and used to brew local beer. Some buyers come all the way from Mvurwi and Harare to purchase truckloads of these fruits.
Beekeeping	A number of households' erect beehives in their yards, gardens and in their plots of land. Twice or three times a year, they harvest honey for sale from these hives. The main market for the honey is Muzarabani growth point. Some of it is consumed in the household.

5.4.1 Foraging

The study results showed some men were involved in hunting of wild animals. Although hunting was prohibited by the Parks and Wildlife Act, most households considered hunting as a source of food and nutrition. Most respondents indicated that diversifying into hunting and fishing is a result of a number of factors; including low agriculture output, quest for dietary diversity as well as the business side of game meat and fish where there was a ready market. Over 55 % of households under study in both wards were engaged in hunting and fishing.

Hunting mainly takes place in the Mavhuradonha mountain range, which has a habitat for wildlife and natural resources (UNDP, 2019). The local people have over the years protected several tree species, especially fruit trees such as the *Musawu* (*Ziziphus Mauritania*) tree, which they consider to be sacred trees and no one is allowed to cut down or any other use besides harvesting the fruits when they are ripe (Katanha and Kadziya, 2014).

In addition, the *Masawu* fruit is used to supplement the staple diet (*sadza*) during the lean season. The findings reveal that most women also used the fruit to brew beer, or prepare beverages, cakes and the surplus fruit was sold to raise income to support families. This was also brought up in the FGDs in Kapembere. *Masawu* fruits were considered an important source of income for some households who sold these either by the roadside or to the many bulk traders who came and hoard the fruit for reselling in major cities and towns such as Bindura. The findings of the study corroborate with Katanha (2014), who further postulated that the majority of the people in Muzarabani rely on *Ziziphus Mauritania*, as a food safety net, as they get remarkable amount of money from the sale of *Masawu* fruits, or alcohol brewed from the same fruits. Chanza (2014) highlights that the (Murara/Mugoma) Palm or (*Hyphaene petersiana*) and (*Muuyu*) Baobab or (*Adansonia digitata*) fruits are also used as food especially during drought periods. Katanha (2014) concurs that other fruit trees the households also turn to during drought are the baobab fruits (*Mawuyu*) which are used to prepare porridge or as a source of income. During an extended household visit, P 36 a young woman in Kapembere ward revealed that she gathered *Masawu* fruits and sold them at the bus terminus at Muzarabani Growth Point. This helped to supplement her income. However, the fruits were usually affected by torrential downpours, which were experienced during the rainfall season in the area. Chanza (2014) noted that severe droughts have also been believed by locals to be another factor affecting the fruiting of some of these wild fruits. This further weakens the livelihood options of these households.

The findings reveal that foraging was helpful for food insecure households in ensuring basic consumption, but it was inadequate in guaranteeing food security in the two wards. Food insecure households depended on diverse food sources such as wild meat and fruits. Chanza (2014) posits that the gathering and consumption of wild foodstuffs is considered as an early notice of a looming disaster or food deprivation. This study corroborates Quandt et al. (2004) who posit that obtaining food through hunting and gathering resulted in greater household food security among the Latino migrant workers. Katanha (2014) and Chifamba (2021) also confirm that rural households which participate in hunting and gathering eat more vegetable foods and were more food secure. These findings concur with earlier studies which revealed that wild foods harvested by households embody a common livelihood strategy vital in lessening the effects of food insecurity in South Sudan (Gupta et al., 2015). Studies from Lesotho, Zambia, Malawi and Mozambique showed that owing to an increase in the costs of basic foods, protracted famines and poor yields; reliance on

wild foods increased in order to address household food shortages (WFP, 2016). However, although this study did not address the healthy ramifications of consumption of wild foods as a livelihood strategy, studies in South Sudan show that this may be linked to the spread of ailments and other well-being problems (Mengistu & Haji, 2015).

5.4.3 Casual Labour/Wage labour

Casual wage labour (known as *Maricho* in Shona) is a widely common strategy to cope with insufficient household income and food production in rural households. Regardless of their level of food security, questionnaire collations revealed that at least 60% of households in Kapembere and 66% in Muringazuva wards primarily relied on casual labour that were mostly paid in kind during drought years and sometimes in cash. Most resource poor households gain some income through offering themselves and their family members as casual labourers, working on the plots of relatively wealthier households. They helped in preparing fields, planting and weeding, as well as harvesting. Traditionally, wage labour was mostly associated with commercial farms. However, things changed at the turn of the century when the Fast Track Land Reform Programme was implemented in Zimbabwe (Scoones et al., 2018). The programme itself was not implemented in Lower Muzarabani area since there were no commercial farms. However, it was implemented in Upper Muzarabani, around Centenary, Mvurwi, Mazowe and other surrounding areas (Scoones et al., 2018). The wage labour dynamics are relatively similar in the two wards under study. One participant highlighted that she provides casual labour in farms that are near Forester 1 area. She stated that:

We are normally paid in cash and sometimes in maize. Working in these farms is difficult because sometimes the payment comes late. I grew up here in Lower Muzarabani but ever since I was a child; we would go to Centenary (Upper Muzarabani) to work at a white man's farm during the peak agricultural season. This stopped for about three years after land was redistributed. However, we resumed working in these farms, now they are smaller and they are now owned by black farmers. The main challenge is the hours of work are long while the remuneration remains low. Averagely, during the full tobacco season, as an individual I make approximately \$560 within four months (Interview with P 17 ;2022).

The respondent also mentioned that sometimes they are paid in groceries, such as cooking oil, sugar and rice. The study also found out that, not all casual labour occurs in big farms in upper Muzarabani. In lower Muzarabani, some households that are well off, with a significant asset base offer employment to those who do not have much. They perform the same tasks of planting,

preparation, weeding and harvesting. However, this is not quite common in Kapembere and Muringazuva wards for people to work for each other in their fields, since the majority of the households are resource poor. This is in line with Achterbosch et al., (2014) who highlighted that there is a considerable increase in wages and employment opportunities during harvest period in rural areas of Africa where there is production of cash crop such as cocoa, coffee, tea and cotton. In addition, the study also found out that 40% of the households in Kapembere and 44% of households in Muringazuva were part of the government's Food For Work Programme, which was a safety net programme aimed at improving the food security status of vulnerable households

During the focus group discussions, it became apparent that wage labour was complex and varied in form. This is mainly because wage labour in the two wards was both a livelihood and a coping strategy in addressing food insecurity. This is in line with Scoones et al. (2018), who posits that the process of understanding rural wage labour is a bit difficult where wage labour is combined with diverse livelihoods, with multiple identities and class positions. The study also found out that in the two wards, 23% and 31% of households prioritise wage labour as a livelihood strategy? every year over growing their own food. When asked about this phenomenon during an interview, one respondent P34 highlighted that:

For me, I have always preferred to go and work in the farms where I am guaranteed money at the end of each week. This is better than waiting for your crops to mature. With the dry spells experienced in Muzarabani, I have seen a lot of people struggle to even grow enough food to feed themselves. So, for me, once I get the money, I buy food and other necessities, such as books for children and vaccines for my goats. Sometimes we are paid in groceries at the farm, it is still fine because I will always have food for me and my family (Interview with P 34;2022).

Still on that, the study found out that the working conditions in these farms is somewhat a cause of concern. Focus groups discussions and interviews, highlighted that farm owners require the workers to work for long hours. There is little room for negotiation of the wages. The conditions were generally poor, as highlighted by one respondent who mentioned that sometimes the food rations were not even enough, they were fed so that they could continue with work. This poses a further question; not only on the viability of wage labour as a strategy, but also on the sustainability of the practice. This is also because labour on other farms is a low return livelihood activity pursued to ease acute shortage of income and food by the poor households; mostly female-headed households, who could not engage in on-farm and productive non-farm activities. This is because

wage labour does not require massive investment capitals and special skills. These findings corroborate Kibebew (2014) who posits that poor households pursue the strategy of combining farm labour activities with on-farm activity. Due to lack of some of the capitals to be used on one's farm, such activities remained important for rural small holder farm households who relied on wage labour on others farm where they can utilise their labour which is the most available and accessible capital at their disposal; particularly when faced with the threat of food insecurity.

5.4.3 Beekeeping

Beekeeping is one of the activities practiced by some households. The activity is mainly practiced by men. However, there are other women who have taken up the activity. The lower number of women who take up the activity is because of the risk associated with beekeeping. One respondent, P11 highlighted during an interview that

Bees are dangerous, they can bite you to death so it is better for men to engage in such an activity (Interview with P 11, 2022).

In an interview with P35, who is a well-known beekeeper, it was brought out that beekeeping is a technical skill that requires training and knowledge on how the beehives are prepared, set up and how honey is processed and stored. He went on to highlight that Muzarabani alone does not provide enough market, therefore there is need to start looking elsewhere for markets. The study further found out that only 7% of households in Muringazuva and approximately 12 % in Kapembere ward are involved in this activity. They craft their hives and set them in their yards, fields or along the river banks and deep in the forests. P35 further highlighted that they raise considerable income from this activity, which mostly depends on the quantity and quality of the honey. He indicated that normally, he sells a 20-litre bucket of honey for about \$ 80 USD, whereby during a harvest season; he makes between 3-10 buckets of honey. This means an average of \$240 to \$800 raised during a harvest cycle. However, he highlighted a few challenges himself which beekeepers face, which include carnivores such as the honey banger that sucks all the honey from their hives, as well as the continuous destruction of forests which means bees have to travel for long distances to get pollen that is required for the pollination process and to generate the honey. He also mentioned the issue of theft from other people, who sneak into their hives and steal the honey. The honey is usually bought by shops at Muzarabani Growth Point while some of it is consumed in their households. However, when asked about their usage of the honey, the study

further found out that few people use honey in their households. They prefer sugar to natural honey, which is why they sell most of their harvest. P35 also indicated that he and other beekeepers sometimes receive beekeeping training and visits from the district's Small Livestock Department which is under Agritex.

5.4.4 Gold Panning

Gold panning was employed by the rural households to complement farming activities. Approximately 29 percent of interviewed households in Kapembere and 26% percent of interviewed households in Muringazuva wards were engaged in the activity; which is conducted along Musengezi River. However, the study found out that most people travel to the neighbouring district of Mbire where there are more gold deposits. Based on data collected from interviews and focus group discussions, there has been a notable rise in the practice of gold panning over the course of the last ten years. This particular livelihood activity is primarily characterised by the participation of young boys and girls, as well as economically engaged men and women. Individuals have the opportunity to reside in gold panning regions for a duration of up to three months. Following a successful yield and profitable transactions, they then return to their place of origin to engage in agricultural activities, namely crop farming, until circumstances permit them to resume their gold panning activities. Many households engage in small-scale mining due to the presence of gold resources in their wards and the promise of making a lot of money.

Some respondents such as P3, P6, P9, P11, P18, P19 and P21 highlighted that unlike farming, small-scale mining was not affected by rainfall or weather patterns. This was because much of their mining was alluvial panning, which did not require complex machinery and massive investment. The money generated from mining was used to acquire agricultural inputs and the payment of school fees. During FGDs, it was further highlighted that there is a ready market for gold sold through black-market. Gold panners used the unofficial channels because gold buyers were easy to reach out to, compared to Fidelity Printers (a government parastatal). Participants further highlighted that the black-market buyers offered competitive prices. Magorimbo (2003) suggested that the cash derived from non-farm activities are utilised for investment in agricultural endeavours, hence the need to substantiate a link or correlation between agricultural production and non-farm activities. The majority of the revenue generated from gold were mostly reinvested in the agricultural sector. One of the participants, middle aged widow who was a gold panner stated that;

With the money I get from *kukorokoza* (gold panning), I was able to acquire assets, including scotch cart and cattle. I was also able to acquire a diesel-powered grinding mill using the funds generated from panning activities (Interview with P38 2022).

The complexity of this enterprise is that it is illegal under the Mining and Minerals Act as well as the Gold Trade Act. It leaves a lot of damage to the environment since these farmers use mercury which is washed along the river. Mercury is regarded as a toxic substance which has the capacity to kill wildlife. Another hazard associated with this activity includes the shallow open shafts which the miners leave along the river banks. These shallow open shafts affect both animals and people while navigating through the forests. A ward counsellor noted that:

The mining along the river is prohibited by EMA (Environmental Management Authority) because of the damage it causes. We have had to deal with a lot of issues that happen in those areas. Just a few months ago, a child nearly died when he fell in one of the mining pits while he was looking for lost goats. There have also been several complaints of cattle getting injured in those areas. On top of that, the mercury they use is a dangerous substance which can destroy wildlife and even humans if consumed. There is need for regulation of this activity, so that those who are involved in it follow the right procedures and observe safety measure. The areas need to be reclaimed so it can be used for other purpose. (Interview with KII4 2022).

In terms of rewards and value for their labour, all respondents involved in mining indicated that they were happy with the money they got from this activity. However, from a food security perspective, mining to some extent affects household food security because those who mine do it along the river banks, which leads to siltation and eventually reducing the carrying capacity of the water bodies, and this eventually affects crop production. In addition, the ward councillor also mentioned that some of the mining is encroaching into agricultural fields, thereby reducing the overall amount of arable land. While the small-scale miners indicated that they also earned income realised from the activity to purchase household food, in a way; the activity also affects the production of food at household level which is rather a more sustainable approach compared to purchasing. In addition, it is worth noting that gold mining is more of a gamble- like activity, where the chances of getting the gold are beyond the miner. This qualifies it as a risky livelihood. For instance, P39, a miner highlighted that in the last six months, he did not make any significant amount of money sufficient to purchase food. So, the entire livelihood of that individual and the family that is dependent on his income rest their hopes of food security on a gamble –like economic activity. Such a scenario condemns the household to the threat of food insecurity.

5.4.5 Small Microenterprises

Focus group discussions and open-ended interviews indicated that microenterprising was one of the livelihoods activities undertaken by households in the study areas. According to Midgley (1995), microenterprise refers to the establishment of small businesses by individuals living in poverty, which are then provided with assistance by sponsoring entities such as governments and faith-based organisations. This support typically includes technical guidance and financial loans to facilitate the initiation of these enterprises. The study found out that these small businesses are quite common in the two wards. At least 22% of the households in Kapembere and 27% in Muringazuva ward engage in these activities. They are quite small and do not pay any tax returns to the government or even to the council. Some of these include small tuck-shops that are normally housed in homes. They sell basic commodities (petty trade) such as mealie meal, rice, cooking oil, sugar and candles.

The findings revealed insufficient evidence that proved that the opening of microenterprises was an effective strategy for tackling household food insecurity. One participant indicated that sometimes business was so low that they sometimes end up eating into the profit and the stock. She further highlighted that when it was harvesting season, the business would grow slightly. The study further found that there were traditional blacksmiths who produced several household tools and equipment such as axes, hoe tips, knives and sickles which they also sold in their enterprises. Both men and women actively participated in these enterprises. The study also found out that most of these businesses remained small due to lack of adequate capital to grow. The findings revealed that farmers lacked access to technology viable markets. These microfinances also lacked access to financing which could have assisted the businesses to grow. This is due to their lack of proper structures and systems, including proper accounting systems. One of the participants indicated that these small enterprises had potential to grow and employ more people, but a lot still needed to be done in terms of policy around improving microenterprises.

Most of these small businesses are informal, with no bank accounts, no growth strategy or enough capital. What they require is investment as well as capacity building around corporate governance and financial management (Interview with KII6 2022).

A significant number of households also practiced barter trade with other households. The traders go as far as Mozambique to exchange their grain for fish and second-hand clothing. These findings corroborate with findings from a study by Jaka et al., (2021) who posit that Petty trade has become

firmly embedded in the subsistence choices of rural people in Zimbabwe. In addition, it was highlighted during an interview with KII1 from MeDRA² who revealed that through petty trade, which involves the exchange of items such as garden produce, fruits, and artisanal crafts, these families were able to broaden their sources of income and decrease their reliance on agricultural activities only. Nevertheless, the influence of petty trade extended beyond mere augmentation of revenue. Additionally, it played a pivotal role in mitigating food insecurity and susceptibility among these areas. In addition, one participant highlighted that:

Furthermore, the social and community aspects of petty trading cannot be overlooked. It often fosters networks and relationships within and beyond these communities, creating pathways for the exchange of goods, knowledge, and support, like we have been seeing over the years with these Muzarabani communities. These social connections often serve as safety nets during times of need, for example when there is are floods and drought (Interview with KII1,2022).

Most of the trade happens within the communities and women were involved in this form of petty trade in which they sold dried fruits and vegetables as well as basic food items. Some respondents indicated that they went to Muzarabani Growth Point to sell their produce. In Kapembere ward, they sold their produce at Mutunda Shopping Centres and at Kapembere Shopping Centre, while farmers in Muringazuva ward sold their items in Muzarabani Growth Point because of its proximity. However, through focus group discussions and interviews, it was brought out that in some instances, petty trade resulted in fierce rivalry and damaged relationships among community members. The prioritisation of financial gain may potentially overwhelm interpersonal relationships, resulting in disagreements and a sense of isolation instead of fostering mutual cooperation. This viewpoint implies that the prioritisation of business transactions amongst households undermined the traditional connections that used to unite these communities. In addition, one participant also stated that petty trade often led to exploitation and unequal power dynamics within communities where those who were in debt or those who failed to settle their debts lived at the mercy of others. This resulted in some individuals benefiting more than others, ultimately widening existing social and economic disparities and widening the vulnerability of certain households.

² Methodist Development and Relief Agency(MeDRA) NGO working in Muzarabani

5.4.6 Beer Brewing

Beer brewing can also be viewed as part of microenterprises and is dominated by elderly women in both wards. Findings from the study indicate that only 12% of households in Kapembere and 9% of households in Muringazuva wards practice beer brewing. Most of the brewers are elderly women because they are the custodians of traditional brew recipes. Beer brewing is a traditional activity which has evolved over time. Going back into the history of most Zimbabwean communities, traditional beers forms part of every African society. They brew traditional beers, and Merlot, which they make from *Ziziphus Mauritania* (Masawu). They also brew a traditional brew known as *Chikokiyana*³ which takes seven days to brew using a mixture of sorghum and millet. The women sell the beer at shebeens that are scattered in the wards. Participants highlighted that sometimes they sold the beer at nearby bottle stores at the growth point and in other cases; they sold it to the soldiers who were camped in the district. One participant highlighted that:

Brewing beer is not an easy process, it begins with the soaking and germination of the sorghum seed and drying it as malt during preparation. If the beer is not well brewed, people will not come to buy it. Usually per month I make between 5-6 fifty litre drums, with each drum giving me about \$30. The amount I get increases when I get an order to brew for sacred functions. This normally happens around the August holidays and in December where people tend to drink too much (Interview with P 31, 2022).

Most of the income realised from beer brewing was used to buy food and other necessities. One participant indicated that they used to sell their beer to fellow villagers. However, the market has grown as a result of other customers who come from Muzarabani Growth Point and even from Centenary. She further highlighted that with the proceeds she got from the activity, she was able to buy food for the household and school fees for her grandchildren who stayed with her. It was also noted that sometimes these households that brewed beer and operated the informal licensed drinking places were often raided by health officials from the clinic who demanded to see where they brewed the beer. If they were not happy with the hygiene standards, they asked them to stop making beer.

5.4.7 Brick Moulding

For men, brick moulding came out as one of the off-farm livelihood strategies that was employed by the households in Muringazuva and Kapembere wards. This is a labour-intensive activity which requires a lot of strength and during FGDs and open-ended interviews, people were seen working

³ A type of traditional beer

on their brick kilns which they called “*Hovhoni*”; a Shona rendition for ‘oven’ or ‘kiln.’. One respondent highlighted that the whole process; from the mixing of soil to the burning of the bricks up, to the final production took not less than three weeks. The study found out that they produce farm brick which were sold to those who were building their houses and shops. The demand fluctuated. Sometimes it was high and in other cases, it was low when there were a lot of people who had set up their ovens; resulting in supply outstripping demand. Respondents, P2, P5, P13, P17 and P22 indicated that the income they attained varied with the period and market conditions. When the bricks were fewer, they sold a thousand bricks for \$100, while sometimes the price went down to \$80. The money they got from their bricks was used to pay school fees for their children, buy extra food and the surplus was used to buy more agricultural implements. The findings of this study suggest that people who were involved in farm brick moulding destroyed important trees that were a source of livelihood for other poor people in the area. This was brought up during an interview with the village head KII 11:

The destruction of the *Amarula* tree is a threat to the livelihoods of the people. It is a fruit tree and a number of people in the district rely on it for food. The communities are also getting an income from the same tree. For example, the fruits are eaten, they are used to produce beer, the nuts are also eaten and sometimes there are people who come to buy the fruits during their peak seasons. The destruction is being done on a number of tree species including, *Mopane* which gives us *Mopane* worms and the baobab which gives us baobab fruit and other bushes that are part of our ecosystems (Interview, KK11 ,2022).

Brick moulders cut down valuable trees, including the marula tree and other species, to use as fuel for heating their bricks. This practice posed a significant threat to fruit trees, as there was a high demand for farm bricks in the district. Consequently, people whose livelihoods rely on these trees experienced severe negative impact. This activity was not sustainable; it led to loss of ground cover, destruction of vegetation and it eventually contributed to loss of biodiversity. When asked about the sustainability of brick moulding during FGDs, the respondents highlighted that it was cash guaranteed venture, because bricks were always in high demand throughout the year. The study also found out that some of the buyers for the farm bricks came from as far as Mahuhwe area of Guruve. In addition, one respondent, P44 who is also involved in brick moulding highlighted that:

We often use fire to remove specific anthills. However, this sometimes leads to unintentional burning of whole grasslands, causing destruction to vegetation cover. The

excavation pits also gather water during the rainy season, producing breeding grounds for disease-causing pathogens and vectors like mosquitoes. This can lead to the spread of diseases such as malaria (Interview with P 44, 2022).

All the participants agreed that environmental changes had occurred during the last few decades, as a result of brick moulding activities in the study areas. The results indicate that brick moulding was a lucrative and economic backbone of several households in Muringazuva and Kapembere wards. Participants concurred that brick moulding is a way of value adding to the clay deposits for economic development but the practice was associated with numerous environmental problems associated with the various stages in the brick production cycle. The cycle impacts on the ecosystem, environment, biodiversity and human health. Vegetation, edible insects, indigenous trees, wild fruits and small animals have disappeared from the environment. Children and domestic animals drown in uncovered holes which also become breeding sites for mosquitoes and other vectors. The results unravel the negative impacts of brick moulding on the environmental, changes in the biodiversity, human health and ecosystems through the destruction of anthills in the process of brick moulding in the two wards.

5.4.8 Fishing

The study found out that a number of households were engaged in fishing. From the sampled households, 33% of respondents in Kapembere and 41 % of respondents in Muringazuva ward indicated that they were involved in fishing as livelihood activities. The activity itself was conducted by both men and women. However, it was predominantly practiced by men due to the long walking distances to the rivers. Young boys between the ages of 14-18 also engaged in fishing activities. Most women only engaged in fishing for household consumption, which they normally practised along Musengezi River, which runs through the villages in Kapembere and Muringazuva wards. During a focus group discussion in Muringazuva ward, it was further noted that the money from the fishing helped the families to purchase maize meal, cooking oil, pay fees and meeting health expenses. Participants indicated that most of the fish was poached because the majority of the households did not have licenses. . About 80% of the respondents from both wards mentioned that, engaging in fishing was a result of a number of factors; including low agricultural output, need for diverse diets, as well as the readily available markets for fish products. In an interview, the ward councillor for Kapembere ward highlighted that:

Most of the fishing is illegal, they do it early in the morning or during the night. The council conducts patrols along the rivers but they are under resourced; which then leaves a window for these poachers to engage in this activity. (Interview with KII 6 , ward Councilor 2022).

When asked about the prospect of fishing, one fisherman emphasised that the proximity of the two rural wards to the fourth largest river in Africa, the Zambezi River, offered opportunity for illegal fishing. The fish was dried in salt to preserve it for marketing. The study findings indicated that fishing generated a reasonably good income because there was a ready market. When asked about the income they got from fishing during an interview, one respondent indicated that:

Fishing is a quick money business, and the demand is always higher from fellow villagers and from other buyers who come mostly from Mvurwi, Centenary and Bindura.. We make averagely between US\$120-\$400 in a good month. Fishing brings quick returns because there is a ready market. It is also a good activity because when we cannot sell fresh fish, we dry them with coarse salt. This gives the fish a longer shelf life (Interview with P45, Mukoma Tendayi, 2022).

Most of the fishing is poaching because most of the households do not have licenses. Every year, a number of poachers are caught and apprehended by the Anti-Poaching Unit operating in the range.

The results show that fishing is a widespread coping strategy among disadvantaged, food insecure households in the study areas. Fisher households tend to be highly dependent on eating fish, and for these households, consuming fish more often is associated with a modest reduction in food insecurity risks. Fishing provided monthly non-monetary income, thereby, potentially reducing food insecurity risks among participating households. Most households directly depended on a household member catching fish, a nutritious and culturally preferred food. Consequently, small-scale fishers along the Zambezi River should be recognised in policy discussions around food and nutrition security and management of natural resources in Zimbabwe.

5.4.9 Migration

The results indicate that migration was another livelihood strategy employed by small holder farm households in Kapembere and Muringazuva. These findings agree with Goodrich and Rosalind (2001) who suggested that migration plays an important role in the livelihoods of rural households. However, in Kapembere and Muringazuva wards, the incidence of migration as a livelihood strategy was not as significant as compared to the farm based and non-farm strategies. Only 24 (12.4%) in Kapembere and 19 (9.3%) of households in Muringazuva ward reported that members

of their household had left home to other places in search of income opportunities during the study period. The results reveal that there was high population movement between lower Muzarabani and Upper Muzarabani. However, the migration did not last for many months. The reasons for less proportion of households who adopted migration seemed to be related to the availability of optional seasonal (autumn) farm labour employment opportunities in commercial farms around Centenary, Mvurwi and Mazowe areas. This kind of seasonal migration, which is basically labour-driven, is not long term. Casual labourers from lower Muzarabani sought employment in bigger farms during harvesting, weeding and planting seasons. In most cases, they returned to their houses when the rains came. However, the study found a common trend amongst a significant number of household heads sought work in commercial farms for prolonged periods of time while neglecting the farming and non-farming economic activities at their homes. This actually put the households at risk of food insecurity because once they went to work, it meant that there was shortage of labour to work on their plots.

In addition, the study findings depict another type of migration which was unique and common. Farmers migrated to surrounding urban centres in search of employment. Participants highlighted that household members who migrated worked as security guards, gardeners and cleaners. However, migration affected food production within households because able-bodied men and young people left thereby exposing resulting in acute shortage of labour.

Participants highlighted that remittances improved food accessibility and diversity through increased income, and stability by providing insurance against economic shocks and emergency needs of the migrant households. Social remittances affected the intra-household food distribution and utilization positively because of increased awareness among the migrant households. The results show that there is very limited evidence that migration increases food availability through remittances. Migration had some negative impacts on food security in the two wards. Most migrants build new houses on their agricultural land, which was responsible for decreasing a considerable amount of agricultural land each year. Again, the labour crisis in the areas of origin because of migration was also responsible for keeping the agricultural lands uncultivated and increasing wages of labour, which in turn increases the cost of production and directly affects physical production adversely. Therefore, by decreasing the agricultural productivity, migration affected the availability of food negatively. Moreover, because of their consumerist behaviour,

migrant households increased pressure on non-migrant households by decreasing their economic access to food through price upsurge. Nevertheless, thorough empirical research should be conducted to scientifically examine the heterogeneous impacts of migration on food security.

A number of similar studies (Chifamba, 2019; Dercon et al, 2005) suggest that migration does not ensure household food security. Migration implications for household asset status of members left behind. In the two wards, seasonal migration had comparatively little contribution in addressing household food insecurity. Most migration took place from the two wards to nearby farms and business centres. Although migration took place in search of better living standards, it was also a response to household food insecurity. In the early phase of food shortages men migrated and women and children followed depending on the severity of food shortage. For the household members who remained behind, working as casual labourers was their main priority. In contrary to these findings, Midamba et al. (2024) argue that household of-farm employment is the major source of rural income. Chifamba (2019) also posits that the significance of salaried employment diminishes with greater levels of family earnings. The differences in findings between this current study and earlier studies (Midimba et al., 2024; Chifamba, 2019) could be a result of the fact that rural employment prospects are readily available in eastern region of Zimbabwe in the banana and tea plantations and in Ethiopia. However, in Muzarabani unemployment is estimated to be over 95 % (ZimVAC, 2017)

5.5 Chapter Summary

The chapter examined the various preferred on-farm and off-farm livelihood strategies in Kapembere and Muringazuva wards. This critical analysis provided more evidence about the contribution of these activities to household food security and also showed how; in a way, they enhanced the vulnerability of the households to food insecurity and other shocks and stressors. The chapter further explored the crop production activities in the district, examining the challenges faced by the farmers in crop production. In addition, the chapter looked at the impact of crop and livestock production on the livelihoods of households in the study area. The findings show that crop-production and livestock-rearing had the potential to ensure household food security. However, these activities are affected by a myriad of challenges such as droughts, price volatility, dwindling pastures and land sizes, limited capital, absolute farming equipments and lack of markets. In terms of off-farm livelihood activities, the chapter identified and explored activities

such as petty trade, gold panning, hunting and gathering, beekeeping, beer brewing and casual labour. This study revealed that preferred livelihood pathways had transitory results. Therefore, there is urgent need to enhance households' access to income generating initiatives that are sustainable. In the light of these findings, it is proposed that efforts to enhance access to loans and the promotion of off-farm enterprises as alternate livelihood strategies should be promoted by both state and non-state institutions in Muzarabani. Extension facilities should be supported with an idea of training household heads on the use of local capitals to enhance household food security status in Muzarabani district. Programs and policies that make micro-credit available to rural households in the two wards go a long way in addressing their asset procurement challenges and in the long run enhancing food security status in the two wards. This current research focused on two wards in Muzarabani which often face with hunger and poverty. Future studies should examine livelihood strategies in other district with similar ecological characteristics. This comparison will help in giving a national outlook of common livelihood pathways in dry areas of Zimbabwe..

Chapter Six: The Impact of Livelihood Strategies on Household Food Security.

6.1 Introduction

Even though rural households heavily depend on natural resources for their livelihoods, they possess the ability to create strong adaptive mechanisms that help them withstand the threat of vulnerabilities such as food insecurity. However, sometimes the vulnerability emanates from the various livelihood strategies these households engage in. This is because the farm households' choice of livelihood options may either improve food security or contribute to food insecurity. One of the important debates in the context of small holder farm households is the implication of livelihood choices and pathways pursued by the households on agricultural production and household food security. From providing a descriptive analysis of the various livelihood activities in the previous chapter, the chapter further brings out the impact of the various activities in ensuring household food security, while bringing out the various risks associated with each strategy. In this assessment, the chapter also interrogates the livelihood decisions of the households in order to understand the impact of the household options in addressing food security or in increasing the risk of food insecurity. In trying to further interrogate the livelihood activities and their contribution to food security, the later part of the chapter looks at the work of Non-Government Organisations in the two wards.

6.2 Challenges associated with Crop and Livestock Production and their impact on Household Food Security

Rural household in developing countries face substantial risk; including droughts, floods, and other weather events as well as policy shocks, such as changes in taxation and subsidies, and the death and illness of household members (Midamba et al., 2024). Based on the findings of the study, it is apparent that such shocks can result in high losses of income through; for example, destruction of harvests or the associated lack of agricultural wage employment. In addition, climatic shocks have also caused loss of productive assets in Kapembere and Muringazuva; and thus affecting future income-generating capacity of the households under study. Focus group discussions also brought out the threat of loss of livestock through floods and animal diseases. Lack of formal insurance and functioning financial markets were also identified as factors inhibiting access to adequate food. In most cases, households cope with these shocks through social networks, reducing food

consumption at household level, or disposing of assets. In addition, results show that some households adjust their livelihoods to avoid major losses by diversifying their activities and or by engaging in relatively certain but low-income activities. As highlighted through focus group discussions, these strategies were costly and also perpetuated poverty. This point was further reiterated by KII 1 from MeDRA who mentioned that most farmers risk losing their productive assets during times of shocks when there is a drought or a flood. In addition, the study learnt that shocks such as flash floods or perennial droughts, ended up throwing households into poverty and food insecurity. This applied to households that were not previously poor and food insecure. In Kapembere and Muringazuva, such a situation occurred when a household's productive assets were destroyed or when a household was forced to sell its assets in order to survive.

The findings from the two wards indicated that the principal challenges or limitations to agricultural productivity, particularly for the major crops, included droughts, which resulted from low rainfall and was attributed to the climate change phenomenon. This situation further led to loss of biodiversity, inadequate availability of pastures, declining population of domestic animals, and reduced quantities of animal manure. Consequently, findings of this study show that over the years, the households from the two wards have been receiving little to low rainfall. This is confirmed by Mavhura (2019) and Mutami (2017) who highlighted the rainfall variability experienced in Muzarabani District in the last ten years. As a result of low rainfall, the agricultural activities of these households have evidently gone down. This was corroborated by various respondents during focus group discussions and interviews. During an interview, P21 said:

I was born in Muzarabani and I grew up here. This is the place I know the most. We used to receive quite significant rainfall that would allow us to grow a lot of maize and even cotton. However, over the years; we have been receiving low rainfall. Now we no longer grow a lot of maize, our river dries up quickly, our cattle no longer have enough pastures throughout the year and even the mountain range is no longer as green and thick as it used to be (Interview with P 21, 2022).

It is evident that the consequences are grave to the households' food security status, given that in the two wards their agriculture is rain-fed and depends solely on natural precipitation. These findings are in line with Agrawal (2015) who states that rain-fed reliant agricultural communities have been significantly impacted by climate change as compared to others that have successfully adopted alternative irrigation methods.

Furthermore, as a result of the loss of biodiversity mentioned above, which has also affected animal production and has had a ripple effect on agriculture, this has reduced the level of food security. Loss of biodiversity has impeded farming, especially gardens and fields which need manure, given the price of fertilizers which is far beyond the affordability of most households. It was brought out during several household visits that the households experienced low availability of manure, which is primarily a result of the depleting number of cattle in the area due to lack of grazing land. The findings show that the reduction in the quantity of manure had an impact on agricultural output. One of the respondents stated that:

The escalating cost of fertilisers and the restricted accessibility of enhanced seed varieties poses as a huge barrier to our productivity. Few households are able to buy fertilizers and seed. Most of us rely on seed handouts from the government and other well-wishers. On top of that, we experience inconsistent rainfall which is unreliable in most seasons. Sometimes we only receive rains for three days, sometimes less than a week in a whole agriculture season. Sometimes the rains are too much, they end up swiping away our crops. Over the years, the number of cattle per household has decreased. Some have died from diseases and hunger, while those who still have cattle are always complaining of lack of enough grazing lands. This poses a significant challenge to our crop production and livestock rearing (Interview with P 22, 2022).

Still on the same subject, KII3, an Agriculture Extension Officer emphasised that manure includes helpful bacteria that promote soil health and nutrient cycling. These micro-organisms assist to degrade organic debris, release nutrients, and inhibit infections. Without regular manure inputs, microbial activity in the soil will drop, reducing nutrient availability and overall soil fertility. He went on to state that given the semi-arid nature of the soils in Kapembere and Muringazuva, the use of manure becomes an important component of their farming. However, with less cattle due to the various points raised above, households find themselves struggling to maintain soil fertility which then means that their agriculture output is compromised. Given their reliance on own production of food, they become vulnerable to food insecurity.

Furthermore, study findings indicate that the market for agricultural produce is also a challenge affecting household food security in the study areas. From the interactions with the households through extended visits, over 60% of respondents from Kapembere and almost 75% from Muringazuva shared a story about finger millet whereby during the 2016/ 2017 season, they were

encouraged to grow finger millet by Delta Beverages; which it uses to brew local beer. Unfortunately, the brewing company did not buy the entire crop from the district and many households were stuck with the harvests. One respondent highlighted that:

We were encouraged to grow finger millet by Delta on the promise that they would buy from us. Most farmers; including myself, rushed to grow the crop. There was a lot of excitement and hope that they would buy from us. Unfortunately, it is almost three years and the crop is still with us. We have tried to reach out to them, we even sent some representatives to their Mvurwi depot but they were told that the project was being coordinated by a team based in Harare.

Looking at the evidence above, it is imperative to note that rural households in Muzarabani district lacked access to reliable markets for their agricultural products. As highlighted above, lack of adequate market access posed challenges for farmers in selling their agricultural products at equitable prices. This had a direct influence on their income and general livelihood, which then makes it even more challenging for them to develop strong livelihood options. This made their farming non profitable and further exposed them to the risk of failure to raise income that was needed to purchase food for household consumption, thereby threatening them with possible vulnerability to food insecurity.

In addition, the respondents from the two wards mentioned the issue of pests and diseases. 35.2 % of the respondents identified pests and disease as problems affecting crop production. One of the participants stated that maize, tomatoes, and vegetables were the most widely affected crops. Farmers conceived the ineffectiveness of pesticides and loss of produce over time. This was echoed by KII1 from MeDRA⁴ who also agreed that the problem associated with pests and diseases and the inadequate supply of pesticides is a cause for concern for rural farmers. She highlighted that:

In most cases, farmers experience food insecurity and a decline in income as a result of substantial yield losses which are caused by pests and diseases. This has been a pending challenge which requires a robust strategy. The biggest huddle is that chemical pesticides are expensive to most farmers and if we are also to look at issues of sustainability of the environment, we can also say that these pesticides are detrimental to the environment, and they can even be hazardous to human health (Interview with KII1 2022).

⁴ Methodist Development and Relief Agency(MeDRA), an NGO working in the district

KII1 went on to highlight that integrated pest management and the promotion of disease-resistant crop varieties are two interventions that her organisation will keep promoting in assisting the farmers to deal with the issue of pests. Still on the same note, the Agriculture Extension Officer for the two wards highlighted that as the Government of Zimbabwe, they were focusing primarily on educating and training farmers on the identification and management of pests and diseases since this would enable them to make well-informed decisions and implement sustainable agricultural methods. However, despite the challenges associated with pests as highlighted above, rural households in the two wards find themselves growing these crops every season; even without pesticides. This actually posed a threat to their food security status in various ways. Firstly, the farmers highlighted that they used the little income they had to buy seed and garden equipment so as to advance their cropping. However, given the huge risk of pests and diseases in the area, they received less than a quarter of the expected yield in their gardens. Secondly, the time they spent in the gardens could be used for other productive livelihoods. This exposed them to further vulnerability due to the investment they would have made. Sometimes they borrowed, and in other cases they used all their income. This was buttressed by one of the participants who stated that:

The challenge with these gardens is that sometimes you take all the money you have to buy seed for tomatoes and other vegetables in anticipation of a good harvest. Sometimes we borrow money. After all that investment, you sometimes get less than a quarter of the anticipated output because most tomatoes are destroyed by worms and diseases, including vegetables. This leaves me in a worse off situation because I would have lost a lot of time nursing the garden (Interview with P 6 2022).

The evidence produced above highlights the risk associated with gardening in Muzarabani. This brings out the risks associated with some livelihood activities that the rural households in the study area engage in.

Furthermore, inflation was one of the major challenges that was raised during key informant interviewees. Farmers were affected by price fluctuations which affected their pricing systems. Mavhura (2017) highlights the risk of price fluctuations in Zimbabwe, especially in cases where major products like maize, tobacco, and cotton are involved. During an interview with KII1 on the issue of price fluctuations and how they affect the rural farmers in Muzarabni, it was highlighted that:

Volatility in crop prices is influenced by many factors: cotton prices are linked to global prices, but tobacco and maize prices are mostly affected by the local market. Maize price fluctuations are mostly caused by environmental concerns that are influenced by unanticipated domestic market actions and export policies. Sudden price swings have a detrimental impact on farmers, who have the lowest risk management capabilities in the supply chain (Interview with KII1, 2022).

She further mentioned that fluctuations in exchange rates and inconsistent input markets contributed to uncertainty for participants in the export agricultural industry. Given that over 98% of households in both wards depend on agriculture, and that they rely heavily on income from selling their agricultural produce; it highlights the importance of market prices. Corroborated results from household visits, FGDs and interviews indicate that when market prices are unstable, these rural households are faced with uncertainty in their incomes. This makes their livelihood insecure, thereby heightening the risk of household food insecurity. In addition, KII 2 an Officer from the Zimbabwe Red Cross Society highlighted that such a situation exacerbated the vulnerability of households to food insecurity because when agricultural markets are unstable, the price of food and other commodities become volatile and unpredictable. This is supported by Mutami & Chazovachii, (2012), who idealizes that market volatility often leads to products reappearing at much higher prices on the parallel market, making them out of reach for most households due to exorbitant prices charged on basic goods. Such a situation then condemns most households to the threat of food insecurity as well as lack of income to purchase food which renders them to be unable to sustain their livelihoods.

Still on the issue of crop production, during extended household visits, participants highlighted that engaged in crop production in order to enhance food availability and accessibility. On top of the traditional maize, small grains and cotton, they have introduced crops such as sesame, pearl millet and horticultural plants. This did not only give them an opportunity to raise household income, but also contributed much on household food security. As put across by the one of the participants:

Through the integrated approach whereby these farmers engage in intensification and extensification, they are able to increase productivity; leading to increased household income. This in turn gives them the ability to purchase additional food items and other non-food items. They are also able to consume some of their produce in the form of vegetables and legumes, thereby contributing to household food security. However, in some instances, these farmers tend to prioritise money over their nutrition and health, they sometimes sell

most of their produce which is why the triple burden of malnutrition is still a cause of concern in the two wards (Interview with KII3, 2022).

Results from this study show that while the cultivation of cotton has provided income for some farmers, it has also led to a decrease in the production of food crops. Given that the households who indicated that they still grew cotton also highlighted how they were vulnerable to food insecurity, this proved that they dedicated most of their acreage to cotton farming at the expense of growing food crops. In addition, one of the participants highlighted that the intensive use of chemical fertilizers and pesticides in cotton farming aggravated soil degradation, making it less suitable for food crop cultivation. This has affected the food security status of these households in Kapembere and Muringazuva wards.

In addition, while talking about the growing of cotton in the two wards, the Agriculture Extension Officer further highlighted that despite the notable 77% decline in the growing of cotton in the district, food crop production has not increased. This had a significant implication on food security because farmers used the income raised from cotton farming to purchase food. Additionally, it was noted that the decline in cotton had negative effect on household food security. This resulted in low income for the farmers, thereby causing low expenditure on food as well as farming inputs such as maize seed, fertilizer, vegetable seeds and pesticides. The aforementioned scenario, wherein individuals were compelled to relinquish their cotton cultivation endeavours despite having relocated to the region specifically for cotton farming throughout the early 1980s and 1990s, served as a compelling illustration of the profound ramifications of drought. According to one of the leading farmers from Muringazuva ward

The persistent occurrence of droughts and low income has discouraged us from engaging in cotton growing (P24 2022).

Still on the same issue, one respondent shared his ordeal on the risks associated with cotton production which then leaves the farmers worse off than they were before they indulged in cropping activities. In addition, one of the respondents that between 2014/2015 agricultural seasons, he was part of the Cotton Company of Zimbabwe Out-grower Scheme in which they were given inputs by the company. He highlighted that while everything went well at first, a serious dry spell then a flash flood destroyed the crop before it was harvested. This meant he and the other farmers could not meet the required kilograms as stipulated in the contract with the company. The

company had to recover its money, so it sent its agents to take assets from the farmers. He highlighted that:

We invested all our labour into growing the cotton since we were under contract. That year, we did not care much about growing maize and other food items because we were hopeful that we would obtain a bumper harvest; meaning we would cash in from the company. However, an unfortunate incident happened, it rained out of nowhere and the rains destroyed our crop which was almost ready for harvest. Almost all households in Kapembere were affected by this tragedy. After a few months, the company came to collect our scotch carts and wheel barrows. They even took two of my cattle. That year was the hardest because we did not have food at home since we had not grown much. We also lost some valuable assets.

Therefore, it is worth noting that while a significant number of households from the two wards as highlighted above are still involved with cotton production, there is need to highlight the risks associated with this kind of crop. When asked about why they no longer produced cotton, the households highlighted that growing cotton became riskier and it was exacerbating household food insecurity. They further revealed that in most cases, they ended up in debt as well, since the inputs were accessed through contract farming. In addition, findings show that households which were grew cotton were heavily burdened by debt, and they ran the risk of facing food deficit during the course of the year. one respondent highlighted that cotton farming was more labour intensive and time consuming, therefore this took away time for producing other cereals for food consumption. The other factor raised by those households who grew cotton was that the crop required huge acreage which would then force them to abandon the growing of food crops, and this left them vulnerable to food insecurity because they would mainly rely on purchasing food throughout the year since they would not have grown their own cereals. These findings agree with Nyandoro (2017) who posits that the growing of cotton leads to a decrease in traditional agro-ecological practices, which further impacts on the diversity and availability of food crops. As a result, it can be highlighted that the cultivation of cotton contributed to food insecurity, as it disrupted the traditional agricultural practices and rural food production systems that previously benefited most rural communities in Muzarabani district.

The study found out that apart from government's Presidential Input Schemes, most households failed to purchase adequate maize seed and fertilizers. The results show that during every farming

season, an average of 36% of households in Kapembere and 41% in Muringazuva borrowed maize seed from neighbours, while 45% and 38% respectively from both wards used seed from the previous season. From the sampled households, only 19% of the households and 21% of households in Kapembere and Muringazuva respectively purchased their own maize seed and fertilizers. This clearly brings out how maize production as an agriculture activity in Muzarabani district contributes to vulnerability of households to food insecurity. The findings highlighted that those who borrowed seeds paid back in the form of grain. This affected household food security status due to low food production in the study areas. During a household visit, one respondent indicated that he owed a neighbour close to 12 tonnes of maize, because he and his family have been borrowing seed for a number of years now. Most households that were indebted failed to recover from the shocks of food insecurity. Furthermore, indebted households ended up selling their productive assets in order to procure food.

Furthermore, the results suggest that the rural farmers were faced with additional problems such as the inefficiencies and unjust pricing systems of the state's only grain buyer, the Grain Marketing Board (GMB), as well as limited access and information about markets. Farmers contended that they procured their agricultural inputs from the black market, where they incurred higher costs, and subsequently compelled to vend their crops to GMB at regulated rates. The grain purchase prices offered by GMB were much below average. These prices did not take into consideration the input costs on the parallel market, nor did they reflect the hyperinflationary environment in the economy. In addition, the GMB encountered further obstacles in the form of payment difficulties, which created extra bureaucratic procedures that consistently disadvantaged the farmers. About 95% of the households in Kapembere and 88% of households in Muringazuva ward indicated that they did not want to sell their maize to GMB if there was alternative option. In addition, the findings further indicate that while the households in the two wards are heavily involved in maize production, there were various risks associated with growing the crop. These included droughts, which was primarily a result of low rainfall. Droughts mean low agricultural output, despite the fact that the household would have invested all their income and labour in rain fed crop production systems. This was highlighted by one lead farmer who highlighted that:

The problem we also face now is that sometimes you sell your beast or even a number of goats to buy farming inputs; anticipating more rainfall in a year. It has happened to me several times when I have had to sell my beasts and goats to support my agriculture

through purchasing seeds and fertilizers. Unfortunately every time the crop yield has been low, which puts me under a lot of pressure because I would have sold my beasts (Interview with P 25 2022).

These results indicate that due to over-reliance on rain-fed maize production, the households were condemned to perennial vulnerability to food insecurity. This was mainly because of low maize output every year and also the fact that some households sold their productive assets to acquire inputs, thereby leaving them even more vulnerable. In addition, findings from the two wards indicate that in most cases, households preferred to grow maize for market satisfaction instead of emphasising maize production for household consumption. In such a scenario, it was highlighted that most households ended up purchasing food for household consumption at exorbitant prices. This was reiterated by one farmer from Kapembere who highlighted that:

...when retailers realise that farmers have been paid, the price of food and other basic commodities go up. This means the money we would have received from selling our produce will end up buying fewer commodities,

This situation left farmers food insecure throughout the rest of the year. Table 7 below shows the reasons for growing maize.

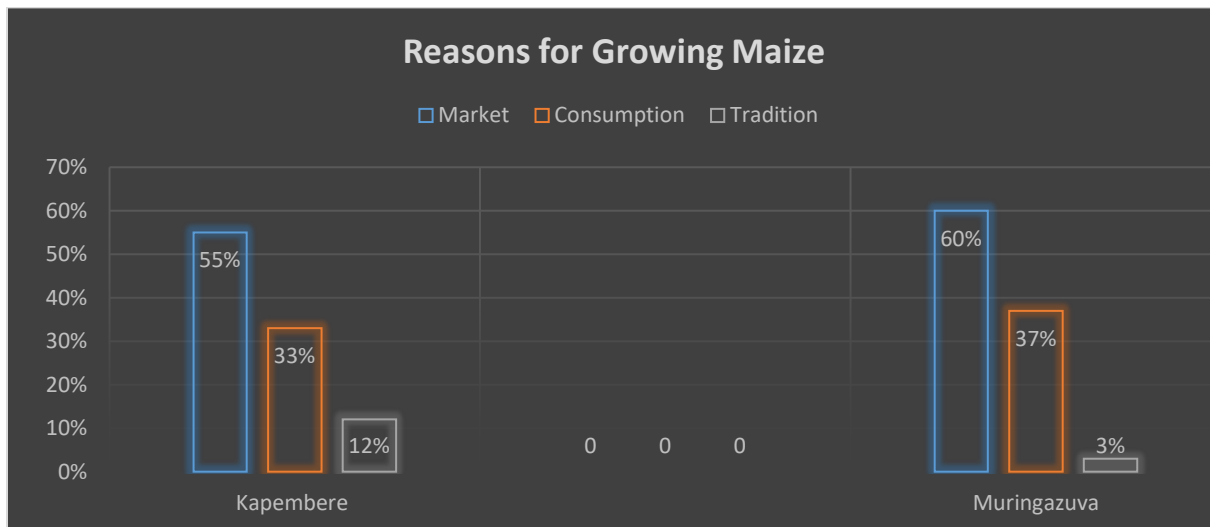


Table 7: Reasons for growing maize in the two wards

Table 7 above highlights the main reasons why the households grow maize. In both wards, 60% of respondents in Muringazuva and 55% in Kapembere agreed that they grow maize for selling to

available markets. In addition, 33% of respondents in Kapembere and 37% in Muringazuva highlighted that they primarily consider their own consumption as the reason behind growing of maize. Lastly, about 12% of households in Kapembere and 3% in Muringazuva regard growing maize as a tradition, as something they just inherited from their parents and grandparents. Mugandani and Mafongoya (2019) highlight that the main challenge with regards to growing maize for market was that farmers became too dependent on the market for their income. If prices fall or crops fail, farmers may lack the funds to purchase food, leading to food insecurity. In addition, the study found out that in an effort to maximize profits from maize, households allocated more land and resources to its production at the expense of other food crops that would otherwise have contributed to household food security. When talking about the risk associated with growing maize, one participant highlighted that:

The other challenge with the prioritisation of growing maize for the market is that labour and time invested in growing maize for the market could also have been spent on various equally important farming activities such as gardening; which has the potential to provide food directly for the household. However, such activities are usually neglected during the maize season (Interview with KII 3, Extension officer 2022).

In addition, one participant reiterated that since most of the farming in the two wards is rain-fed, maize cultivation was vulnerable to climatic variations that were experienced in the district. which have often resulted in droughts or excessive rainfall as alluded by Mavhura (2017). In addition, the risk of crop failure increases, which in most cases is catastrophic for these households which will be depending on the sale of maize for their livelihoods. In such a situation, they are left even more vulnerable to food insecurity.

Moreover, the study's results suggest that the inefficiencies and discriminatory pricing system of the state's only grain buyer, the Grain Marketing Board (GMB), together with limited access and knowledge about markets, are significant obstacles experienced by rural farmers. Farmers contended that they were procuring their agricultural inputs from the black market, which incurs more costs, and then compelled to sell their crops to GMB at regulated, reduced rates. The prices of GMB were much cheaper and did not include in input costs on the parallel market, nor did they incorporate the hyperinflation in the economy. In addition, the GMB encountered additional obstacles in the form of excessive bureaucracy, which consistently disadvantaged the farmers. Nearly 95% of the families in Kapembere and 88% of households in Muringazuva ward expressed

a preference for not selling their maize and groundnuts to GMB, provided another choice was available.

Communities in Kapembere and Muringazuva grew small grains such as sorghum, sesame and pearl millet. The growing of small grains contributed to food security among rural households in Muzarabani, Zimbabwe. This was due to the fact that these grains were more resilient to harsh climatic conditions which are typical of semi-arid regions. However, there were certain aspects in which these crops contributed to vulnerability. One of the participants highlighted that the challenge with small grains was that the market is unreliable. He further highlighted that over the years, a lot of farmers have had to count their losses after some of their sorghum or pearl millet could not get buyers. Most farmers felt that they could have directed their effort on more rewarding crops and other livelihoods. Participants highlighted that when not properly managed, small grains can have lower yield rates per hectare as compared to staple crops like maize. He further highlighted that small grains require proper knowledge, and sometimes farmers employed short cuts during planting, which often leads to less food availability for consumption and even for the market.

Furthermore, the research findings indicate that the eating of traditional meals in the study region is also accompanied by a social stigma. Small grains are usually viewed as “poverty crops” making households to turn to them during droughts and floods. It is within this context that Chifamba (2021) suggests that novel urbanization and agricultural practices have also reduced the availability of indigenous foods in Zimbabwe and Africa. Furthermore, the findings indicate that the production procedures for small grain crops are laborious. The production process encompasses several stages, including weeding, harvesting, and post-harvesting activities like as threshing, winnowing, and other subsequent procedures. Participants also emphasised that the absence of processing technology has impeded the establishment of alternative formal markets for millet and sorghum. Traditional processing methods result in a lengthier processing time for sorghum compared to maize, particularly during the harvesting stage. One of the participants highlighted that:

Cultivating, harvesting, and processing small grains can be labour-intensive and require specific knowledge. If farmers lack this knowledge or the labour force to effectively grow

these grains, it could result in lower productivity and higher post-harvest losses (Interview with KII3 , 2022).

Chifamba (2019) argues that the difficulty of processing small grains and the hard labour involved in threshing the grain from the chaff is a major challenge. In addition, the processing of maize is much more straightforward than the labor-intensive finger millet. Thus, it is vital to note that the attitudes and consumption preferences have made maize more attractive to most households in the study area. This has exposed most households to food insecurity, considering the challenges of less rainfall and other affecting the production of maize. However, it is worth noting that despite their drought tolerance, these small grains can still be vulnerable to extreme weather events and significant deviations from their optimal growing conditions. Therefore, while growing these crops can play a significant role in providing reliable source of grains in semi-arid regions like Muzarabani, it is essential that such cultivation be part of a broader, diversified agricultural and food security strategy in order to mitigate associated risks and ensure that households can cope with potential negative impacts which have been discussed above.

Livestock rearing was also susceptible to the impact of unexpected events, shocks and stressors. Respondents from both districts said that droughts had a significant effect on their cattle. The severe and long-lasting droughts in lower Muzarabani District resulted in the increase of animal mortality due to malnutrition. This affected the livelihoods that depended on cattle. Acute water shortages and diminished pastures complicated livestock rearing in the two wards. One interviewee noted that:

This place is relatively good for animal rearing because it has got bushes and grass, as well as bucks and clay that is eaten by our cattle, goats and other small livestock. Our main challenges are caused by drought, overgrazing, pests and diseases as well as stock theft by people from upper Muzarabani and Mozambique (Interview with P47 during an extended household visit).

Based on the findings of the study, households with enough draught power, farming knowledge, capital and ability to hire labour were food secure as compared to poor households that lacked draught power and, in most instances, had no capacity to buy certified seed varieties. This is because access to capital, assets and adequate farming knowledge was found to play a key role in ensuring household food security in the two wards. Study participants from the two wards were

asked questions around constraints and challenges they face around crop production and on farm livelihoods in general. Participants concurred that depending on rain fed agriculture without irrigation development was the major challenge from the small holder farm households in Kapembere and Muringazuva wards. Participants highlighted that climate change and variability compromised their capacity to produce crops as smallholder farmers. One participant summarised that the constraints faced by the smallholder farmers when he stated that:

Among the main challenges faced by the farmers, crop and livestock production are high at the top. For starters, the area itself is a low lying flood plain which comprises barren and sandy soils that do not give much in terms of crop production. This also means there is minimum plant life which affects pastures for livestock. The place is also prone to pests that affect plants and livestock. Those without draught power, are resisting conservation agriculture. The same applies to the adoption of small grains such as millet and sorghum. Farmers are adamant in adopting these semi-arid crops. In addition, we cannot ignore challenges emanating from animal theft and unaffordability of some farm inputs” (Interview with KII 5, 2022).

The farmers in the two wards reported that climate change and aridity had resulted in crop failures and a decrease in subsurface water levels, causing some community boreholes to run dry. The researcher noted that homes without kraals often had tiny fields, measuring less than half of the legally designated four acres per family. This observation suggests that the absence of draught power plays a crucial role in determining the capacity for grain cultivation. Discussions revealed that labour limitations significantly affected crop productivity among smallholder farmers. Most farmers in the two wards expressed a desire for participating in off-farm and non-farm activities instead of agriculture-based activities.

While livestock production showed some benefits compared to agricultural operations, its impact on family welfare was negligible owing to gender-based disparities in ownership and management, as highlighted by Assan (2014). The research revealed that males mostly own and oversee a larger number of cattle, but women possessed a certain level of independence in deciding whether to purchase or sell smaller animals such as chickens, goats and sheep. The research findings are corroborated Fekede et al. (2013), who contend that livestock serves as a significant source of income for rural residents in Ethiopia. Cattle not only provide skins, draught power, and milk, but also serve as a means of acquiring riches and social status. This viewpoint is further reinforced by

agricultural experts like Cousins (1996) and Ellis and Freeman (2005), who argue that livestock is a vital asset that may be sold in order to finance small enterprises and acquire land.

In addition, Ndiweni (2015) adds that livestock is a significant asset that constitutes the majority of savings and acts as a safeguard during times of crisis for rural households. However, the capacity of rural people to get food during times of limited reserves relies significantly on the accessibility of disposable animals. Households which had little or no cattle and poultry were more susceptible to food insecurity because they lacked assets that could be readily converted into cash or exchanged for food items. This means a household can have livestock, but if it does not have disposable assets, it risks being condemned to vulnerability to food insecurity due to the inability to cope. Findings from the study highlight that the main reason why a household could not be willing to sell its livestock; even when faced with a threat of vulnerability was due to the cultural linkages that cattle possess within rural communities. One participant highlighted that selling cattle would be the last thing one could do. She reiterated that she would rather starve and beg for food than sell her cattle.

In addition, findings further indicated that while the households in the two wards were heavily involved in crop production, they were exposed to various risks associated with crop and animal production. These included drought; which was primarily a result of low rainfall. Droughts mean low agriculture output when a household would have invested all their income and labour to crop production which was mainly rain-fed. During interviews, one participant highlighted that:

The problem we also face now is that sometimes you sell your beast or even a number of goats to buy farming inputs; anticipating more rainfall in a year. It has happened to me several times when I had to sell my beasts and goats to support my agriculture through purchasing seeds and fertilizers. Unfortunately, every time the crop yield has been low which puts me under a lot of pressure because I would have sold my beasts (Interview with lead farmer P 27, 2022).

This was one of the key areas of inquiry in this study, which was to appreciate the livelihood decisions made by the small holder farmers and how some of these decisions contributed to their vulnerability instead of improving their food security. In understanding livelihood strategies, it is also important to examine the risks associated with some of these strategies, because these risks always present threats to their well-being and food security status. In addition, the study found out that most rural farmers do not conduct risks assessments before indulging in various livelihoods.

These findings are similar to the findings from a study by Mukwedeya et al., (2023) which suggested that rural farmers need support around risk insurance and risk management as a way of safeguarding their livelihoods.

6.3 The impact of off Farm Livelihood Strategies on Household Food Security

On discussions around the impact of the various off-farm livelihoods discussed above, a number of varied responses were brought up. During focus group discussions and interviews in the two wards, most of the farmers indicated that they participated in off farm activities in order to create additional revenue to bolster farm income. This was highlighted by 83.5% of respondents in Muringazuva and 91% of respondents in Kapembere. However, very few households have these viable income-generating activities outside owning a farm. This shows a clear sign of lack of livelihood options, where most of their livelihood is centred on the farm. In this situation, pursuing non-farm livelihood activities might be referred to as a backup plan for those who do not have easy access to productive resources or are unable to use them for various reasons. The lack of livelihood diversity further implied that the households faced perennial food insecurity because the region always received low to little rainfall annually. This is one of the reasons why organisations like Methodist Development and Relief Agency (MeDRA) and Sustainable Agriculture Technology (SAT) recommended communities in the two wards to engage in diverse livelihood activities.

Some household heads took their children to work in other people's farms. This addressed the immediate household food insecurity challenge because they were mostly paid in grain or cash. One respondent posited that:

It is a practice that is regarded as a lowly and looked down upon activity, meaning that with all things being equal, they would not opt for that. Sometimes you work and you are not given what you would have agreed upon when you started. Sometimes you beg for work, so the farm owner will end up giving you what they want, which in some instances might not be reasonable. In 2019 I was so desperate for money because my father was seriously ill, so I went to ask for employment in Forester Two area. I was in the field, tending to tobacco for 5 weeks. When the time for payment came, I was told stories. They started telling me that they would pay me after they have gone to the bank to withdraw money. It took me almost two months to get my money, which is rather an unfortunate situation, which left us with no money to buy food. I could not even assist my father who was ill.

TDuring interviews, participants also raised the fact that the A2 farmers in the upper Muzarabani region, who mostly paid labour in the form of maize or beans ranging from 1 bucket to 10 bags of maize for some, did not pay well and the working conditions were also not pleasant. This corroborates with a Food and Agriculture Organisation (2007) study on agricultural workers and their contribution to sustainable agriculture and rural development which highlighted that farmer responded to the pressure by decreasing their labour costs, thus passing the burden on to the workers. The report goes on to highlight that labour migration is one of the major consequences of growing work flexibility, casual employment, low pay, bad working conditions and poverty. The implications of poor working conditions and poor remuneration for these casual wage workers was that they were not able to meet their food security needs in their households. On top of that, they did not acquire any assets. The absence of productive assets left farmers more vulnerable to any possible shocks and stressors.

In addition, the study also found out that by engaging in various off farm livelihood activities during the agricultural season, farmers became trapped in a cycle of low productivity and food insecurity, which forced family members to look for employment as field workers in order to make ends meet. The main implication of this was the loss of essential labour input for the family's farming or agriculture-based livelihood, which in turn lowered their production levels at household and also raised the risk of food insecurity. One participant highlighted that:

Over the years, we have noted a pattern where certain households invest in off farm livelihood activities such as brick moulding, fishing, hunting, petty trade and even casual labour throughout the whole year. What this does is that it then affects their overall agriculture productivity because they will focus on these off farm livelihood activities even during the rainy season. While a family member goes to look for wage employment in a big farm, it means the family will be minus one in terms of labour force which directly affects the overall agriculture productivity of the household, thereby exposing them to vulnerabilities and other threats such as food insecurity (Interview with KII 3, 2022).

It can be inferred that increased participation in off-farm labour activities resulted in the decrease in agricultural production among farm households in the two wards. Furthermore, the study found out that, even though the farmers provided labour force in the commercial farms, the remuneration for their work did not commensurate with the labour they provided. Through going to work in commercial farms and leaving their own fields, the farmers exposed their households to food

insecurity and other vulnerabilities. This was because wage labour in the farms did not provide enough money to improve their income significantly over a period of time. The results found out that the low rate of remuneration was more a consequence of the local economy and its surrounding more than the over supply of labour.

One of the off-farm livelihood strategies engaged by the households in the area under study is artisanal gold mining. As highlighted in chapter five, approximately 29 % of households in Kapembere and 26% percent of households in Muringazuva wards were engaged in the activity, which was done along Musengezi River. However, the study found out that most people travel to the neighbouring district of Mbire where there are more gold deposits. Based on data collected from interviews and focus group discussions, there has been a notable rise in the practice of gold panning over the course of the last ten years. When asked about gold mining and its implications on food security, one of the participants highlighted that:

The problem with gold panning is that it takes away the labour force from the farm which exposes some of these households to food insecurity because once they go and start panning, sometimes they are in the mining fields for a period that ranges between 2-3 months. It means there are less people in the household to contribute to agricultural productivity (Interview with KII, 2022).

The study also found out that there are risks associated with gold panning; with the main one being the failure to make money, even after investing a lot of time. This is because most of the gold panning and alluvial mining is not well mechanised. This was brought out during an interview with one respondent who highlighted that:

I always feel that it is a big risk to go along the river and mine. We only use picks and shovels, and lack other equipment such as trucks, compressors and excavators. There are days when you are fortunate and there are days when you go through a dry patch. I remember there was a period when I went for almost 6 months without making any significant gains through panning. I kept going and hoping I would make money since I had already forfeited the agricultural season on the premise that perhaps I would make money from the gold mining I would be able to buy all food requirements and other basics at home. What made it worse was that during the time I was mining, I had also sent my wife home work in the farms; which further exposed us. That year was difficult because we did not have any grain at home (Interview with P48, 2022).

It can thus be said that while alluvial gold mining which is being conducted in the two wards along Musengezi River can provide an alternative source of income to the households, in some cases it

does not achieve the desired results. However, it can be used to improve agriculture through investments that are done in procuring inputs and farm implements. If not managed sustainably and balanced with agricultural production, it can negatively impact food production and food security in the community. This is because gold panning also contributes to social disruption, as individuals; especially younger and older men, move to gold panning sites, changing the demographic composition and traditional labour arrangements in most households. In addition, small scale gold mining may lead to the vulnerability of households to food insecurity because some households are investing their limited resources in the form of money and equipment into gold mining and activities instead of investing on agricultural inputs like seeds and fertilizers. These findings are in line with Mkodzongi (2013), who posits that as mining becomes a major source of revenue, the growing operations of gold miners in traditional farmlands has created new class dynamics and the exploitation of farmers by miners. In addition, Chari et al (2021) highlighted that small artisanal mining has resulted in scarcity of essential agricultural food items. It has resulted in sub-standard product quality and it also resulted in the increase in prices of food products.

In addition, the study also revealed the gendered nature of migration in the study areas. Activities requiring a greater initial investment, like selling animals, are more lucrative than those with lower investment needs despite the fact that they carry higher risks. This gendered thinking around livelihood strategies means that livelihoods are gendered in nature. Men are able to migrate while women usually remain at home. This was also brought out during an interview with KII4, an officer from Muzarabani District Council. He highlighted that:

Households headed by women often deal in crops and consumer goods, which don't require much money and involve a low risk but low return on investment due to a lack of start-up capital and the influence of regional customs. Over the years, we have also seen a lot of migration by men to work in towns and other parts of the country. This is different for women who are left to concentrate mainly on the farm, preparing the land, tilling, planting, weeding and harvesting (Interview with KII4 2022).

While it is evident that households in Kapembere and Muringazuva wards must employ non-farm livelihood strategies and enhance their livelihood options to improve and secure their food security status, it is however worth noting that participating in a variety of non-farm livelihood activities is

insufficient on its own. This is because there is need for a stronger asset base and viable financing in order to have efficient livelihood options. This corroborates Matshe (2009) who highlighted that the capacity of small-scale farmers to participate in agriculture based livelihoods and pursue economically advantageous non-agricultural livelihoods activities serves as the fundamental foundation for realising the full potential of food production and agricultural output in order to mitigate poverty and address issues of food insecurity.

The majority of households; especially those headed by women, employed these off-farm strategies to make up for the lack of income from farm work. Due to restrictions on their ability to start businesses, mobility, cultural norms, and family duties, the majority of households headed by women engaged in low-return non-farm activities. Only a small percentage of these households do so in order to supplement the income from farming. Female-headed households are not only accountable for doing domestic tasks necessary for their families' day-to-day needs in the absence of a male breadwinner, but also for supplying the work required to run a farm and engage in other sources of off-farm and non-farm income. Migration into non-agricultural activities can also be attributed to the adverse impact of climatic changes, including low and unpredictable rainfall patterns and drought. Additionally, the findings indicate that inadequate access to and quality of essential resources serves as catalyst for the diversification into non-agricultural livelihoods. Households engaged in off-farm activities as a way of raising income to support their farm-based activities. One of the participants highlighted that:

Evidence over the years has shown that women headed households are more constrained as far as their livelihood options are concerned. This is due to various complexities such as the amount of labour required, access to financing and travel restrictions. The result of this is that most women headed households are more vulnerable when compared to male-headed households (Interview with KII 14, 2022).

The results illustrated that engaging in off-farm and non-farm activities helped to improve household food security. There was a general consensus amongst FGD participants and interview respondents from the two wards that diversifying sources of income is strongly connected to ensuring access to an adequate food supply. During an extended household visit, one respondent indicated that diversifying their livelihoods helped them to increase their income and provide them with enough money to purchase food. This further agrees with Etea (2019) who asserts that having

many dependable sources of income is crucial for ensuring household food security. A research conducted in Nigeria showed that the occurrence of child stunting and underweight was less common among farmers who had off-farm income when compared to households without off-farm earnings. Therefore, those households which had well-functioning and rewarding livelihoods were more food secure which households with weak livelihood pathways were food insecure. Furthermore, the findings show that the threats to livelihood viability stem from poor macro socio-economic environment, poor productive asset base and climate change. Thus, the collapses of social services and infrastructure, coupled by recurrent droughts, rural economic stagnation and recession had rendered rural livelihood strategies ineffective. The findings corroborates Mutami (2012) who also noted the negative impact of economic stagnation and climate change on the livelihood of rural communities in Mudzi district of Zimbabwe. His main line of thought is that the disruptions of rural household's livelihoods by physical and socio-economic stress and shocks requires robust policies targeting rural areas as a way of improving the viability and effectiveness of their livelihoods.

In addition, the results show that it is difficult for a household to attain food security through purchasing as sources of income are restricted. This is because in a normal household, there are competing priorities, such as health and education. During a FGD, one respondent revealed that sometimes the income they gained was channelled to other critical expenses in the household at the expense of food. The results illustrated that when food shortage worsens throughout the district household heads use distress coping mechanisms that are less rescindable, thereby exposing the rural poor to significant levels of food shortages from a range of idiosyncratic stressors and shocks. The off-farm coping strategies are often unfavourable to the sustainability of livelihood and encompass hazards that affect community resilient to food shortages.

6.4 NGO and Government support on livelihoods in Muzarabani District

While the significance of livelihood strategies both on farm and off farm in enhancing food security is acknowledged by both the Muzarabani community and development actors, the allocation of resources and organisational priorities have resulted in a disproportionate emphasis on agricultural production. Given the harsh economic and political challenges Zimbabwe has been faced with in the past ten years, rural livelihood becomes a viable option for rural development and an avenue for household food security. However, livelihoods in the district as a whole; including

Kapembere and Muringazuva wards, have been affected by lack of adequate infrastructure, funding as well as technical expertise and markets.

The study found out that in Kapembere and Muringazuva wards, there had been an influx of microenterprise support programmes implemented by World Vision, Zimbabwe Red Cross Society, and the Methodist Development and Relief Agency (MeDRA). These initiatives involved the distribution of woodworking tools, financial loans, sewing machines, bread making ventures, irrigation, gardening, poultry and pig rearing. One of the participants highlighted that the NGO activities were critical in promoting youth and women empowerment. He highlighted that most of these activities allowed the youth and women to be trained in a number of livelihood activities which were beneficial to them and their households. Furthermore, another participant highlighted a number of factors that have affected NGO support to livelihoods in the study area. These include lack of adequate funding from their donors and inconsistent economic climate which affects the setting up of programmes because of the hyperinflationary environment. In illustrating the unsustainability of relying on grants and loans, one participant noted that the value of cash loans depreciated rapidly, thereby preventing beneficiary households from deriving any meaningful advantage from them.

We established a small grant to offer loans to households so that they could start some income generating activities. However, this did not work well because just around that time, the dollar lost value and there were significant changes economically. We ended up abandoning the project because it was no longer feasible (Interview with KII1 , 2022).

The results revealed that there are a number of training programs offered by various stakeholders. However, given the budget constraints, they could not reach out to all households and eventually, they exited the study area. The study also found out that MeDRA conducted a Food for Work Project in Kapembere ward between 2015-2016 where the community refilled gullies and cleared roads in exchange for food items such as beans, cooking fat and cereal in the form of maize. The project only ran for about 8 months, then ended. There was no such activity in Muringazuva ward. Furthermore, one interviewee highlighted that households in the districts were not well supported in terms of livelihoods. He mentioned the lack of telecommunication coverage in some parts of Kapembere and Muringazuva, poor road networks, as well as lack of vocational training centres

to help empower the youths, women and rural farmers in critical skills that would widen their livelihood options.

In terms of government support to livelihood infrastructure, study findings show that little is being done for the rural farmers in the two wards. During transact walks across the two wards, the researcher noticed some dilapidated infrastructure like the deep tank shown in figure 20 below. Both Kapembere and Muringazuva wards have some dilapidated dip tanks. This is critical infrastructure which could be useful in enhancing cattle and small livestock rearing.



FIGURE 17: DILAPIDATED DIP TANK IN MURINGZAUVA (SOURCE: FIELD WORK 2022)

Furthermore, study findings show that the most critical form of livelihood support which the government gives to the rural farmers is through providing technical support through agricultural extension services. However, participants highlighted lack of regular support, since the extension workers were underpaid and they were not mobile due to lack of transport. The government also distributed small livestock such as goats and chickens in 2018 which were part of the Presidential Input Scheme. However, these were given to a few individuals across the two wards. The District Development Fund (DDF), which is a government entity that has collaborated to install water facilities, was also responsible for drilling the boreholes that are currently servicing the two wards. However, the study revealed that three of the boreholes were no longer working and the department

was incapacitated to rehabilitate them. This put pressure on the already depleting water resources in the two wards.

6.5 Chapter Summary

The chapter has explored the complex dynamics of livelihood options pursued by smallholder farmers in Kapembere and Muringazuva; and their impact on household food security. This chapter examined the various livelihood strategies that the smallholder farm households under study engaged in, specifically looking at how some of these strategies had led to the vulnerability of the households to food insecurity. From providing a descriptive analysis of the various livelihood activities, the chapter brought out the impact of the various activities in ensuring household food security, while bringing out the various risks associated with each strategy. The chapter highlights that the crops produced, particularly the focus on the production of high value crops such as maize and cotton exposes the households to vulnerability to food insecurity. This is because these crops are mainly produced for the market and not for household consumption. Furthermore, the chapter highlights the risk of crop failure in the context of climate change, with households focusing on maize, which is less tolerant to drought. In addition, the chapter highlights that non-farm strategies such as gold panning, trading and migration tended to take labour away from the farm and agricultural practice, thereby exposing households to low agricultural productivity. The study also found out that households were also involved mining, provision of casual labour and menial jobs.

The study concludes that the preferred livelihood pathways in the two wards proved valuable in the short-term, but failed to bring the anticipated livelihoods outcomes. Food insecurity compelled households to rely on adverse coping strategies with negative ramifications on the livelihoods of rural poor households. Some of the households shifted from non-erosive livelihood pathways to erosive (disposal of resources) and failed mechanisms (dependency and food aid). In most cases preferred livelihoods portfolios have failed to take into account participation of households affected by food insecurity. Perilous coping strategies have erased the economic gains of the past decades while putting at risk the investments in nutrition and public health and community development. Thus, some of the preferred livelihood options affect livelihood sustainability and involve risks that compromise resilience to food shortages in the long term.

Chapter Seven: Linking Rural Livelihood Strategies to Household Food Security

7.1 Introduction

This chapter explores the factors that enhance or limit the effectiveness of the rural small farm households' livelihood strategies in Muzarabani District. The chapter further assesses the food security situation using different qualitative indicators that is food security based on Self-Report and the Coping Strategy Index. This chapter explores the link between the various combinations of livelihoods pursued by households and the effect of these strategies on achieving household food security. The study also analysed the determinants of food security and vulnerability in families, including the influence of climate change on food security in the two specific areas.

7.2 Factors that influence livelihood strategies in Kapembere and Muringazuva

Given the multifaceted environment and economic context in Muzarabani household livelihood choices were informed by various factors. These decisions shape their livelihood strategies which form part of their livelihood portfolios. It becomes imperative and critical to analyse the factors that enhance the effectiveness of these strategies because it forms the basis of analysis in trying to understand the impact of the various livelihood strategies to household food security. In addition, when looking at the livelihoods of rural farmers, it is important to also consider their livelihood decisions because it is these livelihood decisions that shape their livelihood strategies that in turn help the farmers to enhance their food security statuses or actually heighten the susceptibility of the household to food insecurity. The selection of livelihood choices by households is influenced by several socio-economic variables (Tesfaye et al., 2011; Eneyew, 2012). These choices shape the livelihood options and are thus important for integrating insights beyond disciplinary boundaries. Therefore, individuals and families may choose different livelihood strategies based on their assets, earnings, and activities in response to reasons that may be categorised as push and pull variables (Ellis, 2000; Reardon et. al., 2006). These push factors refer to undesirable circumstances that compel farm households to seek other sources of income either inside or outside of their farming activities. Based on the study's results, the primary causes that drive people to leave Muzarabani are associated with various risks, such as seasonal changes and unpredictable weather patterns, which have been discussed in previous chapters of this thesis. Pull factors are favourable conditions that entice farm households to participate in alternative livelihood activities

with the aim of enhancing their livelihood. These characteristics provide motivations for individuals to diversify their sources of income beyond agriculture by enhancing the profitability of non-agricultural endeavours. These elements have a tendency to have a greater influence in agricultural contexts that are less dangerous and more dynamic (Haggblade et al., 2007).

7.2.1 Lack of access to Natural Resources

Land

Access to natural resources is one of the key determinants that either enhance or limit the effectiveness of rural livelihoods. Therefore, in such a scenario, success of livelihood strategies is related to access to land and other natural resources. The findings indicate that those households that are close to rivers, boreholes and those with larger pieces of arable land are better positioned to implement livelihood strategies that include crop production in the form of gardens. The findings further showed that people decide on which livelihood path to follow based on the natural resources they possessed. In addition, the findings showed that most rural households in the two wards had; over the past ten years been, shifting towards non-farm livelihoods because the land was rapidly losing its fertility due to overuse. Furthermore, increase in population, low rainfall and flash floods that swept away the fertile top soil were cited as factors that are causing soil infertility in the study areas. This has influenced most households from the two wards to indulge in more non-farm livelihood choices because the land is not as fertile as it used to be. These findings corroborate Moyo (2012) who posits that land is the most important natural resource that every individual needs for food production. Furthermore, Thebe and Rakotje (2013) suggest that land is important in its own right and continues to have a substantial impact on family incomes and methods for diversifying livelihoods. This brings the importance of land in shaping livelihood choices as well as its impact on the general well-being and the food security status of rural households. Furthermore, the results illustrate that lack of tenure security was one of the major challenges faced by rural farm households. One of the participants highlighted that:

Off course, we have pieces of land, but we do not have any legal documents to prove that the land is ours. All the land in the district and in the two wards is distributed by the chief and the village heads. It is governed under the Tribal Trust Land Act and the Communal Land act. It is state land, we, the farmers do not have title deeds. Therefore, we cannot use our land for any business transaction such as securing loans (Focus Group Discussion Respondent, 2022).

Access to land is a crucial factor that influences the livelihood decisions of the rural farmers in Muzarabani and subsequently the impact of these livelihoods. Limited access to arable land has adversely affected household food security in the two wards of Muzarabani district.

Water

The results revealed that water is another key factor that enhances the impact of the various household livelihood pathways in Muzarabani. The results revealed that water is the driving force for livelihood and for life itself. In confirming the importance of water in their day to day activities, one of the participants highlighted that:

...water is essential for agricultural production, for daily food preparation, for washing and other necessary acuities in the household.

These findings align with Malinga et al., (2017) who reveal that ccommunities and families in Africa depend on water supplies for a range of activities, including domestic tasks, gardening, and irrigation for farming. With the growth in population in Muzarabani District, the available water resources are under enormous strain. This was further reiterated by one participant who highlighted that:

Deforestation and siltation of the main river, Musengezi, which is caused by land degradation, are intensifying. Lack of water has grown to be a serious problem. Due to this, the development of new water harvesting and management technologies must be given top attention in the district, especially in Kapembere ward (Interview with KII6, 2022).

Transact walks around the two wards led the researcher to dilapidated water structures which included boreholes. In Kapembere there were 2 while in Muringazuva there was 1 borehole which was not functioning. The absence of optional water points put lot of pressure on functioning boreholes. The researcher also noted that there were rain water harvesting tanks in the two wards. However, these tanks were more common in Kapembere than Muringazuva ward, and some of them were also derelict and not functional. It was revealed that the tanks were part of a Water Sanitation and Hygiene (WASH) programme implemented by MeDRA some years back. However, the infrastructure is no longer being used since the district no longer receives enough rainfall to fill the tanks. In some areas, people migrated and deserted their households, leaving infrastructure such as rainwater harvesting tanks going to wastage. Given the water challenges in

the district, it is unfortunate that the Government of Zimbabwe has failed to come up with efficient water policies and strategies to improve the imbalances in supply of water to rural households. Availability of water would widen the livelihood options of the households. With water, they would be able to grow crops throughout the year, which would increase their access to food and income. In addition, with access to water, the farmers could indulge in activities such as fish farming, mushroom growing as well as practising extensive agriculture.

7.2.2 Lack of adequate skills and education

Lack of education and vocational skills were raised as factors which limit the effectiveness of livelihood strategies in Muzarabani. Rural farmers in Muzarabani district have varying levels of education. In the two wards, data from questionnaires, as depicted on the Table 7 below shows that 14% of respondents from Kapembere ward never went to school, while about 12% in Muringazuva also never went to school. The data further showed that 45 % of the people interviewed in Kapembere went to school up to primary level, while in Muringazuva those who attained primary education accounted for 38%. In Kapembere ward 22% of respondents went to secondary schools, while Muringazuva accounted for 26%, As far as tertiary education is concerned, Kapembere had 17% of its people who went all the way up to tertiary, while approximately 20.9% of the people in Muringazuva attained tertiary education. Most of these studied at the Vocational Training Institutions such as Henderson Research Institution in Mazowe. Quite a number of tertiary learners had attained Diplomas in Agriculture and in Teaching from Nyadire Teachers College in Mutoko. A significant number of people from the two wards had also attended Bindura University of Science Education.

The general consensus was that most households lacked the requisite agricultural skills. One of the participants who was involved in training programs revealed that:

Most of these households lack adequate skills that will make their lives profitable. We are talking about skills such as technical and vocational abilities such as carpentry, sewing, computer programming, business management, entrepreneurship, financial management skills, market linkages and marketing, farming as a business as well as value addition and processing. Even adequate knowledge of conservation agriculture is needed for several of the potential livelihood opportunities, especially looking at the climate change challenge the whole world is faced with (Interview with KII1, 2022).

The study findings have shown that the households' livelihood options and pathways are strongly linked to certain technical skills and knowledge which would enable that particular household to choose a livelihood pathway. Furthermore, it can also be said that skills and education widen the livelihood options for rural households and enhances the chances of any livelihood venture to grow, raise income and improve household food security. Numerous studies have also confirmed the significance of education and skill levels in enhancing the effectiveness of particular livelihoods. For example, Davies (2004) notes that education is crucial because better-paying jobs require formal education and that there is a link between education and the success of rural non-farm businesses. According to Owusu, et al (2011) education is an important factor in determining employment in the non-farm sector.

Table 7: Education status of the respondents (Field work, 2022)

Level of Education of the respondents		
	Kapembere	Muringazuva
Never went to school	14%	12%
Primary	45%	38%
Secondary	22%	26%
Tertiary	17%	20.9%
Specialized skill	2%	3.1%

Furthermore, Kuwenyi et al. (2014) suggests that education enhances the ability of individuals to adopt new agricultural practices and consequently, increases their productivity and efficiency. It is worth noting that extension services provide informal guidance that facilitates household members in releasing their innate abilities and inventiveness. This means, if a farmer is educated, and they receive technical assistance from an extension worker, they have a higher chance of comprehending what they are taught as compared to a farmer with little or no education at all. One of the participants highlighted that:

Farmers with some levels of education are quick to understand concepts. They also communicate well when they have problems with their crop and livestock. I have seen this for over twelve years working with different farmers across the two wards. There are other households that will always perform better in any livelihood activity, and if you are to check, you will realise that they have some bit of

education which helps them to understand. When Sesame was first introduced, few households were willing to venture into growing it. Most farmers were sceptical. However, later I realised that those farmers who took up the crop possessed some level of education (Interview with KII3, 2022).

This cements the ongoing discussion around the role of education and skills in shaping livelihood pathways and their impact for rural households in Africa. These findings are similar to those of a study on livelihoods in Africa by Barrett, et al. (2001), who highlighted that having a higher level of education facilitates the finding of better-paying non-farm jobs or self-employment. This was further echoed through FGDs in the two wards, where respondents highlighted that due to lack of education, they struggle to move with the times and the ever-changing agricultural landscape. One of the participants further revealed that:

Most farmers struggle to adapt to new farming methods because of lack of knowledge and education. Most of these conservative farming methods are foreign and few farmers are knowledgeable in that regard. A manual on improved farming methods was developed by the Department of Extension Services. However, most of the elderly farmers who predominantly constitute 90% of the farmers in the two wards failed to master the concepts because they were not well presented, they were too technical (Interview with KII 8, 2022).

It has long been argued that attainment of education is one of the significant determinants of non-agriculture and agriculture-based activities (Ncube, 2015). While the illiterate and uneducated rely on irregular, lower-paid hourly wage work in the agricultural industry, those with skills and a better education opt to be self-employed or seek stable employment opportunities at relatively higher wages. These results corroborate Owusu et al. (2011) who found out that education was a significant determinant of participation in non-farm activities. It was discovered that participation in non-farm labour was positively and strongly correlated with education and credit availability. However, the same study by Owusu et al., 2015 argues that it is not quite certain how education beyond primary level actually lead to choice of livelihoods in a household.

In the same vein, Adugna and Fikadu (2016) suggest that the process of learning is critical to the ability of families to adopt new agricultural practices and understand emerging trends, leading to an improvement in their overall efficiency and output. Moreover, education is a critical factor in augmenting the ability of farmers to recognise, evaluate, and adopt innovative agricultural techniques, resulting in heightened levels of output within their households. According to Ncube (2015), educational attainment has been recognised as a significant factor in determining non-farm

activities. However, according to an interview with the District Agriculture Extension Officer, in Zimbabwe, the agricultural industry often attracts individuals who lack skills and education, leading them to rely on irregular and low-paying casual wage labour. In contrast, the extension officer highlighted that those who possess skills and education have the potential to start their own ventures or they can get employment which is more stable and rewarding in other sectors. A positive and significant link was seen between engagement in non-agricultural employment and both educational attainment and access to financing in both wards. However, Ncube (2015) argues that there is no correlation between primary education, proficiency in literacy and numeracy; and the acquisition of skills relevant to the majority of non-agricultural activities in rural areas. The study found out that limited access to education and low socio-economic position of impoverished households constrained their ability to pursue diverse possibilities. One participant reiterated that:

Those households with little education are always lagging behind in terms of participating in livelihood programmes; we have attributed most of the indecision related to livelihood options to lack of adequate education (Interview with KII 10, 2022).

Numerous other studies (Chifamba, 2019; Owusu et al., 2011; Niehof, 2004) demonstrated that allocating resources towards the education of children can serve as a sustainable livelihood approach, with the objective of establishing a means of financial support for parents throughout their elderly years. Various respondents echoed this during open-ended interviews that education is a critical aspect in shaping livelihood options at household level. During a focus group discussion, one participant indicated that:

Those who are educated tend to have more options, they are well equipped to do various income generating activities. This is different to the majority of us. Our lack of knowledge limits us. If we were educated, we could also try various livelihood options (Interview with P19, 2022).

Furthermore, the results revealed that a lot of young girls and boys dropped out of school to seek other more viable livelihood options. School drop outs increased due to lack of motivation and good role models. The study further found out that 43% of teenage girls in Kapembere and 56% in Muringazuva got married before they turned eighteen years. This was attributed to a number of reasons which included lack of finances to continue with education and religion. However, looking at the study findings from the two wards, the households with a better level of education chose better livelihood decisions. The study also found out that households with children who have gone

ahead with their education were well off, compared to those that did not have anyone who progressed with education. This was primarily because education opened opportunities for gainful employment, mostly in big cities and towns such as Harare, Bindura and even out of Zimbabwe. This posed a problem since it was possible that they would not understand instructions for farming inputs, and it might be difficult for them to comprehend drought early warning signals.

During open ended interviews, approximately 90% of respondents from Kapembere and 95% from Muringazuva indicated that their livelihood options were limited because they were not aware of what was going on around the world and in other parts of the world. After probing what they referred to, the researcher learnt that the farmers felt left out due to lack of adequate knowledge and education. One participants highlighted that approximately 94% of the farmers in Kapembere and over 90% in Muringazuva stuck to maize, cotton, and the same small livestock such as poultry because that was what they all knew. He further mentioned the lack of ability to add value into their income generating activities. One village head from Kapembere, reiterated that lack of adequate education in most households led to poor planning and poor livelihood choices which resulted in vulnerability of the households.

7.2.3 Lack of Adequate Agriculture Extension and Support Services

Zimbabwe's main agricultural extension organisation, known as the Department of Agricultural, Technical and Extension Services (AGRITEX), is in charge of providing public rural agricultural extension services. AGRITEX is a department under the Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement (MLAFWRR). It has representation at many administrative levels, including village, ward, district, province, and national levels (Masere and Worth, 2021). The results demonstrate that insufficient capacity and technical backstopping in sustainable agricultural methods is a barrier to the adoption of sustainable agricultural practices in the two wards, and subsequently results in poor harvests for most households. One participant also revealed that the majority of the technologies suggested by AGRITEX had not been embraced by small-scale farmers, who mostly relied on their own traditional knowledge and abilities to maintain their agricultural businesses, achieving some level of success.

The results shows that insuffiecient resources was one of the factors limiting provision of extension services in the study areas. According to experts such as Mapiye et al., (2021) and Moyo & Salawu, (2018), AGRITEX, like many other extension systems in developing countries, encounters several

complex issues. The issues include insufficient technology, hierarchical dissemination methods, inadequate compensation and incentives for extension personnel, and weak or non-existent connections between researchers, farmers, and extension workers. AGRITEX has faced several intricate and varied systemic obstacles since its establishment. These issues include inadequate financing, frequent departure of knowledgeable, capable, and qualified personnel, and mostly promoting and endorsing outdated technologies. (Moyo & Salawu, 2018; Muchesa et al, 2019).

The respondents also highlighted that the extension workers should assist with the identification of viable livelihood options. This came as a huge talking point in focus group discussions from both wards. The participants mentioned that there were few extension officers to assist farmers in the study areas. When engaged on the matter, the available extension officer, KII 3 further highlighted incapacitation due to lack of adequate resources such as motorbikes, and fuel for the motorbikes as well as lack of motivation and incentives to carry out the duties. In addition, the study found out that it was also crucial to improve communication channels such as the cell phone network to facilitate easy communication between extension officers and farmers. Furthermore, the study revealed that the small-scale farmers, who relied on Indigenous Knowledge Systems (IKS) failed to embrace the majority of the technologies suggested by AGRITEX.

According to the Agriculture Extension officer:

Access to training enables households to model their coping mechanisms after those that have been shown effective in the context of the study area's environmental conditions. The households in Kapembere and Muringazuva wards, however, rely more on already deteriorating indigenous local knowledge than on scientific understanding. They value more, this indigenous knowledge which has been passed on from generation to generation. The knowledge includes cropping practices, knowledge around grain storage, and livestock rearing (Interview with KII3, 2022).

These findings are similar to those of studies by Masere and Duffy 2014 who mention that in Zimbabwe, there has always been a challenge of harmonising IKS and modern agricultural practices. Due to its realistic and useful basis, IKS were valued more highly by households in the research area than outside information. Nonetheless, any training given to rural farmers should strengthen their innate knowledge base as this will encourage the adoption of new knowledge and instruction. Thus, it is necessary to look at their local knowledge systems, household requirements, and capabilities in order to improve community awareness. However, the results from key informant interviews and focus group discussions suggest that different development and

extension professionals have differing opinions about indigenous knowledge and its associated technologies. The technical officer from MeDRA and the extension officer revealed that farmers' indigenous knowledge is also an 'impediment' to technology adoption. This is because this indigenous knowledge makes farmers resistant to change and slow in accepting outside help, including new and modern technology. These findings corroborate Masere and Worth (2021) who found out that indigenous knowledge is considered a significant factor hindering farmers from progressing to the next level in the value chain. This stagnation prevents them from transforming their raw crops into more lucrative products.

7.2.4 Lack of access to ready markets and favourable producer prices

There was a general consensus that access to markets was the key success factor in livelihood strategies in the area under study. One respondent highlighted that long distances affect most households' access to markets; especially those from Kapembere ward because they are a bit far from the growth point when compared to households from Muringazuva ward. The participant further highlighted that households that were closer to the main roads and the growth point were in a better position because they could rush to the markets early in the morning to sell their produce. Farmers who resided far from the main roads and the market places struggled to sell their produce. The respondent highlighted that:

We are fortunate that we live close to the road so we just walk to the growth point with my vegetables, chickens and milk. Normally I and my two children wake up at 4:30 am, by 5:30 am we will already be at the growth point preparing our stalls. This allows us to catch the first batch of buyers, who normally come with buses leaving for Centenary, Mvurwi or Harare. By the time we get to 8 o'clock in the morning, half of my produce would already have been sold. However, this is different for most of the farmers around Muringazuva and Kapembere because they live far from the growth point (Interview with P 28, 2022).

Community members involved in off-farm livelihood activities who were interviewed from the two wards said that finding profitable local markets was a challenge. This was stressed by a respondent from Muringazuva ward. He had this to say:

Sometimes you have your produce, which include chickens, both boilers and layers, guinea fowls, vegetables and tomatoes, but still, you will not find ready markets to sell these products. This will then lead us to sell to whoever comes because we required the cash to pay for other services such as food, school fees and health services (Interview with P46, 2022)

In choosing a livelihood pathway, rural households prioritise goods with a ready local market, such as vegetables, beer, or poultry due to the high transportation costs to metropolitan centres. The findings indicate that there was a significant influx of hawkers and traders from metropolitan areas who bring in cheaper commodities into communities in Muzarabani after the cotton harvest season. Additionally, some community members reportedly travelled to nearby urban areas, such as Centenary to buy products and services in order to complement money from tobacco sales. This accounted for 21% in Kapembere and 17% of households from Muringazuva ward who went to nearby towns to buy merchandise and products for resale. By forcing households to provide some goods and services on their own, diversification of livelihoods became a risk management or survival strategy in the absence of markets (Barrett et al., 2001). This indicates that in some cases, the diversification of livelihood activities and revenue was fuelled by a lack of markets. But in Muzarabani, it was discovered that the lack of markets for the purchase or sale of goods and services actually affected livelihood outcomes of the households, and in so doing, affecting food security status of most households that relied on selling their produce. It should further be highlighted that families diversified their livelihood strategies in situations where access to markets was expensive and problematic to partially meet their demand for variety in consumption. This was typical in the two wards when locals engaged in activities, including fishing, raising chickens, gardening, and making peanut butter. One participant highlighted that:

Due to lack of adequate market linkages, the farmers end up tilting towards produce that could be easily be sold in the available markets, that is Muzarabani growth point and Mvurwi growth point. However, this presents a challenge of flooding of same products on the markets, such as broiler chickens, roadrunners, garden produce and dried wild fruits (Interview with KII3 2022).

Furthermore, the lack of viable markets was raised by KII1, an officer from MeDRA, an NGO working in the area, who highlighted that:

Smallholder farmers often lack access to profitable, value-added markets. In the absence of critical supporting functions, such as infrastructure and service provision, farmers struggle to shift from subsistence to more productive forms of trade (Interview with KII3, 2022).

Still on the issue of markets, the study found out that smallholder farmers in Muzarabani faced several challenges that prevented them from expanding and broadening their livelihoods and crop production beyond the subsistence level. The households in Kapembere and Muringazuva wards

were poorly connected to local markets, which resulted in high transaction costs in terms of buying and selling agricultural inputs and other household goods and food. The study found out that smallholder farmers were also poorly linked to markets because of lack of information on available markets, market linkages and market trends. These results agree with Usman and Callo-Concha (2021), who suggest that having access to a greater number of markets may enhance the chances of diversifying one's livelihood and generating revenue. This, in turn, enables households to buy a wider range of food items from local markets. Furthermore, market accessibility is essential for selling excess produce and acquiring food when necessary. Based on the various reactions from the small holder farmers regarding access to markets, it can be clearly stated that restricted market access makes livelihood strategies less effective because there is a gap between production and attaining the actual income. Production is normally in the form of crop cultivation, livestock production and other livelihoods that contain selling of products. It is the markets that serve as the bridge between the farmers produce and possible income. Finding viable local markets was a significant challenge, according to community members active in non-farm livelihoods who were asked about their efforts. By having the ability to instantly convert products or activities into cash, households could purchase other commodities or services that needed to be paid in cash. This was further echoed by one of the participants who stated that:

There is a common trend amongst the farmers to go after easy or more common livelihood such as small livestock and gardening because these have a ready market in Muzarabani as well as in the nearby towns such as Mvurwi, Centenary and Bindura. The main problem we have identified is the market tends to flood because you have more household producing the same crops and selling them to the same group of people (Interview with KII9, 2022).

The findings indicate that smallholder farmers have a disadvantageous situation due to the lack of competitiveness in maize pricing, as the government retains the authority to regulate the price at which maize producers could sell their crops. Due to the reduction in maize cultivation, farmers became vulnerable to food insecurity because of this change. Previous studies by Moyo, (1994) indicated that; in the 1990s, the nation started agricultural market liberalisation programs, which had the unintended consequence of giving a few opportunistic private traders a monopoly on the maize market and giving smallholder farmers few options to sell their crop. These smallholder farmers did not benefit from the liberalisation of the markets, including marketing opportunities and commercial lines of credit. Predatory market participants had advantage since there was lack of supportive public infrastructure and absence of an agribusiness culture among smallholder

farmers. Smallholder farmers were consequently forced to survive on meagre income gains from the few free marketing possibilities that were available. One respondent highlighted that:

In the 1990s when the government introduced the Structural Adjustment Program, a lot changed, we heard our fathers complaining that the price of maize has gone down. This has been going on up to now. The prices have continued to go down, what is unfortunate is the farmers are not consulted; they have no say on the way the prices are structured (Interview with Community Leader, KII5 2022).

Still on the issue of markets, FAO (2001) highlights that, market access significantly contributes to smallholder farmers' improved welfare and income through a variety of means. The findings pointed to the fact that markets increased the purchasing power by raising income, which in turn increased consumer demand and also improved farmer wellbeing. During an interview with KII3, the agriculture extension worker for the two wards further highlighted that market access can be increased by providing farmers with more market information, which increase their knowledge base and lower their reliance on merchants for price information. He further mentioned the department faced a number of constraints due to underfunding. However, inadequate market infrastructure, limited market information, and poor transportation networks limited available market opportunities. To enhance the effectiveness of livelihood strategies, there is a need for policies that improve access to resources and markets for smallholder farmers.

One development officer highlighted that ;

Due to markets' dysfunction, households became increasingly dependent on agricultural produce and are less likely to participate actively in markets. As a result, households that produced goods for the market were forced to halt and switch to producing mostly food crops for survival". She also highlighted the need to introduce market system development as a strong component of rural livelihoods (Interview with KII 72022).

In addition, Mudimu (2003) emphasizes that farmers' bargaining power has been constrained by their lack of access to marketing information when they market their products through traders. They become little more than "price takers" because of the comparatively little amount of sold output. As a result, farmers were unable to profit directly from higher product prices in the market. Farmers' capacity to access and use of market information was constrained by their low levels of education and the poor telecommunication infrastructure. Despite the monopoly held by the

government-run Grain Marketing Board (GMB), maize deliveries to GMB have not changed considerably from the past years. This is as a result of the GMB's low maize price, (ii) the market's low supply of maize, (iii) the high demand for maize at prices higher than GMB pricing in local markets in the producing areas, and (iv) farmers holding back their grain for speculation purposes. In addition, the GMB infrastructure has not been able to provide farmers with an accessible market where they may sell their grain. Farmers are still hesitant to sell to GMB because the government's response to the food gap through the statutory instrument has not improved the food security situation.

7.2.5 Lack of Access to Finance and Credit Facilities

As indicated in the previous chapters, the rural households in Muzarabani district are exposed to extreme poverty which is also characterised by lack of access to finance. Participants highlighted the limited credit facilities limit efforts to find money for capital requirements among small holder farmers in Kapembere and Muringazuva wards. During Focus Group Discussions in both Muringazuva and Kapembere wards, it was revealed that households prioritise activities that do not place an additional demand on their already scarce cash resources since they had significantly fewer options in terms of accessing financing for their endeavours. The situation was made worse by the nationwide lack of credit options or microloans intended for rural areas. According to Warren (2002), Barrett et al. (2001), and Hussein and Nelson (1998), one of the key elements affecting a household's capacity for diversification is the availability of assets like savings. Access to finance seems to increase the environment for viability of livelihoods in rural areas but not in urban ones (Ersado 2003). As a result, households were unable to take advantage of profitable livelihood opportunities due to credit constraints.

The main source of cash in the absence of formal loans is frequently from the savings and/or assets of the (extended) household. Government introduced the loans between 2011-2013 through the Ministry of Women and Youth. The uptake was low because most of the rural farmers did not have collateral security. The scheme was also politicised. Those with political affiliations had access compared to those without. One participant highlighted that:

A number of micro finance institutions have opened their branches in Muzarabani and Centenary, unfortunately most rural households do not qualify due to lack of title deed and collateral. No NGO has offered access to microfinance services. Most of these schemes fail before they start because of a number of factors, ranging from the hyper inflationary

environment, unfavourable terms that are too high for the local farmers, as well as lack of knowledge on various business models (Interview with KII4, 2022).

Despite efforts made by the Government and local NGOs such as MeDRA, very few attempts to promote microfinance institutions have been made. This is similar to the findings by Ellis (2000) who highlighted that the limited access to credit in rural areas can be partially attributed to the elevated expenses associated with establishing financial services and acquiring sufficient information on prospective borrowers. One of the participants revealed that the absence of access to credit facilities can restrict households from pursuing a wide range of livelihoods that have the potential to generate cash funds for the purpose of acquiring agricultural inputs or farm equipment. This observation was also revealed by community members who highlighted that the profits generated from diverse livelihood activities were allocated towards agricultural investments. The Extension worker further highlighted that:

The small holder farmers are constrained as far as access to financing and credit facilities is concerned. They have fewer options. This instead limits their livelihood options. The major challenge is the lack of bankable asserts, the land they have has no title deeds so no bank would accept is as collateral (Interview with KII ,2022).

The study found out that due to their limited financing options, most households place a higher priority on activities that do not add to the strain on their already limited cash resources. During a focus group discussion in Muringazuva ward, one respondent mentioned that access to capital is one factor hindering production and ultimately access to sufficient and nutritritious food items.

After we were trained by the Ministry of Women Affairs in project management, we tried to come together, from groups so we could borrow money from banks or micro finance institutions, but they see us as high risk, we have failed to raise money to set up a small restaurant business at the growth point (Focus Group Discussion Respondent, 2022).

The lack access to credit /microfinance facilities was a major issue which affected livelihood options in the study areas. The study found out that there were no rural-specific lending choices and microloans, which made access to food difficult. In one interview femaleparticipants highlighted that they once thought of starting a business. They each brought one beast so they could sell and buy the small equipment they needed for the bakery business. After they had sold their beasts, they managed to buy equipment for the bakery. However, they needed more money to secure a generator to complement the national grid when electricity was cut off. Thus, they attempted to procure a 5kv generator through a loan. Unfortunately, they failed to secure the loan

and they started the business without a generator. DThey stopped operating due to power cuts. However, they could not make profits due to limited machinery. All the women involved were worse off than they were when they started the project. This brings a different dimension to the livelihood discourse, where sometimes opted livelihood options further lead to vulnerability.

We all gave our cows, now I have nothing, the one I had left died from foot and mouth. We were almost there; a generator would have helped us. We tried to raise more capital to buy one unfortunately; no one was willing to lend us money. In the end we suffered, huge loses. I wish we had not tried this bakery business (Interview with P14, 2022).

This shows that farmers in Kapembere and Muringazuva had few alternatives for mobilising resources for livelihood strategies and activities. The lack of start-up loans or microcredit facilities for rural areas prevents them from pursuing other off -farm ventures, which are also critical in shaping household food security statuses. This further explains why most of these farm households resort to casual wage labour, hunting and gathering. These activities do not require capital. The study found out that there were no sustainable on and off farm agricultural financing options available to the households. The absence of title deeds also worsened their plight because it made it very difficult to access loans from the banks. The study further found out that the majority of farmers used their own money to finance their subsistence agriculture since they did not have enough operating capital to expand or even think about value addition and processing of their agro produce. Due to lack of capital and access to capital, rural farmers were unable to make investments in technology that boost output, such as machinery, herbicides, and fertilizers.

Participants revealed that lack of financial resources affected their livelihood strategies. In order to protect their daily living expenses, this study recommends households to develop small income-generating activities like "*mukando*" Internal Lending and Savings schemes (ISALS). MeDRA facilitated ISAL training for some groups in Kapembere and it was further suggested that in order to advertise their products, farmers should form community marketing associations or groups. They should also engage in cooperative cattle ventures, which could lower marketing travel expenses and allow resources to be put together.

These findings agree with a growing body of empirical literature (Ellis, 2000; Chifamba, 2019) that posit that in rural areas of developing countries credit challenges have negative impact on

profits, investment and farm output. These constraints have often been associated to credit market imperfections deterring sufficient access to credit for smallholder farmers. Contrary to policy discourses focusing on supply-side factors of rural credit, the results in this study illustrate that the demand-side factors are equally vital for enhancing access and utilization of rural credit. On the supply side, insufficient collateral is the main restriction; hence supply-side policies should emphasis on increasing smallholders' ability to own bankable security, such as assets or land title. On the demand-side, mediations such as crop indemnity, extension services and information access are required to increase technology adoption, credit access, and smallholder's agricultural productivity.

7.2.6 Lack of access to Early Warning Systems (EWS)

Furthermore, the study found out that lack of access to early warning systems was one of the key constraint hindering access to food . In terms of knowledge around climate change and its impact on food security at household level, 67% of the farmers in Kapembere and 55% showed knowledge of climate change and its impact on household food security. However, all farmers from the two wards were not aware of recent advances regarding climate change; this poses serious challenges to desired livelihood methods. This is the knowledge which is also required to make the best livelihood decisions that would enable them to solve household food insecurity and be resistant to shocks and stressors. Household in both Kapembere and Muringazuva exhibited limited information on early warning systems that should support agricultural activities. This corroborates Kuwenyi et al. (2014) who highlighted that access to climate related information is critical in informing livelihood decisions for rural farmers. Still on that, Abur (2014), and Adugna and Fikadu (2016) suggested the idea that accurate climate predictions are necessary to help farmers choose among various coping strategies. One of the participants highlighted that the lack of knowledge on early warning sustems made it difficult to cope with climate variability and this had grave implication on food security. The participant noted that;

The absence of early warning information, however, makes it challenging households to plan and come up with effective strategies. As a result, most households in Kapembere and Muringazuva and in Muzarabani as a whole are increasingly vulnerable to the effects of food insecurity yearly because they cannot produce enough grain or food for their consumption (Interview with KII5 , 2022).

The traditional and conventional early warning systems should both be updated as far as practical interventions are involved. The councillor went on to say that:

Because they are familiar with the local knowledge systems that have historically succeeded under the current socioeconomic and physical conditions, the households should take the lead in reviving indigenous knowledge systems (Interview with KII5 2022).

The study further highlighted that access to information is vital to improve households' knowledge and their ability to address household food insecurity. The respondents highlighted that they would prefer information to be shared through communication mediums like newspapers, booklets, farmers' magazines, face to face meetings, outreaches and radio platforms. Furthermore, participants highlighted the need to increase the number of agricultural extension officers to assist households with environmental concerns and climate related issues. The extension worker mentioned that achieving household resilience to climate shocks and food security requires a multi sectoral approach, therefore efforts needed to increase household resilience to a variety of ecological stresses and shocks in terms of innovation and financing of the interventions. One of the participants highlighted that:

Lack of information on climate change and Early Warning Systems (EWS) pose severe problems to preferred livelihood strategies as most households are oblivious of modern developments concerning climate change. Thus, households are not well equipped with adequate knowledge which will help them to choose the most appropriate livelihood options which will allow them to address household food insecurity. (Interview with KII3 2022)

Nevertheless, the study found out that the absence of timely warning data is a challenge for households in the two wards, primarily in terms of their ability to strategize and develop effective measures for dealing with adverse circumstances that affect their food security statuses. Regarding practical solutions, it is advisable for key stakeholders working in the area, including the government to allocate resources towards the enhancement of both traditional and conventional early warning systems. There is also need to promote the use of indigenous knowledge systems which the communities have been using since time immemorial. This will be a useful tool as they possess an intimate understanding of the historical efficacy of local knowledge systems within the context of prevailing socio-economic and physical circumstances in the two wards.

7.2.7 Lack of access to Labour

The labour dynamics within rural communities is always an interesting theme to engage in. Analysis of the rural economy in Zimbabwe, often assumes that hired work is significant solely in the production system of 'commercial' farms, whereas smallholder farmers' mostly depend on unpaid family labour (Adams 1991). The study explored the labour dynamics involving these rural smallholder farmers in Muzarabani district. The study further sought to understand how labour is a deterrent or success factor for food security in the study area. Results also showed that one of the factors influencing the impact, either in a positive or in a negative manner of livelihoods in Muzarabani is the availability of home-based labour. On average, 42% of households in Kapembere and 49% of households in Muringazuva wards recorded that able bodied man left to search for better livelihood options. Because most households' able-bodied individuals migrated, there was little access to labour for most homes. According to Ahmed et al. (2015) and Dube (2016), households with limited access labour have less livelihood options. Their choices are constrained. During FGDs in both wards, it was highlighted that in order to increase households' capacity for cropping, it is necessary to establish labour-sharing agreements in the research area. These are social groupings usually formed by people of the same village where they take turns to work in each other's fields to provide excess labour. The concept is not new, it is an old traditional practice known as *nhimbe*. One farmer, P19 shared her experience on the concept. She highlighted that:

When it is time to weed or to harvest, sometimes I brew good beer then I call people to come support me for free beer. I also kill a goat when I have one to kill so that people can come and support me in the field. This practice was being done by my grandfather and I have seen how beneficial it is. The neighbours come together and the job that was supposed to take me 7-10 days can take me 1-2 days depending on the number of people who come (P23 ,2022).

Still on labour, the study also found out that there are other households that seek casual labour in other farms that are well off. This is rather a different dynamic from the commercial farm set up because commercial farms are big so the labour is also quite a lot, however in lower Muzarabani where the plots are averagely 6 hectares, the labour is not much. One respondent, P43 in an interview highlighted that:

Working for these farmers is a good practice but sometimes the remuneration is too little. Usually, you are hired to till the land, weed, plant and even harvest. This kind of labour is

not so dominant in Muzarabani district since farmers no longer utilize most of the arable land due to low rainfall (Interview with P43, 2022).

The point above was reiterated by another respondent, P39, during a household visit who indicated that it is not common to get casual labour opportunities in lower Muzarabani District. This is because there is not much cash cropping happening at the moment. Most of the households that are involved in casual labour migrate to upper Muzarabani areas of Centenary, Chidikamwedzi, Mvurwi and Mazowe, where they get to work in A2 farms which are bigger in size and more commercial. However, the implication with this labour migration is that, there is a void that is left in any household when the able-bodied men go to other farms to work leaving no one to continue with crop production in their home. This tends to expose everyone to household food insecurity.

Furthermore, the findings demonstrate that insufficient capacity and knowledge amongst rural farmers in sustainable agricultural methods (Conservation agriculture) is another barrier to the adoption of viable agricultural livelihoods in the research area. In addition, the farmers from the two wards indicated a lack of capacity building around income generating activities and other livelihood strategies that are context specific. Furthermore, the study found out that pursuing particular livelihood pathways can be seen as either a way to guarantee household food security or as evidence of expanding household prosperity. The fact that most off-farm livelihood activities take place after the farming season shows how important farming is to the area as the primary source of income. Droughts and other climate-related issues had an adverse effect on the Muzarabani people and constituted a severe threat to agricultural productivity.

In addition, the findings also showed that one of the factors that determine the choice of livelihoods in the two wards is the availability of household labour. Due to the exodus of physically capable family members, the majority of households had limited access to labour, especially for labour intensive activities. Most men and able-bodied young men leave their homes to go and seek better employment opportunities. This is in line with a study by Ahmed et al. (2015) and Dube (2016) who suggested that households with limited labour have weak livelihood options. When asked about how most households cope with the labour shortages, the respondents indicated that they resorted to labour sharing as the main strategy, where those who are able bodied supported those who needed the labour in exchange of grain, payment or out of good will.

7.2.8 Lack of Access to Enabling Resources and Supporting Rural Infrastructure

Rural infrastructure development has a significant potential to support the growth of rural livelihoods and the reduction of poverty because it has the potential to enable integration with national economies, the transfer of information, effective markets, and an increase in the working mobility of people, resources and outputs. Infrastructure development includes rural electrification, good road networks, and access to clean water and sanitation facilities, communication through mobile phone coverage and internet, as well as conducive policy environment which ensures the full utilization of the infrastructure. The findings show that there were good road networks in the two wards that connected to Muzarabani Growth Point. Muringazuva is closer to the growth point compared to Kapembere. This gives a comparative advantage to farmers from the ward when accessing the markets at the growth point. The Farmers in Muringazuva ward also easily had access to Muzarabani clinic which is about 5kms from the ward. When asked about the importance of infrastructure, one officer KII 4 Officer from the rural district council highlighted that:

Enhancing rural infrastructure is crucial for improving rural lives and promoting sustainable and eco-friendly agricultural production. Infrastructure has a substantial impact on socioeconomic results and the configuration of agricultural growth (KII4, 2022).

The results of this study corroborates Maparu & Mazumder (2020) who postulate that effective expansion of rural transport can help achieve sustainable development goals such as poverty reduction, zero hunger, food security, improved health, education access, women empowerment, clean water and sanitation access and inclusive growth. The findings from the study showed that the infrastructure across the study area is somewhat dilapidated. The market stalls at Muzarabani Growth Point were also not well kept. One of the dip tanks in Muringazuva ward was not working while three boreholes were also not serviced in the two wards. The infrastructure in the two wards was exposed to vandalism and theft. This occurred to all major projects that were initiated across the two wards. One of the community leaders stated that:

There is a problem of theft in the ward; people steal perimeter fences, taps and other easy to carry items from the community garden and from all community projects. This is attributed to lack of ownership (KII6, 2022).

The researcher observed that there were designated points of trade in both Kapembere and Muringazuva. With Kapembere having two trading points with shops, and Muringazuva only had

one. However, the findings from the study showed that most households from the two wards travelled to Muzarabani Growth Point to purchase their groceries because of a number of factors such as prices, availability of choices as well as access to refrigerated products. While the two wards are connected to the main road which goes to the growth point, the furthest parts of Kapembere and Muringazuva wards are further from the main roads. The farmers from those parts of the wards struggled to access basic services such as health and other services due to long walking distances. One respondent during a household visit highlighted that:

Where we stay, we rarely get support from the extension worker, because it is too far to walk. There are few kombis⁵ and mushikashika⁶ cars that cover our areas. We have to walk long distances to come to areas where the extension worker can manage to visit. Out villages are further from the main roads, we also face a challenge of wild animals such as wild boars that eat our crops in the field (Respondent, 2022).

The results highlight that poor road conditions and inadequate rural transportation infrastructure provides a barrier for the farmers in the two wards to access equipment, farming methods and strategies. These small holder farmers often have to decide whether to invest in costly technology and other resources, balancing their need to participate in the market with their household's subsistence needs. Therefore, it can be noted that providing safe, reliable, and affordable infrastructure and services for rural transport is crucial to improve rural access to markets, services, employment opportunities, health, education, and to enhance agricultural production. This also helped in developing efficient supply chains for crop delivery, reducing food losses and ultimately working towards achieving zero hunger and reducing poverty. Transportation in rural areas is essential for guaranteeing food security by linking farmers to markets.

7.2.10 Lack of access to improved technologies

In order to achieve household food security, farmers should have access to technology in the form of smart phones, labour saving technology and post-harvest technology. Smallholder farmers often face challenges in adopting technology for their agricultural practises, whereas larger-scale commercial farmers are more capable of embracing technologies that effectively reduce the per-unit cost of production, enhance productivity and ultimately enhance profitability. According to a United Nations 2021 report, the rise of new digital technologies provides an opportunity to bridge the rural-urban divide, by providing rural populations with access to digital finance, precision tools

⁵ Kombis-Minibuses that ferry people

⁶;Mushika-shika-small vehicles that ferry people. Usually they are not registered for that purpose

for better crop yields as well as jobs that can be done remotely. This brings out the importance of technology in ensuring viable and sustainable rural livelihoods and ensuring household food security. In terms of technological advancement, households in Kapembere and Muringazuva are still lagging behind. This is actually the case in most parts of rural Zimbabwe. The results illustrated the need to invest in technology as a way of improving rural livelihoods and ensuring household food security. One of the participants hinted that:

Technology strengthens all four facets of food security: availability, access, utilisation, and stability. For instance, genetic modification can increase food supply by accelerating the process of creating new varieties with desirable characteristics. Agro-processing technologies reduce post-harvest losses and enhance the quality of processed goods, thereby increasing food accessibility. (Interview with KII8, 2022).

Still on the issue of improved technologies, the study found out that the small holder farmers primarily depend on the labour of their households for cropping and other livelihood activities due to lack of draught power, and improved technologies like tractors and tillage equipment. Participants highlighted the need for additional labour and possible technology to assist with planting, weeding, harvesting and even tillage and land preparation. In emphasising the need for improved technologies to increase agriculture output and reduce losses for the farmers, one of the participants highlighted that:

There is also need for the government and stakeholders to invest in post-harvest technology to reduce the losses associated with post harvesting processes. This investment should also include developing strategies and localized mechanisms for food and agro processing plants, packaging and adding value to produce which will in turn increase the income small holder farmers gain from their work (KII3,2022).

A number of key issues were raised on the role of improved technologies. Participants acknowledged that improved technologies have the potential to increase the overall crop output and even the non-farm livelihoods. For example, it was noted that agro-processing technologies reduced post-harvest losses and also improved the quality of processed products, making food more accessible. Technologies such as bio fortification, known for improving nutrition, helps mitigate human micronutrient deficiencies (Source). Drones and satellites, used for territory surveillance, mapping and crop health monitoring, contribute to more stable agriculture production. In addition, technology benefits the small holder farmers through promoting precision agriculture using satellite technology to analyse soil carbon and fertility and crop health. Therefore, the lack of access to these kinds of innovations means the rural small holder farmers counted their

loss during harvesting. Farmers also lost a lot of time in land preparation and planting thereby resulting in the reduction in cultivated areas.

7.2.11 Lack of conducive policies for livelihoods

The results illustrated that lack of supportive policy framework was one of the factors inhibiting viability of off-farm and on farm activities in the two study areas. Literature review showed that there is a glaring lack of a clear framework of supportive policies for rural livelihoods in Muzarabani and in Zimbabwe as a whole. In addition, the study found out that NGOs, private sector companies, the government and other development actors have not fully supported rural livelihoods in the area. This means the smallholder farm households in Muzarabani are compelled to rely extensively on own food production due to a lack of alternatives. The failure to produce adequate food for own consumption affects food security in the study areas.

The MeDRA programme officer highlighted the need for the government of Zimbabwe to develop a robust and comprehensive rural development policy that outlines measures to combat poverty and improve rural livelihoods. She highlighted that such a policy would shape the livelihood decisions of rural households in a positive manner. Conducive policies should be enacted to promote growth and sustainability of livelihood activities. Participants raised questions around the lack of an integrated, sufficient government policies and programs to empower rural small holder farmers. Furthermore, the lack of policies favouring micro finance and input schemes to assist rural small holder farmers in increasing their agricultural productivity featured prominently during the discussions. In addition to that, the respondents also highlighted the need for the government and all stakeholders involved to promote value addition of produce such as tomatoes, vegetables, local fruits, grain and poultry. Furthermore, the respondents highlighted the need to promote market linkages which would link the farmers to more rewarding markets in bigger cities, and other parts of the country or even outside.

The study also found out that the government's response to climatic threats and stressors like droughts and flash floods was rather slow in most cases. This meant the farm households did not get adequate support to save their livelihoods and assets during a strain. Farmers lacked the ability to bounce forward after having gone through a drought or a flood, which was attributed to the lack of systems and structures that were necessary to build resilience. In most cases, they were worse

off after losing their assets, houses and savings. This point was further reiterated by one participant who highlighted that:

Most of the households sell their assets whenever the threat of food insecurity looms. Some sell goats, cattle, ploughs and even kitchen utensils as a way of coping with food insecurity. However, this presents an unfortunate situation because for those that would have sold their assets, they will have to start rebuilding their asset portfolio which is critical for their daily livelihood, meaning they are always playing catch up. These are the families that are in most cases entangled in a cycle of poverty, and they will remain food insecure for the larger part of the year (KII, 11, 2022).

The study further found out that households in Kapembere and Muringazuva wards faced significant challenges due to the lack of accessible governmental institutions and farming information. This shows how much government policies have a significant impact on whether livelihood methods for household food security are more or less effective. For instance, the Government's Fast Track Land Reform Programme, (FTLRP) affected agricultural production and reduced productivity in the whole country leading to the increase of most basic food commodities (Source). The policy had an impact on the smallholder farmers' capacity to benefit from their farming endeavours and, consequently, their ability to obtain food in the household. This was primarily because most of the households were engaged in casual labour. The farm households worked in the commercial farms near Centenary, Mazowe and Mvurwi areas as a way of supplementing their income. However, since the FTLRP they did not get enough paying wage labour. The resettled farmers who are mainly A2 farmers have not been successful compared to the previous commercial farmers.

In addition, the study findings show that after the Fast Track Land Reform was implemented across the whole country, although lower Muzarabani was not part of the programme, a lot of farmers from lower Muzarabani moved to the upper part to try and secure land in more arable and productive areas. However, not all were successful in this endeavour. When asked about the impact of the land reform on the rural farmers, the ward councillor for Kapembere highlighted that some of the farmers who were successful in getting land in more productive areas in upper Muzarabani during the land reform still own their communal plots in lower Muzarabani. He went on to say that, some of these homesteads are just being maintained but the land is not being utilized. Some of that land is redundant, however, there are however different cases where those who remained

behind now expand their farming activities into the fields of those farmers who are now based in upper Muzarabani. The ward councillor further went on to say, if possible, it would be great that there are changes in policies so that land could be redistributed to those who want it to avoid a case of land holding as experienced in some sections of the two wards.

7.3 Drivers of livelihoods Vulnerability and Food Insecurity

According to Robert Chambers, vulnerability is a complex state influenced by social, economic, and political factors that undermines the capacity of people and families to meet their basic requirements. Chambers defines vulnerability as a state of being defenceless, insecure, and exposed to dangers, shocks, and pressures, making it challenging to cope with them. Participants in the study were asked about the causes of food insecurity and livelihood vulnerability. Leading scholars, including Ellis (1998), Birds and Shephard (2002), and Chambers and Conway (1992), agree that rural poverty and livelihood vulnerability in Zimbabwe's semi-arid regions are the result of a complex interplay of socioeconomic and environmental factors and processes operating at various scales. The discussion of food insecurity and livelihood vulnerability elicited many answers, highlighting the complexities of poverty and vulnerability in Kapembere and Muringazuva. The two wards under research revealed that access to arable land is the principal influencer of food insecurity and livelihood vulnerability. This is primarily because land is the most productive resource. With arable land, the farmers are able to grow food enough to consume in the household and be able to sell the surplus. This was reiterated in an interview with one of the farmers, P30 , who highlighted that:

One of the biggest challenges we have is the land we have is rather difficult to grow crops on it. There are few portions of land that are fertile, in most cases one has to rely on fertilizers which are now very expensive and sometimes not easy to find at the growth point, meaning you will have to go to Mvurwi or Centenary which requires more money for transport. This makes it difficult to produce food enough for me and my family. The portion of land I have which is productive is small, most of the land I have is full of stones and sand which makes it unfertile (P30, 2022).

In Zimbabwe, available information indicates that climate-induced extreme weather events, such as droughts, cyclones, flooding, and heatwaves, are already causing substantial disruptions to the agricultural and food production operations of small-scale farmers (Muzerengi 2023). This occurrence is progressively undermining the capacity of the rural small holder farmers to acquire and secure sustainable means of living, as well as stable income which they can use on other

necessities such as health and education. Muzarabani is faced with the tangible consequences of climate change, including widespread food insecurity, limited access to water, low rainfall, climate induced flooding and the depletion of livestock as well as the continuous deterioration of soil fertility.

In an interview with the Agriculture Extension Worker, it was shown that climate change has led to an increase in pests and illnesses affecting both livestock and crops. Additionally, there has been a decrease in the amount of food consumed per day, loss of biodiversity, and a decline in crop productivity. A significant livestock increase was recorded in Kapembere between the years 2013-2017 (23%); while in Muringazuva there was an 11% increase. During a focus group discussion in Kapembere, one respondent highlighted that:

Last year, the first rains came in December and we ploughed maize, groundnuts and round nuts. The rains however stopped when our crops were not ready for harvest and all crops were burnt by the sun leaving us with nothing to harvest. We have experienced four consecutive years of drought. We depend on farming to get food and we haven't been able to harvest much from the fields. We now survive on doing menial jobs for people who give us a bucket of maize or money in return (Focus Group Participant 2022).

During an interview with P36, an elderly farmer who is taking care of her four grandchildren;

Years ago, we could pick mushroom in certain areas during the rainy season, we also used to receive significant rainfall. Unfortunately, this is no longer the case. Now we do not receive enough rainfall (Interview with P36, 2022).

P36 went on to say that;

The borehole close to our homestead dried up and we now fetch water at a well which is about 5 kilometres away. Walking such a long distance is tiring and sometimes you get to the well at 9 am only to fetch water at 1pm because of long queues. At times the water gets finished and we have to wait for it to seep through the well until it fills up again. It's the only well in our community so everyone fetches water there (P36, 2022).

In addition, rural farm households' lack of institutional facilities and the lack of access to knowledge on adaptation to climate change, such as the proper types of crop varieties, access to farming inputs like pesticides, and access to vaccines for their livestock greatly affects their livelihood outcomes in a great way. In general, it can be said that in the area under study, household livelihood strategies are either viewed as a necessity driven by the household's poor status or as a choice driven by a desire to raise the standard of living in the home (Ellis 1998). During Focus

Group Discussions in the two wards, it came out strong that, livelihood strategies can either be viewed as a means of ensuring household survival or as proof of rising household income. The importance of farming as the main livelihood activity in the two wards is evidenced by the fact that the majority of non-farm livelihood activities are carried out after the farming season. However, the types of non-farm activities that households choose appear to be more influenced by the availability of skills and cash. This was confirmed by one participant who mentioned that:

For non –farm livelihood activities, an individual will always draw towards an area where they have the necessary skills for example gold panning, trading, and gathering. The other influencing factor is the availability of cash or capital to start a new endeavour. (Interview with P 47, 2022).

The study further found out that the agricultural productivity of smallholder farmers is significantly impacted by climate variability. In an interview with an officer at MeDRA, KII1 It was brought out that;

The potential for sustained diminishing returns in agriculture, which poses a significant risk to food security, may serve as a catalyst for households to pursue diversification strategies. This suggests that one of the primary drivers for engaging into various livelihood strategies is the presence of environmental uncertainty, which caused unpredictable rainfall patterns or drought conditions. In such circumstances, expanding the livelihood portfolio, for example through livelihood diversification serves as a kind of self-insurance (Interview with KII1, 2022).

Berry (1980) posits that broadening of income-generating activities or livelihoods plays a pivotal role in mitigating the inherent risks associated with farming in Africa, with Muzarabani not an exception as highlighted by the findings from the study. For the farmers in Kapembere and Muringazuva wards, these risks primarily stem from the uncertainties surrounding crop yields, which are contingent upon factors such as rainfall and input supply, as well as the uncertainties surrounding farming incomes, which are influenced by both yields and prices. Therefore, the desire to pursue livelihood strategies may also be motivated by the necessity to adapt to climate change or catastrophes, such as drought. This is in line with a study by Haggblade, Hazell, and Brown (1989), who posits that diversification of livelihoods is considered a logical strategy to mitigate the impact of climate risks and reduce transaction costs in areas with reduced agricultural potential.

As highlighted during a focus group discussion in Kapembere ward, In instances of crop failure or livestock mortality, households in Kapembere and Muringazuva typically adapt by reallocating their labour towards alternative livelihood endeavours, including employment outside of the agricultural sector, informal employment outside of the agricultural sector (such as hunting), or engaging in non-agricultural enterprises within the confines of their own farms (such as brewing, petty trade and mining).

These findings corroborate with research conducted by Reardon (1992) in Burkina Faso, which found that off-farm work had a significant role in providing individuals with cash income through labour wages. This income helped them mitigate the adverse impacts of drought, hence enhancing their ability to cope with challenges of food insecurity. Additionally, the findings indicate that households with on-farm incomes shown a greater capability to cope with these difficulties. One of the participants noted that engaging in various livelihood strategies was a common approach among households in the study area.

Despite the aforementioned factors, it is worth noting that diversification is a common strategy employed in response to climatic risks. The main reason for diversification of these livelihoods by the households is that they are able to safeguard their gains in the form of income and agricultural output and livestock. Diversification allows the households to go through the lean season with minimum damage to their safety nets, because pursuing other livelihood activities, apart from farming, they increase their income (KII4 2022).

Furthermore, Reardon (1999) indicates that non-farm activities are most prevalent in regions with above-average agricultural productivity. This finding emphasises the significance of considering inter-sectoral connections when analysing economic dynamics (Haggblade et al., 1989; Reardon, 1997). In addition, the findings of this study show that engaging into non-farm livelihood strategies is pursued by the households as a means of supplementing farming activities rather than replacing them. This was echoed during FGDs and during household visits where various respondents from the two wards indicated that the farmers engage in non-farm activities to complement income raised from agriculture-based livelihoods, especially during the non-farming season. In addition, it is worth noting that climate variability might potentially influence the decision-making of households, either by encouraging them to engage in certain livelihood activities which might be off farm or by impeding their ability to do so.

In the absence of enhanced market access, rural populations within the Muzarabani District would be compelled to rely on alternative markets outside the district as evidenced by the movement of farmers to neighbouring Mvurwi and Centenary towns in search of markets. It is also worth noting that since some assets can only be effective when used in combination with other assets, consideration should also be paid to how assets might be supplemented (Barrett et al., 2001). The ability to deal with the loss of capital assets required for carrying out conventional on-farm production may also be the influencing factor for the choice of livelihood activities. The study also found out that the households diversify into non-farm activities as an instant response to deal with declining access to arable land, rising producer/consumer ratios, credit delinquency, and environmental degradation. The study also found out that households' livelihoods are determined by the decisions they make about how to use their asset portfolio to pursue goals like financial security, wellbeing, and other productive and reproductive objectives. The agriculture extension worker, KII3 highlighted that:

The number of assets owned, such as cattle, arable land, skills and knowledge, are positively and significantly associated with increased income, even after controlling for level of income (KII3 2022).

Therefore, assets serve as both a crucial component of production and an indicator of increased household income by demonstrating the household's ability for diversification into other forms of livelihoods. The extension worker's observations were in line with MeDRA data which indicated that households that survive droughts and food shortages have higher than average levels of income and food consumption, as well as a more diversified income base and more valuable assets on hand, especially livestock.

According to Warren (2002), engaging into different livelihoods can be done specifically to increase the household's asset base by saving money for buying more land, providing educational opportunities for children, or saving for the future. This entails using livelihood decisions as a strategy to improve the environmental sustainability of a certain way of life. Yet, one of the main issues facing academics who study lifestyles is how certain livelihood decisions affects survival in comparison to asset accumulation and the proportions of income used for consumption vs investment from the various conversations with the farmers in Kapembere and Muringazuva wards diversification of livelihoods is a function of a stronger asset portfolio. According to the study findings, land and livestock were identified as the primary sources of subsistence for households.

There is a positive correlation between wealth and the dimensions and composition of land as well as the quantity of cattle. However, the majority of households from the two wards, across various economic statuses face challenges in producing sufficient food for their own use due to climate induced droughts which are caused by inconsistent rainfall patterns the study also found out that households with higher socioeconomic status own a greater abundance of agricultural resources and are actively involved in commercial trading activities. In contrast, low-income households often address their livelihood deficits by participating in informal labour activities. These are the households that provide casual labour in bigger farms in upper Muzarabani area.

According to the Comprehensive Food Security and Vulnerability Analysis Ethiopia (2013) report, (90%) of households in rural areas rely on agricultural production, livestock, and a combination of the two. However, they remain food insecure because own production in dry lands is no longer viable. These findings are similar to the findings of this study which highlights that over 70% of households in Kapembere and over 68% of households in Muringazuva wards were food insecure because they rely on agriculture production which is rain fed as the main livelihood and source of their food. These conclusions can also be drawn for the communities of the broader Muzarabani district. Throughout the past 10 years, a variety of problems have added to the huge pool of livelihood shocks and strains that have impeded households in the Muzarabani district, shaping and continuously mediating their vulnerability setting. These vulnerabilities have outlined the type and degree of effects caused by the current physical and socioeconomic conditions in the district.

When looking at the primary source of vulnerability in Muzarabani District, the study found out that drought is the main challenge, which leads to agricultural and animal losses and has a severe negative impact on the lives and livelihoods of farmers. This is in line with Von Braun and Olofinbiyi (2007) who postulates that the majority of Zimbabwe's population lives in rural areas and relies on small-scale rain-fed agriculture, which is extremely vulnerable to climate change. Other factors such as floods, rising food prices, pests and disease outbreaks, and limited access to water and medical facilities have contributed to the country's ongoing vulnerability in the district under study. In addition, factors such as poverty, lack of resources such as productive assets, few alternative sources of income and livelihoods, lack of knowledge and competence, and lack of funding and public policies that are appropriate; also impair the smallholder farm households' capacity to deal with shocks such as food insecurity.

Additionally, several research participants expressed that they feel the central sense of government is not doing enough to emancipate rural communities, as seen by the absence of infrastructure such as roads, telephone networks, market growth, and access to electricity in their individual localities. P51, a 43-year-old widow from Muringazuva who inherited the property after the death of her parents, suggested that:

Life is very difficult in this community and that is why most of us are poor without assets or even capacity to grow crops in a good season. We lack incomes because of limited livelihood and employment opportunities in this area (P51, 2022).

Participants also emphasised that the absence of collateral to get loans from banks was negatively affecting their chances and possibilities for livelihood improvement. It is evident that lacking access to financing makes it challenging to get initial funding for a potential enterprise or to enhance crop varieties and animal breeding in rural areas. Furthermore, the study findings show that the unpredictability of rainfall, crop failures, and reduced soil fertility significantly impact the chances of livelihoods and contribute to further vulnerability. Both in Muringazuva and Kapembere, there were responses focusing on how the agro-ecological qualities of the two wards had a detrimental effect on their agricultural prospects. One respondent during an extended household visit in Kapembere emphasised that the ward lacks vegetative cover due to infertile soils and insufficient moisture retention capabilities, making it unsuitable for plant growth. While some areas of Muringazuva ward possess excellent soils, participants have indicated that the fragility of livelihoods and the presence of poverty stem from the failure of rain-fed agriculture, as well as the challenge posed by pests and problem wild animals, especially in the villages that lie along the wildlife corridor near the Mavhuradonha mountain range.

7.3.1 The impact of Climate change on Livelihoods and Food Security

Climate change has intricated impacts on food production. The direct implications include alterations in agro-ecological conditions, while the indirect consequences involve modifications in economic development and the distribution of incomes. These changes subsequently influence the demand for agricultural output (WFP 2012). The District Social Development Officer during an interview highlighted that climate change affects the availability and productivity of natural resources such as arable land, the environment and rainfall. He further highlighted that such a

scenario makes it challenging for the rural households in Muzarabani to put livelihood strategies into action and be able to achieve much. This was further postulated by Chitongo, (2019), who highlighted that climate change and related stressors have an impact on human development by stabilizing or destabilizing the livelihood systems of the most vulnerable and poor individuals). More specifically, interviews with the smallholder farmers in Kapembere and Muringazuva confirmed decline in agricultural output over the years. P52, a 76-year-old farmer whom lives in Chafesuka village, Kapembere ward shared with the researcher how rainfall used to fall for almost 4 months a year. Now they only receive rains for less than two months.

Some years ago, it would rain and the rivers would be flooded, we would go for almost four months with the rainy season. Now it rains for less than two months. The rains are not even sufficient to fill up the rivers. Our animals have to go long distances in search of water for drinking and pastures (P52, 2021).

Furthermore, the district officer from the Environment Management Agency (EMA) highlighted that climate change is real and there is need invest in mitigation measures as well as improve early warning systems. He also mentioned the need to involve the local communities in the two wards when shaping strategies and approaches. The study found out that the two wards through their village heads have a huge knowledge and understanding of environmental protection issues which they were taught in the two wards by EMA some years ago. In an interview with an officer from MRDC, the amount of firewood poaching is weighing heavily on the district; it is also a cause of concern. The households are encroaching into the Mavhuradonha Mountain range, which is a protected environment area. He also mentioned that firewood theft, which is the leading cause of deforestation, could be reduced if renewable energy sources, such as solar and wind, are made available and accessible to the local community through the implementation of development schemes. Food security in the two wards was found to be threatened by climate change and variability based on the assessment of production levels for a few key commodities. For instance, household respondents reported that crop production has declined or has decreased significantly over the past 10 or more years. Since the output is primarily rain-fed, water scarcity has made this situation worse.

7.4.1.1 Food Security Status based on Household's Self-Assessment

The results obtained from the extended household visits and ongoing engagement with smallholder farmers indicate that out of the sampled households, only 33% of the households in Muringazuva and 29% of households in Kapembere wards were food secure. Similarly, the percentage of households whose crop production output was sufficient to meet household consumption needs was approximately 58% in Kapembere and 60% which rather shows a disparity in the proportion of food secure households. This is because some household sold their produce to gain income which they used to purchase other commodities and other services. These included paying for school fees, buying more livestock and equipment as well as investing in other livelihood pathways such as trading. This was reiterated by one interviewee who highlighted that:

When my family and I manage to grow a lot of maize, vegetables, or sorghum, we are also able to sell some of our produce so that we can use the money to buy meat, farming equipment, and even pay school fees for my children. Sometimes I use the money to start another business, for example there was a time when I sold my maize and I used the money to buy second hand clothes from Harare to sell in Muzarabani (P53, 2022).

Through a comparative analysis of the proportion of homes that self-evaluate as food secure, it becomes evident that a minimal number of households were able to achieve food security through their own production efforts. On average, households often relied on their own output for approximately five–six months of the year. However, most respondents highlighted that this depended on rainfall pattern received in the previous cropping season.

A notable disparity in consumption from own output was observed when considering the gender of heads of households. In male-headed households, the duration of consumption from own output was around nine months, but in female-headed households, this duration was approximately six months. One of the key points to note from the focus group discussions is that during the lean season the dietary diversity is low, there are limited options for cereals and pulses. To collect this data, participants were asked about their knowledge of healthy diets, factors influencing their food consumption, their perceptions regarding food insecurity, barriers to food security, coping strategies and solutions to improve access to nutrient-rich foods. During one interview with a female household head, she indicated that during the farming season they indulge in contract work which they call “*maricho*”⁷. They usually get paid in money, food items or clothes. When they get

⁷ A form of casual labour practised by the rural households

money, they also get the liberty to buy alternative cereals such as rice which is a favourite for most children. According to IFPRI, (2007), most studies on the food security of households have an emphasis on objective indicators that are based on the household spending survey, as stated by Although, kilocalorie availability is a crucial instrument for measuring food security, it ignores the subjective measurements that are based on how households perceive their current condition with regard to food security, which are just as crucial for the investigation of household food security Furthermore, the measurement of food security takes several indicators into account, such as the quantity, the quality, and the diversity of food . Another key indicator of food security is the share of food expenditure in the total consumption expenditure of the household. The higher the share, the more vulnerable the respective household is from a food security perspective. This study incorporated a particular indicator, namely the subjective evaluation of food security levels by the households under investigation. This methodology was employed to gain an understanding of the household's perception on their level of food security. The study participants were requested to assess the level of food security within their households and indicate the duration for which their households are able to meet their food needs through self-production, purchasing, donations and remittances . This methodology was employed as a supplementary approach to augment the existing instruments utilised for assessing the food security status of households in Muringazuva and Kapembere ward.

7.4.1.2 Coping Strategy Index (CSI)

When confronted with food insecurity, the rural households in Muzarabani devise strategies to navigate this predicament. The tactics employed are sometimes referred to as coping strategies. They assist individuals in navigating challenging periods of food scarcity. The Coping Strategy Index (CSI) is a quantitative tool used to assess the range of behavioural reactions exhibited by individuals when confronted with food shortages. The coping mechanisms employed by households in response to food-related challenges were identified and categorised in this study as coping strategies. These coping techniques, together with their frequency and intensity, were used as an additional measure of household food security, as suggested by Maxwell (1996).

The strategies revealed by focus group discussions (FGDs) from both Kapembere and Muringazuva wards closely align with the parameters outlined in the manual developed by the Food and Nutrition Technical Assistance programme (FANTA). The findings from the focus group discussions (FGDs) reveal that the households in the two wards frequently employ coping

strategies. Additionally, the households in Kapembere and Muringazuva distinct coping mechanisms, such as informal labour (referred to as "maricho" and asset disposal, which were also noticed. While it is a typical behaviour, families in the two wards being studied used temporary consumption strategies to mitigate the effects of food shortage, particularly during the lean season. The study further found out that when traditional dietary options were disrupted, these coping mechanisms served as fall-backs. This was reiterated by one participant during a focus group discussion in Muringazuva ward who highlighted that:

There are at times when we run out of food in the household, and I have little to give my children. What i normally do as a way of coping with the threat of food insecurity is to go and work in the farms close to Centenary, where I will be paid in cash and sometimes in kind which comes in the form of grain, cooking fat and sugar. This will then allow me to at least be able to provide food for the family. The situation is actually better when both my husband and I go to work because we will get more out of the endeavour. (Focus Group Discussion Participant 2022)

Furthermore, the study found out that the coping techniques that were adopted by the households in the two wards did not exist in isolation from one another. Instead, they employed a combined approach that encompassed both financial and food-related compromises. The utilisation of adopted coping methods proved to be ineffectual in mitigating the issue of food insecurity. However, the social development officer from the rural district council when asked about the coping mechanisms of the farmers highlighted that the utilisation of preferred coping strategies has negative implications for the future livelihoods of rural communities in the Muzarabani district. His observation suggests a lack of resilience in coping with food scarcity. Furthermore, the findings from the study indicate that households in the two wards engage in risk reduction strategies and employ strategies to address food shortages in order to maintain a basic level of sustenance. This was further postulated by one participant during a focus group discussion who highlighted that:

It is the situation at home that will force you to go and start engaging in casual labour or to start selling your goats, chickens and even household utensils. This is because when there is no food in the household, the mood changes, therefore you just try as a parent to make sure that you provide for your family. (Focus Group Discussion Participant 2022)

Moreover, the study found that households also engaged in the disposal of productive assets in cases when there was a persistent shortage of food. This presents a precarious situation, because

when they sale assets, they are weakening their livelihoods assets which in turn manifests into weakened resilience to future shocks. This is in line with Oyebanjo et al. (2015) who have classified the process of asset disposal into multiple stages, wherein liquid assets are prioritised for disposal before more productive assets. Ultimately, individuals residing within households engage in distress migration, so indicating an inability to effectively address the issue of food scarcity. In addition, it can be said that the sale of productive assets presents a greater difficulty for households in re-establishing their pre-crisis food security.

The study also found out that as the initial response to food insecurity at household level, 80% of households in Kapembere and 82% of households in Muringazuva adopted coping mechanisms connected to lowering the quantity and quality of food intake. When the food insecurity situation worsened, more drastic coping strategies involving financial sacrifices were utilized. This was further highlighted by one respondent who mentioned that:

As way of ensuring that we survive the dry periods where there is no enough food, we reduce the number of meals we have per day. Sometimes we eat once a day. I can only wakeup and cook porridge for the kids to have breakfast before going to school. During lunch I will then cook sadza. Sometimes I cook lunch late in the day so that it also serves as supper. (Focus Group Discussion Participant 2022)

The findings above are in line with a study conducted in peripheral regions of Bangladesh by Kedir (2015) which yielded comparable results, indicating that households made trade-offs in terms of both the quantity and regularity of their food intake. Nevertheless, some studies (Babatunde et al., 2007; Ziaei et al., 2015) have demonstrated that compromising food consumption has detrimental effects on the overall welfare of households. These findings are consistent with the observations made by Zakari (2014), which suggest that families facing food insecurity often resort to consuming less desirable and inexpensive food options as a means of coping. Furthermore, the findings of this study support the notion that the consumption of less favoured food items is not a sustainable solution for addressing household food shortages over an extended period of time, as the available food reserves continue to diminish. Therefore, the implications of these findings suggest the necessity of implementing more resilient strategies that facilitate the accumulation of assets.

In addition, missing midday meals showed a similar degree of intensity to consuming less desired food choices. After consuming a lot of food, most people preferred skipping midday meals to feel full at later dining times. Daytime meal exclusion varied significantly across families in the two wards. Households depending on less preferred food sources eat a diet that is insufficient to support an active and healthy lifestyle. The Development officer from the Rural District Council highlighted that:

Skipping midday meals allowed family members to make the most of the available food supplies for a longer time, even while it led to times of undernourishment. Initially, it was seen that only adults avoided eating midday meals when there was a shortage of food. Because of the prolonged food shortages, households resorted to strategies such as cutting down on meals and missing them altogether in order to survive.(KII4 2022)

In addition, the findings of the study in this regard are similar to the findings by Mjonono et al (2009), who in his study of rural communities in South Africa, found out that approximately 30% of the households he interviewed preferred skipping meals as a coping strategy to address food insecurity. However, his study further highlighted that fasting all day may harm a household's well-being, especially if a member is receiving HIV treatment. Nevertheless, the implementation of such coping techniques proved to be beneficial for households experiencing food insecurity as it allowed them to maintain their basic consumption needs. However, it is important to note that these methods alone were not enough to ensure long-term food security. The study also found out that households experiencing food insecurity in the two wards also relied on a variety of food sources, including wild game and fruits. They sometimes go into the mountain range to hunt, which is an illegal activity. This is also in line with Kabui (2012) who posits that the act of gathering and consuming wild food resources can be seen as an early indication of an impending crisis or scarcity. This study further provides support for the findings of Quandt et al. (2004), who argues that Latino migrant workers experienced improved household food security as a result of engaging in hunting, gathering, and petty trade activities to get food. In addition, Zakari (2014), postulates that there is further evidence supporting the notion that food insecure households engaged in hunting and gathering practises exhibit a higher consumption of vegetable-based foods and have greater levels of food security.

The district experiences persistent droughts and erratic rainfall which affects the overall agriculture output and leading to food insecurity in most cases. This leads households to depend on regular food donations provided by the government, non-governmental organisations (NGOs), and other individuals who wish to offer assistance. However, the respondents of the interviews and the participants from the FGDs indicated that the district has not benefited much in terms of food assistance programmes. Both Kapembere and Muringazuva wards have not received any significant food donations. However, sometimes a household receive food parcels from family and friends from other parts of the country. This was mentioned during a focus group discussion by one of the participants who highlighted that:

Sometimes we get food from my children who work in Harare. They normally send beans, cooking oil, sugar and other basics. This keeps us going given that we do not normally harvest enough to carry us through the whole year. (Focus Group Discussion 2022)

Furthermore, while obtaining food through borrowing was seen as a less effective method of dealing with food scarcity, previous research conducted by Kabui (2012), Echendu et al. (2015), and Abu and Soom (2016) indicates that this practise can have long-term detrimental effects on household food security, especially when it becomes a frequent occurrence. Insufficient income to repay the credit leads to the phenomenon of migration or the sale of productive assets. The findings from focus group discussions (FGDs) indicate that as the severity of food shortage increases, households tend to rely more on donations. However, it is important to note that households that are food secure do not consistently depend on food help. The Social Welfare officer from Muzarabani Rural District council highlighted in an interview that;

“The number of NGOs and external support has dwindled over the years, and this has further worsened the farmers’ predicament. In past years, this form of help would allow them to have a fall-back plan and get some form of cushioning especially during the lean season, but in recent years this has been scarce.” (Interview with, KII 4 2022)

There was not much going on in terms of food assistance. However, a big project was implemented under the Global Environment Facility which mainly focused on conserving natural resources which mainly include the forests, the mountain range and the wild animals.

7.5 Chapter Summary

The chapter sought to examine the factors that enhance the effectiveness of livelihood strategies of the small holder farm households in Muzarabani. The factors which inhibit effective engagement in both off and on-farm activities discussed in the chapter include the lack of adequate arable land, the high cost of agricultural inputs; information and technological challenges; the distance from the market; lack of access to information; problems with off-farm and rural credit and ineffective rural projects. The study also noted the lack of extension services and labour as other critical factors to consider. The fundamental determinant of a household's ability to choose effective livelihoods included the accessibility of resources such as financing, land, labour, education, market access, employment opportunities and other public goods .In conclusion, to enhance the effectiveness of livelihood strategies in ensuring household food security, it is important to address factors related to access to resources, market access, climate change, conflicts and insecurity, gender inequalities, education and skills, health and nutrition and government policies and support.

Chapter Eight: Summary, Conclusions and Recommendations

8.1 Introduction

This study sought to understand how livelihood pathways adopted by rural households either contributed to the household food self-sufficiency or influenced vulnerability to food insecurity. Using a qualitative approach, this, the study examined the contribution of on-farm and off-farm livelihood strategies to household food security by analysing how various livelihood strategies contribute to levels of household food security or the degree to which they heighten the risks to food insecurity. To answer the research questions, the researcher sought to understand the relationship between farm households' livelihood strategies and household food security. Such a relationship is significant in answering the central objective of this thesis, which sought to understand the contribution of livelihood strategies to household food security. In this case, the study examined how the livelihood strategies employed by the small holder farmers increased a household's vulnerability or alternatively provide a safety net that enhances food security. The intrinsic role of various rural livelihood strategies, such as migration, trading, casual labour, and farming were discussed at length in this study. In addition, the study further revealed the role of such livelihood strategies in shaping the food security status of the rural households in Muzarabani district wards of Kapembere and Muringazuva. This thesis examined how rural livelihood pathways adopted by small holder farm households increased the risk of household food insecurity in Muzarabani district of Zimbabwe.

The study thus looked at the contribution of these livelihood strategies in a broader sense but narrowed down to how some of the strategies adopted ended up leading to further vulnerability of the households to food insecurity. Despite the existence of an array of livelihood pathways and early warning systems, findings showed that households continued to be ill-prepared and incapable of coping with household food insecurity. Climate change and household choices of livelihood pathways were the major determinants of food insecurity. Although there is evidence of household food insecurity in Muzarabani (ZimVAC, 2023), not much has been documented on the preferred livelihood options that the local communities employed to address food insecurity. Furthermore, there had been insufficient literature that explicated why most household in Muzarabani District continued to be food insecure. The following specific research questions were answered by this

thesis, which sought to so examine the impact of livelihood strategies on household food insecurity:

- a) What livelihood strategies do the small holder farmers in Muzarabani employ?
- b) In what way do the livelihood strategies adopted by the small holder farmers either enhance household food security or contribute to food insecurity?
- c) What are the factors that enhance or limit the effectiveness of the livelihood strategies of the small holder farmers in Muzarabani district?

In order to have answers to these fundamental questions and delineate the key concepts that were investigated and how they related to each other, the study was informed by the Sustainable Livelihood Framework Approach. The Sustainable Livelihoods Framework provided the lens through which the livelihoods of the rural poor were understood. The framework assisted to examine the factors that enhanced or constrained livelihood pathways of the rural poor. Furthermore, it assisted in examining the contribution of existing livelihood pathways in sustaining household food security. This chapter provides the conclusions based on the answers to the above stated research questions. The study provides policy implications for addressing the challenges affecting household food self-sufficiency in the study area. Lastly, the implications of findings for future research are also presented.

8.2 Discussion of Findings

The discussions of this study are hinged on the livelihood pathways, livelihood choices and livelihood outcomes of the small holder farmers in Kapembere and Muringazuva wards of Muzarabani District in Zimbabwe. The findings of this study underscore the view that livelihood pathways are complex and multifaceted, encompassing both on-farm and off-farm activities. These findings are similar to Ayana (2022) who posits that livelihood strategies are heterogeneous. These strategies are influenced by environmental conditions, socio-economic status, cultural norms, and access to resources. The study revealed that while some livelihood strategies; including both on farm and off farm strategies, enhanced household food security they might have inadvertently heightened the risk of food insecurity. On-farm activities, such as crop cultivation and livestock rearing, were found to be pivotal for households' food self-sufficiency. On the same vein, Ayana (2022) highlights that improved livelihood outcomes, such as reduced poverty, decreased

unemployment, improved food security, and a stable natural resource base, bolster the accumulation of capital/assets that may be used for effective farming and subsequent natural resource management. Therefore, a household's wellbeing is determined by the household's implementation of livelihood strategies.

However, the success of these livelihood activities was found to be highly contingent to factors such as climate variability, access to agricultural inputs, and market fluctuations. These findings agree with Ahmad & Afzal (2020) who highlight the role played by external factors in the success of livelihood strategies. The study also found out that households that broadened their on-farm activities tended to be more resilient to shocks and stresses, thereby enhancing their food security. Diversifying or broadening a household's livelihood portfolio therefore served as a way of risk spreading which in most cases worked well for the farmers under study. In addition, the study highlighted that off-farm activities, including wage labour, small businesses, and migration, also played a crucial role in household livelihoods. These activities often provided essential supplementary income that could be used to purchase food and other necessities, thus contributing to food security. However, results from this study have shown that reliance on off-farm income could also expose households to new vulnerabilities; especially when these income sources were unstable or inadequate. The absence of crucial assets necessary for producing food and revenue has an impact on the selected livelihood strategies in Muzarabani District. ZimVAC (2023) found that families without crucial resources such as financial, social, physical capital (such as agricultural equipment and land), and human capital were the most impacted. ZimVAC (2023) and Chifamba (2021) highlight the failure of stakeholders to improve families' ability to maintain and sustain their assets after a food shock. The use of preferred coping mechanisms resulted in significant financial consequences, which heightened the risk of experiencing a shortage of food within the home in the future. Therefore, families faced widespread food shortages as a consequence of low agricultural output and limited revenue, which led to their inability to get appropriate amounts of food for each family member throughout the year.

8.2.1 The Food Security and Livelihood Vulnerability Situation

The research revealed that livelihood vulnerability is a complex and dynamic situation that affects an individual or household's ability to provide food. In discussing the vulnerability of marginalised and rural households in Sub Saharan Africa, Giannini et al., (2022) posits that climate change is a

threat multiplier which exposes resource poor households to vulnerabilities. The research revealed that vulnerability hampered the ability of individuals and households to cope with risks, shocks, and stressors. This vulnerability situation exposed households to poverty, which was evident via food insecurity, the sale of household assets, and in some cases, forced migration and destitution. This research has shown that livelihood vulnerability and household food insecurity are influenced by several variables. Chapter 4 of this study described the background and context of the study. The Chapter revealed that household food deficit was a problem of a major concern in Muzarabani. The incidence of food insecurity in Kapembere and Muringazuva was relatively higher than recently issued findings from households in the households in wards 8, 9 and 10 which were not covered by this current study. In Mavhuradonha and Kanyemba, where 72% of participants were discovered to be food insecure (ZimVAC, 2023). Moreover, these results are consistent with the findings of Ndhlovu et al. (2021), who emphasised that the poverty resulting from risky livelihoods in Zimbabwe is a significant contributing factor to the susceptibility of households to food insecurity.

Findings of the study indicated that most of the households in Kapembere and Muringazuva wards accessed their food for household consumption through own production, labour, trade and remittances. The study findings showed that in Kapembere, own production accounts for 58% of the food they consume, which are mainly grains, while in Muringazuva they produced 60% of the food they consumed. Given that most of the farming in the study area was rainfed, own production of food has been inconsistent; leaving the households condemned to food insecurity for the majority of the year. These findings are similar to Mavhura (2019) who highlights the impact of climate change on rain-fed agriculture in semi-arid regions. The other source of food listed were casual labour; where they worked in the nearby farms which accounted for 15% in Kapembere and 15% in Muringazuva. Reliance on casual labour proved to be too risky because payments were often received late as highlighted in chapter 5 of this study. Furthermore, the results of this study show that households in both Kapembere and Muringazuva developed and adopted diversified livelihood pathways which were used at periods of decline in available food.

Findings show that while on-farm activities played an important part in reducing the effects of food shortages, the problems in Kapembere and Muringazuva could barely be solved by encouraging farmers to rely on agriculture only. Results show that agriculture-based livelihoods

were severely affected by climate change, pest and diseases. The hectareage under crops decreased rapidly during the years due to diminished agricultural returns, price volatility, increase in the prices of inputs and labour uncertainties. These findings corroborate Mushore (2021) who also recommended livelihood diversification in Nyanga area after discovering immense decrease of hectareage under cultivation. Attention ought to be directed towards the promotion of off-farm livelihood strategies, essentially those that are related to the subsistence sector. Comparable commendations were proposed and espoused among the Embo community of Umbumbulu District in KwaZulu-Natal with reckonable success (Mjonono et al., 2009). To guide the mediations, government and other partners should create reliable livelihood options, and real food assessment frameworks. The commendation above agrees with Rubhara et al., (2020) who stressed the importance of using a multi-dimensional livelihood approach to food insecurity in order to guarantee sustainability of household food systems in rural Zimbabwe.

Participants also noted that remittances and donations remained very important livelihood strategies in Kapembere and Muringazuva. The study also found out that remittances and donations mainly came from family members who worked in other districts and towns, including from churches and the government. In Muringazuva, remittances accounted for 7% of their food while in Kapembere it was 5%. In addition, the sampled households indicated that from the food they consumed, 10% of it was purchased, while in Muringazuva it was indicated that only 9% of the food consumed by the households was from purchasing. These findings contradict a study by Abadi et al., (2018) which suggests that remittances have an underlying detrimental effect on livelihood outcomes which is caused by an over dependency on the remittances; causing some rural farmers to abort crop production. Furthermore, this data from the field raises a lot of questions regarding to the ability of the households to generate their own food and remain food secure. Although remittances were important for a number of reasons, the results showed that households used over three quarters of the funds to meet their food supplies. Furthermore, most households received “tottering flow” of remittances during holidays and family functions, only upon request. From the study, few households from the study sample were able to save remittances for precautionary reasons and this made financial conditions in Kapembere and Muringazuva perilous. These findings corroborate Bidden (2023) and Swathan and Morden (2022) who also revealed that remittances are unsustainable forms of livelihood strategy because they are seasonal and vulnerable to internal and external financial shocks.

Food insecurity in rural Muzarabani affects the small holder farmers in different aspects. This has led to a surge and growth of non-farm livelihoods which offered an option for increased income, although they also contributed to further vulnerability of the households. Additionally, it is crucial to acknowledge that the population is very susceptible to several illnesses resulting from hunger, a condition that is worsened by the ongoing extended drought in the region. Dzvimbo et al., (2017) posits that diseases such as pellagra, kwashiorkor and marasmus are prevalent in the district. Furthermore, the number of children dropping out of school is high in the district. The statistics showed that one 1.7% of the learners drop out of school before they complete secondary education (Mutami, 2019). This level of vulnerability is also highlighted in a recent study by Okolie et al., (2023) who postulated that smallholder farmers, who rely on agriculture for their livelihoods, are particularly exposed to the consequences of climatic variability. The same study also noted that household vulnerability is due to their socio-economic disadvantages.

Furthermore, based on the study findings, it was brought out that the threat of food insecurity has also caused a lot of social ills such as crime and prostitution especially amongst young people. These findings are similar to a study by Fielding-Miller et al., (2014) on food insecurity and its contribution to prostitution in Swaziland. In their study, they highlight the social ills associated with food insecurity. In addition, this particular study found out that young people and middle-aged men from the two wards migrate to neighbouring countries, especially South Africa. Out-migration results in shortages of manpower to which then affects a household's ability to grow enough food for own consumption. Such a situation then condemns the household to perennial food insecurity. Still on migration and remittances, in a study on the effects of migratory practices on food security in Zimbabwe Mazwi (2021) suggests that remittances do not inherently promote food security and the acquisition of assets.

The study further found out that during migration, some of the people moved to towns such as Bindura, Harare, Mvurwi and Mutare, where they searched for better employment opportunities. This further affected the crop production and the food security of most houses. As the findings of the study indicated, some of the houses where men had left in search of work elsewhere, had their household livelihood options compromised because they could not engage in labour intensive activities or livelihoods that were mainly regarded as men's jobs. Examples of such masculine jobs include fishing, gold panning, hunting and building. One of the factors that contributed to the

increase in food insecurity and livelihood vulnerability in Kapembere and Muringazuva wards was HIV and AIDS. The study also revealed that the HIV and AIDS epidemic was reducing the availability of labour and the time spent in productive activities, such as farming, as certain household members, particularly women, were required to provide care to the terminally unwell or accompanied them to seek medical attention in most cases at St Alberts Hospital which is more than 80 kilometres away. The study findings further demonstrated that household vulnerability was significantly influenced by the lack of employment and rural livelihood opportunities. This is because employment opportunities and other livelihood strategies typically required specific skills or qualifications that the majority of rural populations did not possess. The research also found out that the agro-ecological features of the two wards had a significant role in determining the vulnerability of livelihoods and the prevalence of food insecurity. The impact of unpredictable rainfall, diminished soil fertility, and failed harvests on livelihoods and poverty was evident. The impacts of climate change were also discussed at length in the study. Pests and wild animals were also cited as detrimental to crops and small livestock.

The results revealed that the two wards were severely affected by climate change. The acute food insecurity situation was exacerbated by low rainfall, loss of biodiversity, lack of adequate livelihood options and limited access to financing. Other underlying causes of food insecurity at household level included environmental shocks, loss of soil fertility, lack of adequate pastures, and absence of livelihood structures that were backed by policies, deforestation and lack of support from government. The households with limited access to arable land were compelled to engage in off-farm activities; including gold panning, beekeeping, petty trading, hunting and gathering, and casual labour in upper Muzarabani. None of these activities needed major capital inputs. The study revealed that the engagement into livelihood strategies among rural households was primarily driven by variations in resource endowments, such as land, labour, capital, as well as access to markets and institutions. In addition, the findings show that while households may possess comparable resources and prospects, it does not imply that they always opt for identical sets of activities. There are other factors such as gender and culture that further influence the choice of livelihoods, and subsequently their impact in ensuring household food security.

In order to attain food security, it is necessary for the available food to be sufficient at all times and meet the dietary requirements of the unit being analysed, as stated by FAO (2009). Based on the findings of the study, (85 % Kapembere and 92% Muringazuva) the respondents indicated the

inadequacy of their food stock over 12 months, while the the remaining 15% in Kapembere and 8 percent in Muringazuva said it was adequate. The majority of respondents who indicated the inadequacy of food throughout the year were farming households, who entirely relied on crop production. In addition, the lack of essential or critical livelihood infrastructure was identified as a contributing cause to food insecurity and livelihood vulnerability in the district under study. Furthermore, the lack of reliable water supplies, financial institutions, and communication infrastructure were also identified as factors that contributed to the vulnerability of households and their food insecurity status. The findings from the study suggest that a substantial proportion of households in the two wards remained food insecure and were unable to pursue profitable alternative livelihood pathways. To a large extent, the government of Zimbabwe's drive to promote livelihood security, income generation as well as increase food security in rural areas has remained a pipe dream due to lack of comprehensive rural development support programmes and other agro-ecological factors as highlighted in this study.

8.2.2 Predominant Livelihoods, Types, Trends and Challenges

Muzarabani households' livelihood and food security depended on-farm work and non-farming strategies. This is supported by Chegere and Stage (2020) who in their study on rural small holder farmers' food consumption patterns, suggested that increasing on-farm production diversity is positively associated with greater diversity in household food consumption. However, the findings indicate that not every rural household had access to all types of livelihood pathways.. In addition, rural smallholder farm households did not engage in various strategies in isolation; instead, they relied on many resources and circumstances that shaped their livelihood pathways. Therefore, the study found out that the viability of people's livelihoods depended not just on particular resource, but also on how they effectively combine their current resources; including assets to shape their livelihood pathways. In addition, the study revealed that households that engaged in both agricultural and non-farm livelihood activities had a higher average number of months of own food stock support for household consumption when compared to those who only engaged in non-farm or agricultural activities alone. This supported the claim made by key informants that cash earned from non-farm activities is crucial for acquiring food during times of food shortage. However, the study findings show that not all the cash is meant for food purchases. Sometimes it is re invested in other livelihoods, such as petty trade, which results in the household facing losses due to low business and other factors. Consequently, the income from non-farm activities serves two main

purposes: covering expenses that arise from selling crops and enabling households to purchase food to address food inadequacy.

Off Farm Livelihoods

In terms of the off farm livelihood profile of the Kapembere and Muringazuva, the study found out that the two wards engaged in activities such as petty trade, casual labour, gold panning, brick moulding, beekeeping, beer brewing, fishing and poaching, hunting and gathering as well as migration and self-employment. Based on the findings from Focus Group Discussions and interviews, the households mainly engaged in these kinds of activities as a way of supplementing their agricultural production. These activities were mainly done during the non-farming season, or periods when they were not interfering with crop production. During the focus group discussions and the interviews, most farmers indicated that they indulged in off farm activities in order to create additional revenue to bolster farm income. However, the findings from this study show that the threats to livelihood viability stem from ineffective and struggling macro socio-economic environment in rural areas like Muzarabani, coupled with vulnerabilities imposed on physical assets and the environment which is caused by climate change. Therefore, the breakdown of social services and infrastructure, frequent droughts, and the lack of economic growth in rural areas have somewhat made rural livelihood methods ineffective.

Therefore, this situation regarding the effectiveness of off-farm livelihoods further implies that the households are forever condemned to perennial food insecurity because the region always receives low to little rainfall annually; therefore, agricultural productivity always failed to guarantee food security. However, this study found that in those households where there were well-functioning and rewarding livelihoods, it helped to enhance food security in the household through enhancing household income.

On farm Livelihoods (Crop and Livestock Production)

According to findings of the study, 89% of respondents from Kapembere and 91% of respondents from Muringazuva wards had a clear understanding of farming as a vital livelihood option for enhancing household food security. Furthermore, the study found out that households with older members and women-headed households mostly grew grains instead of cash crops due to challenges in obtaining resources and manpower for farming. In terms of crop production in the two wards, the study found out that the farmers mainly practiced agricultural extensification.

However, the pattern has been decreasing as more and more farmers reduced their area under cultivation due to a number of reasons; including high cost of inputs, low rainfall and lack of adequate labour. Findings showed that the farmers mainly grew cash crops such as cotton. However, in recent years, most households primarily shifted towards sorghum and sesame, although productivity was relatively low due to low knowledge on processing, capital and inputs. These findings are also similar to a study focusing on small holder farmers in Malawi by Matita et al. (2022) who highlight the need to transform agriculture in order to tackle long-lasting low productivity issues among small-scale farmers and increasing market focus as crucial for enhancing rural livelihoods.

Muzarabani households' livelihood and food security depended on subsistence agricultural production and non-farming strategies. This is similar to the findings by Chegere and Stage (2020) who suggest that there is a favourable correlation between increased on-farm production and more diversity in household food consumption. The findings from Kapembere and Muringazuva wards indicate that either these strategies were used to supplement income or as a means of survival for households, whose on-farm operations were unreliable due to a variety of factors discussed in the sections above. Despite unpredictable weather conditions and infertile soils, they persistently cultivated their land. This is because crop production had strong cultural relations with communities in the study areas. As the study highlighted, even households without their own means of draught power or those receiving sufficient financial assistance from external sources still engaged in cultivating land to meet their food needs. However, the main challenge the farmers face is the dwindling agriculture productivity due to low rainfall which is attributed to climate change.

Livestock production was another on-farm livelihood activity the households in Kapembere and Muringazuva engaged in, despite the lack of land for animal grazing. They combined small livestock and cattle. Their livestock portfolio in the two wards included cattle, sheep, goats, road runner chickens, guinea fowls, donkeys and free-range swine. The importance of livestock amongst the rural farmers of Muzarabani cannot be over emphasized. This is similar to the findings of a study by Fereja (2016), who posits that other than crop cultivation in most of the rural communities, livestock is the only asset for the poor, although it is highly susceptible to climate variability extremes. In Muzarabani area, the effect of climate change has heightened the susceptibility of livestock to diseases, reinforcing the existing factors that are affecting livestock

production systems. Livestock is a significant agricultural practice in most rural communities just like Muzarabani and is often regarded as a crucial resource for rural livelihoods and food security (Assan, 2014). Respondents showed that livestock was a form of savings that farmers relied on in times of drought or during emergencies. In addition, it was highlighted that livestock also had multiple purposes for food security. Firstly, the farmers used their cattle as a source of draught power and as a mode of transportation in the majority of Zimbabwe's rural areas. Additionally, livestock served as a food supply in terms of meat, egg, milk and milk products. Thirdly, it is also possible to increase the fertility of the soil by using livestock manure. As a result, it can be concluded that livestock ownership has the ability to raise the likelihood of food security for households.

The trends in agricultural production were determined based on the perspective of respondents in the two wards. Out of the households that grow crops, 54 of them, which accounts for 95.4 percent, reported a decline in agricultural output over a period of time. Only 3 percent of the respondents said that their productivity was rising over time. The remaining 1.6% highlighted that they did not understand the differences. According to Wagayehu (2004), priority rankings for agricultural issues vary; depending on farmers' resource endowments and socioeconomic situations. In this study, households were asked to identify the primary causes for the decrease in crop production and several responses were identified. The challenges highlighted by the respondents included, pests and diseases which were reported by 35.2 percent of the respondents as a major problem of crop productivity. Farmers from Kapembere faced the problems of pests and diseases than in Muringazuva due to the limited size of the ward. The Agricultural Extension Worker also stated that tomatoes and vegetables were the most widely affected crops, as well as maize. Droughts, land degradation and loss of biodiversity are other issues raised that were affecting crop productivity.

The respondents associated this with the climate crisis which is affecting the globe. This climate change is also causing the inconsistent rainfall patterns. The ward councillor for Kapembere also reported the severity of sheet erosion in his ward that accelerates continual dwindling of produce over time; mainly in Patsikamambo, Mufudzi and Mutunda villages. The proportion of households who reported land degradation was 95.1 percent from Kapembere and 88% from Muringazuva. The issues of lack of financing and infrastructure to support irrigation also came up in both wards, as well as land holding issues. On land, the respondents from both wards highlighted the

continuously deteriorating soil fertility, resulting in less arable land which affected crop production for most households in the study area. The farmers from the two wards also highlighted the high cost of farming inputs such as fertilizers, high yield seed varieties and technology to complement their already labour-intensive agriculture. Although, diverse livelihood strategies were adopted in the two wards, the study found that most of the households remained food insecure. This was due to a number of vulnerabilities that resulted from factors such as the geography of the area, climate change, the macro-economic environment in the country, cultural factors and the political climate.

Livelihood Transition

Interesting, this study indicated a new paradigm transition from conventional livelihoods that were less dynamic and inflexible. As outlined in Chapter Five, rural households in Zimbabwe are gradually shifting their livelihood strategies from exclusive farming to include non-farming occupations. Over 50% of the studied families engaged in broadening their livelihood choices by participating in both off-farm and non-farming activities. This means the rural households gradually moved towards a sustainable livelihood transition phase. Empirical research conducted by Bezu et al. (2012), Hoang et al. (2014), and Gautam and Andersen (2016) consistently demonstrate that households can improve their income and enhance food security by engaging in non-farm livelihood strategies alongside subsistence farming. This approach helps to overcome capital constraints, mitigate environmental stresses, and achieve better overall outcomes. Several families chose to rent out their land in order to generate revenue and get food. These choices were often influenced by many reasons. The hypothesised push factors identified were recurrent droughts, high input costs, and the scarcity of manpower for agriculture. However, access to credit and resource endowments were the pull factors recognised by the study. Additional variables also hinder non-farming activities while encouraging on-farm activities, such as the availability of extension services, livestock ownership, and input subsidies. As a result, individuals who were not involved in farming were more likely to have enough food to eat when compared to farming families. This was because they had the ability to diversify their strategies for dealing with unexpected events across many sources of income. The results indicate that households that depended on seasonal subsistence farming were trapped in a cycle of poverty. On the same vein, Dorward (2009) and Xu et al., (2015) posit that the livelihoods of households were in a state of perpetual flux, with changes occurring over time in response to their productivity and income

levels. Although some households increased their livelihood productivity and incomes, others failed to succeed or experience a decline.

To improve the well-being of rural households, it is necessary to assist them in diversifying their livelihoods, and building their capacity around livelihood choices. Put simply, the results emphasise significant empirical contributions to livelihood policy and planning. For rural planners, it is important to acknowledge the growth of alternative income sources outside of farming and make policy changes that align with appropriate models that may facilitate the transition to non-farm livelihoods in rural areas.

8.2.3 Linking livelihood strategies to household food security

This study highlights the Government of Zimbabwe's consistent emphasis on the significance of the smallholder sector. However, when examining agrarian policy and the actual situation on the ground, it becomes evident that there is a continued bias towards supporting the commercial sector in revitalising agricultural exports and ensuring food security, while disregarding the needs of smallholders. There is a common misperception that the smallholder sector is only engaged in farming crops for subsistence needs. In addition, despite having access to superior land, small-scale farmers still face a shortage of adequate agricultural assistance. This is evident from the fact that productivity levels remain low among rural families. The production statistics from 2000 onwards, as well as the findings from household visits and open-ended questionnaires, clearly indicate that farmers in Muzarabani continue to experience low yields. This suggests that comprehensive agrarian reforms are still necessary to address the new challenges faced by smallholder farmers.

Various studies have identified multiple factors that influence food security (Geleta, 2019; Yishak et al., 2014). These factors, as stated by Yishak et al., (2014) play a role in shaping farmers' decisions regarding the most profitable livelihood strategies. This study found out that Muzarabani rural households' livelihood strategies include solely on-farm activities, a combination of farming and non-farming activities, a combination of farming and off-farm activities, and a combination of farming and off-farm activities. Based on these findings, it can be affirmed that it is reasonable to conduct food security investigations by focusing on the livelihoods of households rather than particular components such as livestock, land, inputs, and others.

While the importance of non-farm livelihood activities is also rising, most households adopted agricultural livelihood strategies. The study further revealed the kind of livelihood strategies the rural households under study employed and to what extent the various methods worked households, especially about increased household income and improved food security. In addition, the study also found out that some livelihood activities were more prominent with men than with women. This is due to division of labour, which was influenced primarily by culture and religion. For example, some on-farm strategies, such as land preparation which was done in the form of casual labour were off-limits to women due to local socio-cultural practices. This is primarily because such activities were seen as male dominated activity, hence prohibited for women. The study identified that the larger part of the households; 89% in Kapembere and 91% in Muringazuva, were involved in on - farm livelihoods or agriculture based livelihoods, which were predominantly related to crop production and livestock rearing.

Furthermore, the study looked at the effectiveness of livelihoods by analysing efficiency and the choice and limitations of the livelihoods chosen by the household as a unit of analysis. It established that while they are faced by a myriad of challenges mentioned in the study, the kind of livelihoods the households engaged in contributed to their food security status. In addition, the study also noticed a trend in the two wards where there was a correlation between a more diverse livelihood portfolio and better food security status among households. The study found out that this is primarily due to fact that a significant number of households are now shifting towards off farm activities which include brick moulding, casual labour, beer brewing, beekeeping, petty trade and micro enterprises. In both Kapembere and Muringazuva wards; there is a significant number of households that focus on non-agriculture/off farm livelihoods as their primary source of income. However, emerging evidence from the study shows that most households complement agricultural livelihood activities with non-farm livelihood strategies. Thus the importance of rural non-farm firms is evident. The need to complement activities was brought out by a number of respondents during open-ended interviews.

The study further identified that one critical strategy households in Muringazuva and Kapembere used to reduce household income variability and guarantee a minimum level of income is

diversification into non-farm activities. This means rural households also heavily rely on non-agricultural and agriculturally based off-farm livelihood activities. In Muringazuva ward, the study found out that off-farm income now makes up a larger portion of household income. In light of this, the study also identified conflicting evidence in the literature on the relationship between household food security and livelihood strategies. While some findings indicate an improvement in food security since other livelihoods have been added to agriculture, others showed a decline in household food security despite the growth of livelihood approaches. This is specific for Kapembere where the findings indicated increased livelihood activity in the last five years. However, the incidence of household food insecurity was continuously high. This is attributed to a number of factors that reduce the effective of the livelihood strategies, including harsh climatic conditions, lack of access to markets as well as the harsh economic environment in the country amongst other factors identified in this study. Participants highlighted that households choose to broaden their sources of income in order to maintain the highest possible level of living which include ensuring food security in the household.

The discussion on the impact s of livelihoods is embedded within the context of the Sustainable Livelihood Approach which underpinned this study. The Sustainable Livelihood Approach recognises the intricate nature of livelihood strategies, which are influenced by seasonal and cyclical factors. It emphasises the importance of eliminating barriers to accessing resources and activities that align with current patterns. Additionally, it aims to identify methods for enhancing rural development policy and practise. The numerous assets that households own determine their capacity to implement alternative livelihood strategies. This means that when households are able to manage risks and shocks, enhance the assets they rely on, and can leave a legacy for future generations, they can achieve sustainable livelihoods. In addition, the findings of the study show that rural households do not maintain their livelihoods in a vacuum, but rather there are other influencing factors in the form of livelihood resources and contexts under which people make their living.

It is important to note that, not only resources matter in shaping livelihoods, but also the way people combine these resources in the environment they live in to make viable livelihoods which are crucial in increasing income and ensuring a household's ability to guarantee food security. Findings show that the various livelihood activities that the small holder farmers of Muringazuva and Kapembere wards engage in contribute to their food security status. Agriculture production

provided cereals and vegetables for household consumption. Furthermore animal production also provided meat, milk and increased income from selling livestock. In addition, the study findings further indicate that off - farm livelihood activities do have a big role in improving the wellbeing and food security status of the household. Through casual labour, petty trade and other micro enterprises, the households raise income which they use to purchase food items as well as other necessary inputs for agriculture.

8.2.3.1 The role of livelihood assets in shaping the choices of livelihood Strategies

The study also found out that not every household could participate in every type of rural livelihood activity. There are resources and environments that individuals can use to support their livelihoods so rural residents do not live in a vacuum; they are part of a broader ecosystem (Scoones 1999). It is that ecosystem that shapes their livelihood options. This brings out an important point on why this study saw it as an important aspect to critically examine the key environment surrounding the small holder farmers of Muzarabani while exploring their livelihood strategies. The findings of the study show that access to resource endowments is a critical factor in rural livelihoods. These resources might be natural, physical, social, economic and environmental. Carney (1998) suggested that combining people's existing resources to create a sustainable way of life is just as important as the individual resources in question. In Muzarabani; like most rural communities across Africa, land is the main resource that most households require for more efficient and effective livelihoods. In the study area, over 95% of households have access to land. However, the quality of land is poor; which leads to low agriculture output. The massive population growth has also imposed a huge strain on the already overburdened natural resources in Kapembere and Muringazuva wards.

Livelihood strategies are the result of the function of assets and institutions that facilitate the access to resources. This is supported by Mishi et al., (2020) who posits that households adopt several methods to sustain their livelihoods, and the contribution of each approach might vary, based on the household's access to different capitals. The findings by Mishi et al ., (2020) further state the importance of livelihood capitals in shaping the strategies in each particular household. The study found out that the effectiveness of livelihood strategies is hinged on the decisions that the farm households make. Five assets depicted by the Sustainable Livelihoods Framework were described in this study. These include; human capital, social capital, physical capital, natural capital, and

financial capital. The majority of respondents have access to land while 2.4 percent from Kapembere and 3. % from Muringazuva had no land. The average landholding was 1.8 to 6 hectares. On average one plot measured between 3.5 to 6 hectares. This is the average land size in most communal areas of Zimbabwe. The majority of respondents, (67%), had at least one ox. Some 88 percent of the respondents Muringazuva and 91% from Kapembere get their water primarily from boreholes and deep wells, while firewood is their main source of energy. Productive tools like beehives, solar systems, irrigation pumps and scotch carts were observed to support the livelihood making activities of respondents; 7.4 percent and 2.8 percent in Kapembere and Muringazuva respectively had beehives and carts of different types. Using credit was not common among respondents; only 3 percent of respondents from Kapembere and 9% from Muringazuva used credit service and the majority of the credit users relied on informal credit system. Lack of access to credit and microfinance services was the main factor undermining credit use. Informal social networks were also found to affect the access to resources like land, livestock and labour; which in turn influenced livelihood outcomes.

8.2.3.2 Factors that determine rural small farm households' livelihood decisions

The smallholder farm households have a seemingly broad livelihood profile as highlighted in Chapter Five and Six. Many households engaged in mixed livelihoods where they combined on farm and off farm strategies. One key aspect to note with regards to livelihood decisions is their ability to build household resilience and contribute to food security or actually to contribute towards vulnerability. This was reiterated by various study participants that sometimes chose certain livelihood activities which required capital. With the unavailability of financing mechanisms, in most cases they disposed of some of their productive asserts in order to finance a particular livelihood. Such a scenario worked if the chosen livelihood pathway succeeded., However, if it failed, the household; as demonstrated by this study, would hit a serious livelihood shocks in the form of debt and loss of asset, meaning they were more vulnerable than they were before they made the decision. In addition, the study also found out that male-headed households engaged in activities that have relatively better livelihood options such as trading various types of livestock, as well as migrating to other parts of the country and even outside the country to seek better employment opportunities. In contrast, female-headed households engaged in low return trading activities like selling mostly food items like local beer, grain, growing vegetables, picking

wild fruits, casual labour and rearing small livestock like chicken. This is mainly attributed to a number of factors that include cultural aspects such as inheritance where most livestock are bequeathed to male children, so they are the ones who would always have a comparative advantage in terms of ownership. The other reason identified is related to decision making in the household set up. Most male-headed households are dominated by men, so decisions were mostly masculine. These households always tilted towards male dominated livelihoods such as gold panning, migration and cash crop production. The other reason is linked to lack of start-up capital, which is also critical. The human, natural, financial, social, and physical capital resources accessible to them influence the livelihood decisions made by rural households and individuals. In addition, the study found out that besides owning a small farm, each household had a different motivation for participating in various activities. These reasons and choices for livelihood strategies were also heterogeneous. These are linked to factors such as available of markets, capital, technical skills and knowledge.

8.2.4 Assessing the impact of livelihood strategies in enhancing household food security or food insecurity.

Various studies have identified multiple factors that influence food security. According to Yishak et al. (2014), these factors shape households' decision-making regarding the most profitable livelihood strategies. These strategies include solely on-farm activities, a combination of farming and non-farming activities, a combination of farming and off-farm activities, and a combination of farming, non-farming, and off-farm activities. According to this research, a significant proportion of impoverished families participate in non-farm and off-farm activities in addition to agriculture. It may therefore be eluded that it is acceptable to base food security investigations on the livelihoods of families rather than particular components such as livestock, land, inputs, and others.

The study findings suggest that the transition to non-agricultural pursuits has resulted in reduced agricultural output due to the diversion of resources, such as labour and time, from farming. This has led to a decrease in food self-sufficiency and an increase in reliance on external food sources, thereby increasing the susceptibility of rural communities to changes in market prices and food availability. This includes the risk associated with cash cropping; which are severe as food

becomes expensive, and in most cases cash sales fail to cover household food requirements. In addition, the study found out that high value crops are produced mainly for the market and not consumption; and this has exposed households to be vulnerable to severe food insecurity.

Moreover, the increase of non-agricultural activities such as artisanal mining and informal trading has contributed to environmental degradation and depletion of natural resources, further undermining the long-term sustainability of rural livelihoods. The environmental impact of such activities can affect agricultural productivity and the availability of natural resources for food production, exacerbating food insecurity in the long run. Additionally, the influx of non-agricultural activities; particularly in the informal sector as highlighted in the study has led to exploitation and unfair working conditions, particularly for women and vulnerable populations. This has further detrimental effects on the overall well-being of rural communities in Muzarabani, ultimately impacting their food security.

In addition, the study findings highlight that the crops produced, particularly the focus on the production of high value crops such as maize and cotton exposes the households to vulnerability to food insecurity. This is because these crops are mainly produced for the market and not for household consumption. The study found out that households dedicate land to the production of high value crops, thereby leaving little land for production of consumption crops. In the end, food security in the households is satisfied through purchases after the sale of crops. The risks associated with such a strategy are that food becomes expensive, and crop sales fail to cover food requirements because much of the agriculture is rain-fed. Such a situation affects the food security in the household, given that households have to buy basic foods such as mealie meal. In addition, the study found out that there are competing incentives for the income generated from crop sales, which only comes once per year. This means a household dedicates all its resources, labour, financial to produce cotton which they only have to sell once a year. A fall in prices left the household at risk of a debt burden. The study found out the risk of crop failure in the context of climate change, with households focusing on maize, which is less tolerant to drought. These findings are similar to Mutami (2012) who conducted a study in Mudzi District and highlighted that rural areas in Zimbabwe are mostly characterised by semi-arid to arid conditions, which restrict their agricultural capabilities. Despite this, agriculture continues to be the primary source

of income in rural communities. However, the sector is facing significant challenges due to the emergence of non-farm activities, which have been spurred by changes in the climate.

In addition, the study found out that non-farm strategies such as gold panning, trading and migration tend to take labour away from the farm and agricultural practice, thereby exposing households to low agriculture productivity. Still on off farm activities, the results have shown that there is the situation of low wages in a context of a crumbling economy, which makes it difficult for households to purchase food. This is particular where the household heads looked for employment in towns and cities. The remuneration they received in some instances, has failed to purchase food for the household. The study also found out that sometimes, there was a component gamble involved in some of these strategies, including mining, casual labour, and doing menial jobs. In this scenario, household members who move away may not find employment, or end up in the informal sector which is not well structured. As highlighted by the participants, it did not pay well. The study identified some unfortunate cases of disappearances of people in search of employment. In the case of artisanal gold mining, which has taken people away from agriculture, the risk is much higher. Artisanal mining is a gamble in the sense that gold panners may go for months or even ages without getting lucky as highlighted in this study.

8.2.5 Factors that Enhance or Limit the effectiveness of Livelihood Strategies

The lack of adequate capacity strengthening in sustainable farming practises is a significant obstacle to the implementation of effective livelihood strategies within the study domain. This is because the provision of training opportunities allows households to adopt strategies that have been demonstrated to be effective within the specific environmental conditions in Muzarabni District. These findings are similar to the conclusions made by Mishi et al., (2020) in a study conducted in South Africa. That particular study highlighted that the objectives of rural households are not consistently realised due to a variety of factors, including inadequate rainfall, inadequate inputs, inadequate funding, and inadequate education, as well as other constraints, particularly those related to access to critical assets.

In the study area, it was revealed that rural households predominantly depend on traditional local knowledge, which is gradually diminishing, rather than relying on scientific understanding. The

smallholder farm households in the research area tended to place a higher value on indigenous knowledge systems (IKS) in comparison to modern or external information, mostly due to their practical and realistic nature. However, it is important that there be continuous training provided to rural families which focus on enhancing their existing knowledge base. This approach will effectively promote the assimilation of new knowledge and instruction. The findings from the study also demonstrated that the process of establishing viable livelihoods is intricate and riddled with challenges. Major constraints were identified, including the insufficiency of arable land, religious limitations, the exorbitant expenses associated with agricultural inputs, challenges related to information and technology, lack of access to markets, limited access to information, difficulties in rural micro financing and credit facilities, the impact of climate change, lack of adequate early warning systems and inefficiencies in rural development initiatives as well as the lack of adequate technical support in agriculture extension. Furthermore, the study found out that enhancing the smallholder farm households' resilience and enhancing the accessibility of extension services to rural communities in Muzarabani District may contribute to the improvement of various livelihood options; leading to improved food security.

In addition, the findings of the study showed that most households in Kapembere and Muringazuva lack the specialised skills such as technical and vocational abilities like carpentry, sewing, computer programming and technical skills in, business management, entrepreneurship, financial management skills, market linkages and marketing, farming as a business, value addition and processing and conservation agriculture which are needed for several of the potential livelihood opportunities. Due to the reason that there are fewer or no opportunities for training, households are compelled to use "skills which they know best." In many situations, adults pass on their talents to young family members, which limits their options for earning a living to a small number of potentially unprofitable activities like wage labour on surrounding farms. The degree of household's ability to engage into diverse livelihoods was shown to be strongly influenced by skill and education availability. The availability of skills and education widens livelihood options. Numerous studies have also confirmed the significance of education and skill levels in diversification. For example, Davies (2004) notes that education is crucial because better-paying jobs require formal education and that there is a link between education and the success of rural non-farm businesses.

To improve household food security, it is imperative for stakeholders to advocate for research pertaining to drought-resistant crop varieties as well as context specific livelihood approaches. Furthermore, a crucial intervention is required to ensure the implementation of efficient livelihood strategies through providing knowledge and technical support to rural farm households regarding improved agricultural practices, as well as market linkages and capacity around value addition. This will in turn enhance the impact of the various sustainable livelihood activities. The findings of this study provide valuable insights for policy makers in formulating strategies aimed at promoting the adoption of sustainable livelihood strategies.

In addition, the study found out that access to credit is crucial for rural households to acquire agricultural inputs and engage in non-agricultural enterprises. Without access to credit, these households are unable to evenly distribute their consumption, even if they have a great desire to do so. Put simply, households without access to finance were confined to low-profit livelihood activities. From the findings of the study only a few households had access to microfinance. Formal microfinance and credit facilities for rural communities are not well established in the study area. Participants raised concerns about the harsh demands of microfinance institutions in terms of collateral for the loans. These demands are far-fetched for over 98% of the households. This situation is also exacerbated by the fact that the land they have is owned by the state through the Communal Ownership Act, so it is not bankable. This leaves most households without access to microfinance support, which in turn reduces their chances of increasing agriculture productivity or broadening their non-agriculture livelihoods. However, the study found out those respondents from the two wards feared credit due to vulnerable livelihood they were undertaking. This condemned them to a vicious circle of cash constrained and low return livelihood pathways.

In addition, markets, social relations and access to agricultural extension support are critical for the success of livelihood strategies. The study's results suggest that respondents who reside near marketplaces are more likely to engage in both agricultural and non-farm livelihood activities. Furthermore, they also generated higher revenue from their efforts in comparison to households with limited market access. According to the findings of this study, more critical with respect to market access was the volatility of product prices. Farmers had limited information on market prices and they sold the bulk of their products during harvest season when the market was flooded.

As a result, they realise minimum profits due to the price distortions resulting from the seasonal market flooding. Such unfavourable market performance affects the rural households since they do not realise enough income to broaden their livelihoods. Instead, they are actually more vulnerable; even after a cropping cycle. In addition, the results from the study show that rural farmers are more likely to intensify or extensify their agriculture productivity if agricultural extension services are available for offering technical support. The in-depth interview and focus group discussions revealed that there was a limited contact between extension staff and farmers. There was one extension officer supporting the two wards, operating with limited resources. This affected the general crop and livestock production which in turn had a detrimental effect on the food security status of the households. In most cases, their agricultural activities became a risk mission due to lack of adequate support.

8.3.1 Conclusion

The overall objective of this study was to examine the contribution of rural livelihood strategies to household food security in Kapembere and Muringazuva wards of Muzarabani District. The empirical evidence from this research effectively raised a plethora of arguments about the social and economic dimensions of rural livelihood pathways, poverty, resilience and food security in Kapembere and Muringazuva. The discussion combined empirical inquiry, methodology, and recommendations to explain that the typologies of rural household food security statuses leans more heavily on the viability and capability of their livelihood pathways. Overall, the results revealed that household food security in both Kapembere and Muringazuva is a result of existing livelihood pathways. This implies that households ensure their food access based on the livelihood activities they employ. The results indicated that although agriculture remains the major source of living, engagement in non-farm activities is surging mainly to supplement vulnerable agriculture. The results of the current study further exposed the view that the undertaking of viable livelihood pathways is an influential factor for the realisation of household food security. However, in most cases amongst rural farmers, engaging in some of these activities often leads to further vulnerability to food insecurity.

As revealed by the study, extreme household food insecurity, deeply rooted poverty and limited resilience in Kapembere and Muringazuva were determined by numerous factors associated with livelihood failure such as high reliance on farming-based livelihoods which are affected by

climatic conditions and limited livelihood endowments. Therefore, livelihood portfolio diversification into non-farm sector remains an effective strategy for addressing livelihood insecurities rooted in seasonal subsistence agriculture. However, the findings indicate that although there is a significant transition into non farm strategies, households are more often prone to food insecurity due to the risks associated with off farm activities which this study has looked at. These include over investment, lack of market access, limited access to technology and lack of financing options.

The study revealed that off farm activities including petty trade, migration, casual labour, hunting and gathering, gold panning, brick moulding, beekeeping, beer brewing, fishing, poaching, migration and self-employment were the major livelihood strategies in both Kapembere and Muringazuva. Households in Kapembere and Muringazuva employed the short-term livelihood options to moderate the effects of food shortages. These livelihood pathways were contingency measures used on every occasion when desired livelihood options were disturbed. Opted coping mechanisms were ineffective in reducing food deficit. Desired livelihood portfolios were often harmful to prospective rural livelihoods in both Kapembere and Muringazuva. This situation was an indication of poor resilience to household food shortages. Like other previous studies (Chifamba, 2021; Nyikahadzoi et al., 2016), this study also concludes that most of the preferred livelihood strategies could not solve household food shortages in the long-term. Thus, policy insight resulting from these results point to the need for establishing long-term livelihood pathways which contribute to asset building. The study illustrates that households reduce threats and manage food insecurity in order to guarantee marginal level of nourishment. Finally, household members embark on off-farm livelihood strategies such as poaching, which actually reflect failure to cope with food shortages. When productive assets are sold to address food insecurity it becomes more challenging for a household to re-establish a pre-crisis food security status.

The study also reveals that communities in Kapembere and Muringazuva heavily relied on seasonal migrations in order to address food shortages. This study concludes that although migration was important in the provision of pecuniary resources to procure food, it was taking away labour from agriculture. This further worsened household food insecurity among household which relied on agriculture. Similarly, comparable studies (Chifamba et al., 2021; Abu and Soom, 2016) posit that migration does not guarantee household food security. Migration has negative

consequences for the asset status of household members left behind (Mengistu and Haji, 2015). Most migration took place from the study area to Muzarabani Growth Point, Harare and adjacent mining areas. Although migration took place in search of better standards of living, it was also a response to household food deficit. In the early stages of household food catastrophe, men migrated and their women followed; depending on the severity of food shortages. For the household members who stayed, working as casual labourers was their key preoccupation. In contrary to the current findings, Gichihi (2015) argues that household off-farm employment is the main source of rural earnings. The differences in findings between this current study and the earlier study (Gichuhi, 2015) could be a result of the fact that rural occupation opportunities are readily accessible in rural Kenya. Nevertheless, in Kapembere and Muringazuva, unemployment is estimated to be over 85 percent (ZimVAC, 2023).

The study found out that despite the growing significance of non-farm livelihood strategies, the majority of households still engage in farming as their primary means of livelihood. Given the various factors affecting smallholder agriculture, climate change, environmental degradation, population growth, globalisation, and inadequate support from the national government, it is evident that diminishing returns were observed in the two wards. Consequently, the study further established that off-farm livelihoods also played a substantial role towards enhancing food security, reducing poverty and improving household incomes. The complex interconnections between rural non-farm livelihoods and agriculture suggest that the presence of robust rural infrastructure could play a substantial role in promoting rural development in Muzarabani District and in other rural areas of Zimbabwe. The lack of adequate arable land, social norms, the high cost of agricultural inputs, information and technological challenges, the distance from the market, lack of access to information, challenges associated with off-farm and rural credit facilities and ineffective rural policies were all noted as major constraints for the rural farmers in ensuring success of their livelihoods towards household food self-sufficiency. This study further provided a comprehensive analysis on the various factors that influence rural farm households' livelihood choices.

In conclusion, the study examined the contribution of on-farm and off-farm livelihood strategies to household food security by analysing how various livelihood strategies contribute to household food security or affect the risks to food insecurity. The transformation of the subsistence agrarian economy due to climate change, low crop yields, price volatility of agricultural products and

overall diminished returns towards reliance on non- farm incomes has not brought the envisaged relief among households in the study area. In Muzarabani, the contribution of non-farm livelihoods towards household food security has been minimal (ZimVAC, 2023) despite the availability of evidence that they play a pivotal role in propelling rural growth (Zhang et al., 2024; Duguna et.al., 2023), reducing poverty (Berhe, 2024; Baghernejad and Sabouri, 2023) and augmenting household income (Rahman and Mishra, 2019). Massive flow of labour away from the communal areas has affected the size of cultivated areas, food production and crop income. Furthermore, migration has undermined traditional agricultural practices and also resulted in land abandonment. The study showed that most of the households in the study area are more vulnerable to food insecurity as a result of the livelihood choices they make and the pathways they follow which include migration, engagement in petty trade, cash crop production and overally the overreliance on rain- fed agriculture.

8.4 Policy Implications and Recommendations

Household food insecurity is a serious issue affecting communities in Muzarabani District due to ineffective livelihood pathways. Therefore, the study provides insights into the contribution of rural livelihood strategies on household food security in Kapembere and Muringazuva wards of Muzarabani District. This study raised fundamental policy questions concerning what need to be done to strengthen rural livelihood pathways in order to address food insecurity in the study area. Explicit policy lessons materialised from this study and this section provides some fundamental observations that can be considered in developing a comprehensive food security strategy framework.

Revitalisation of the agricultural sector

Agriculture being the key livelihood strategy in Kapembere and Muringazuva, policymakers should emphasis on making communal farming a sustainable livelihood alternative. In particular, mediations should concentrate on providing long term and short-term loans, revitalisation of infrastructure, such as irrigation and provision of extension services. For instance, the Burkina Faso new administration injected over USD \$238.7 million in support of agricultural projects with measurable success (FAO, 2023). Similar support is urgently required in order to revitalise the agricultural sector. In its current state, the *Pfumbudza/Intwasa* conservation programme faces a number of challenges due to underfunding, unequal access to resources and limited technical proficiency among ministries driving the programme. Banks should be given the responsibility to

finance the agricultural sector. Furthermore, this study recommends that government should securitise the land so that farmers can borrow funds from the banks using land as a collateral security.

Creation of safety nets

The Social Welfare Department has not been spared by poor economic performance in Zimbabwe, the creation of safety nets during lean periods and after catastrophic events, such as extreme weather conditions or disease and pest epidemics, is one of the options for enhancing the food security status of smallholder farmers in the study. It is imperative to promote the social economy model as a crucial approach for building resilience among farming households in Kapembere and Muringazuva. Policy interventions should also build social safety nets during ‘good times’ to ensure that transfers can be used to support household resilience and respond to shocks. Furthermore, policy intervention should try to boost the incidences of productive asset accumulation among poor households in the study area. Beyond creation of productive assets and livelihood diversification, social safety nets should move households out of poverty, or at least to a less extreme level of food insecurity.

Policy interventions should create a platform for coordination of social safety nets programmes. Coordination of social safety nets has produced positive outcomes in other countries with comparable socio-economic and environmental conditions. For instance, Lesotho’s emergency Food Grant Programme which occurred alongside the CGP Child Grant Programme (Ralston, 2024), and the Ethiopia’s Household Asset Building Programme, which existed alongside the PSNP (Mathews, 2023) are some of the comparable multiple programmes implemented to enhance community resilience to shocks. A similar model can also be implemented in Zimbabwe in general and the study area in particular

Climate-informed shifts in the farming systems

Policy should create conducive environment for the developing of novel technologies that deal with multiple and interacting food security stresses, create opportunities for access to credit, technology and infrastructure. Strong policy support should facilitate investments in agriculture to necessitate the shifting of the farming approaches towards more resilient agricultural systems. This

can be achieved through private-public partnerships. Policies should promote risk reduction options and provide training and information about sustainable livelihood portfolios.

Identification of viable on and off farm financing models and private sector investment

There is need to promote more effective public investment in agriculture in order to generate climate co-benefits. Policies should create a favourable environment for the development of mechanisms and tools so that financial institutions can facilitate access to grants, loans, and seed capital such as well-targeted subsidies, soft loans and early-warning systems to better prepare for extreme weather conditions, and involvement of the private sector in providing pecuniary inputs.

Recognising the role of indigenous knowledge systems

There is urgent need to advocate for a marriage-of convenience between indigenous knowledge systems (IKS) and scientific knowledge for effective output and eventual sustainability of food systems in the study area. IKS is readily available, cheap and have been used over the years by indigenous people in the study area. The waning in the use of IKS is an outcome of the effect of modern knowledge systems and because many of the transporters of this knowledge are dying without the documentation of the information, the efforts to reduce household food insecurity in in Kapembere and Muringazuva have been undermined. Inclusion of indigenous knowledge systems in any agricultural policy geared towards reducing food insecurity will enhance communities' capability to be part of the solutions to the food security challenges. Building on IKS will empower communities in Kapembere and Muringazuva to configure their own household food security agenda by actively partaking in it.

Implementation of a comprehensive land use policy

There is need to promulgate and implement a comprehensive land use policy in order to enhance food security through the setting aside of adequate areas of agricultural lands and aquatic and other natural resources for food production and other sources of nutrition. The Communal Lands Act (Chapter 20 of 1982) and the Traditional Leaders Act (Chapter 29: 17) are inadequate in ceding the rights to land use to individual farmers. Deliberate effort should be made to ensure that farmers are empowered through the legal frameworks to use and manage land productively.

Implementation of production targeted programmes

There is urgent need to implement specific programmes that improve productivity with a vision of decreasing farming costs and stabilising and increasing production and earnings of the poor in the study area. Such programmes can include efforts towards improving the access of small-scale producers to agricultural inputs, credit and other critical services as well as markets. The role of agricultural cooperatives and effective extension services in increasing production and farmer incomes should be accentuated.

Support the cultivation of small grain varieties

Policy incentives should support the cultivation of more drought resistant small grain varieties in order to reduce high reliance on the maize crop. Policy incentives should address problems associated with quelea birds, low markets and limited extension services. Furthermore, the government should encourage and facilitate the growth of the market for small grains through consorting with the private sector. This assists in price discovery of small grains and it also generates forward and backward linkages between financiers, food processors, agro-dealers investors, farmers and speculators. This is important for sustaining the market of small grains. Also, practical steps can be taken through the enactment of a policy that heighten the uptake of small grains cultivation through supporting farmers by training and financing of projects of such as the Nature for Resilience Building .

In concluding this section, it is clear that rural non-farm and farm livelihood diversification is of increasing prominence for food security, poverty reduction and creation of jobs. Nevertheless, rises of earnings and creation of wealth due to livelihood diversification is not yet taking place on an enormous scale to affect a majority of farmers in Muzarabani District. Livelihood diversification is predisposed towards the comparatively affluent smallholder farmers with adequate resources, while the underprivileged are hindered by entry obstacles. The moderately well-heeled community members who exploit synergies and opportunities between farm and non-farm activities were able to utilise livelihood pathways diversification so as to increase their wealth and incomes. Thus, livelihood related policies should transform farming and non-farm local economy which is currently neither redistributive nor non-inclusive. Although the benefits of livelihood diversification largely support the well-heeled, it offers a welfare safety net for the rural underprivileged and so often offers a platform for upward mobility. Therefore, there is a good reason for Ministries of Finance, Agriculture, Small and Medium Enterprises development and

other stakeholders to support livelihood intensification and diversification among smallholders in Muzarabani. Policies should create conducive background for the establishment of more inclusive and redistributive programmes.

8.5 Key Contributions to the Literature on Household livelihood pathways

This current study was driven by lack of concrete evidence base relating to household food security status, preferred livelihood pathways and their effects, and the challenges affecting the adoption of efficient livelihood pathways. The findings from this current research contribute to the existing literature in a number of beneficial ways. Firstly, it contributes to the body of knowledge by contextualising SLF within the Zimbabwean context and it also add more insights into the measurement of food insecurity at the household level as shown in Chapter 2. Few studies (ZimVAC, 2022; Mutami and Chazovachii, 2012; Mutenje et al., 2010) reported the occurrence of food insecurity in the Muzarabani district preceding the planning of this thesis. Information on the efficacy of preferred livelihood pathways in Muzarabani district had not been gathered before this current study, with Chapters 4 and 5 showing proofs of exceptionally unusual rates of household food insecurity. The results presented in this study can be used to design programs and policies that reconfigure household livelihood pathways in Muzarabani and other areas with comparable food insecurity concerns. The results from this study add to the evidence base on the ramifications of household livelihood pathway choices on food security. The evidence presented in this study may be useful to Muzarabani Rural District Council, government departments such as Agritex, private sector, NGOs and local residents. These results assist various stakeholders in finding a long lasting solution to the challenges associated with livelihood pathways in the study areas.

8.6 Areas for further research

This study examined the effects of the livelihood pathways on household food security in Kapembere and Muringazuva wards of Muzarabani District. The precise objectives were to (a) to examine the various livelihood strategies employed to address household food insecurity among small holder farmers in Muzarabani District, (b) to assess the impact of the livelihood strategies in enhancing household food security, and (c) to identify the factors that enhance or limit the effectiveness of these livelihood strategies. Nevertheless, this study did not exhaust all concerns related to household food shortages in Zimbabwe. This is because the determinants, dimensions,

and desired coping strategies differ from one area to the other. Although the current study re-joined inquiries on the usefulness of favoured coping strategies, additional questions were raised as areas for further research. Thus, this study proposes the following areas for further investigation:

- a) There are some potential areas that future research efforts could consider to increase our understanding of the impact of coping strategies on household food security and nutrition in areas with comparable conditions. Related to this, there is need to examine drivers of livelihood diversification. Furthermore, researches that investigated on the impacts of non-farm activities often disregard the nutritional characteristic of food security. Thus, future studies should examine the determinants of food security (Chifamba, 2021) and the nutritional aspect of food security (Abdul-Rahman 2011; Colen et al. 2018).
- b) Future studies should also assess the variations in livelihood pathways between seasons. The assessment of how coping strategies vary across periods or seasons are necessary avenues for future studies in Kapembere and Muringazuva wards of Muzarabani.
- c) Although this research concentrated on the contribution of livelihood strategies on household food security, more studies are required on how to lessen the effect of climate variability and change on livelihoods using Indigenous Knowledge Systems (IKS). IKS can lessen poverty by permitting households to address food security challenges using endogenous strategies in which they have full control over such as traditional food production. The preeminent approach should include IKS into modern skills and technology, which are dynamic and constantly influenced by both external and internal factors which interrelate with other knowledge systems.
- d) Given the importance of rural finance mechanisms in ensuring that some of the key livelihood activities are successful. There is need to explore various financing mechanisms for rural smallholder farmers as an avenue for financing livelihoods.
- e) There is an opportunity for further research on key value chains for Ziziphus Mauritania, Goats other Livestock value chains. This helps researchers; policy makers and practitioners to fully understand the various opportunities for increased household income.

It is the conclusion of this study that the major areas for further studies identified above are vital for enhancing livelihood pathways in the study area and beyond. The suggested areas for further studies are geared towards identifying viable livelihoods portfolios that can be supported in order

to provide rural households with sustainable food security systems. The recommended areas should be examined and any information and awareness stemming from future studies should be integrated to prop-up existing livelihood portfolios. The information that will be generated from the proposed seven areas for further studies may also prove to be critical in the quest for a novel rural food security narrative, which put local based livelihood pathways at the centre of rural food self-sufficiency.

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Appendix 1: Open ended Questionnaire on livelihood strategies and food security at household level.

My name is Mike Maketho, a PhD student in Development Studies student in the Department of Anthropology and Archaeology at the University of Pretoria. The study is entitled: **Examining the contribution of livelihood strategies to household food security in rural Zimbabwe: The case of smallholder farmers in Muzarabani District** . The findings of this study are for academic purposes. I'm kindly asking for your assistance in the answering of questions below. It is my assurance that your information would be confidential, anonymous and would only be used for academic purposes.

Household Name:		Village	
Name:		Ward:	
Date of Interview:			
A: DEMOGRAPHIC INFORMATION			
A1	Who is the head of household?		(sex) 1 = male 2 = female
A2	How old is the head of this household?		(years)
A3	What is the marital status of the head of household?		1 = married; 2 = widow; 3 = divorced/separated; 4 = single/never married.
A4	How many people in total are currently living in the household?		(number)
A5. How many children and adults are currently living in the household ?		A7	Anyone chronically ill in this household?
			1. Yes; 2. 2. No (Explain)
0 – 5 years			
6 – 17 years			
18–65 years			

(work force)			
65+ years (the elderly)			
A6. What is the education level of parents/ household heads (how many schooling years)	husband		spouse
B: INCOME AND SPENDING INFORMATION			
B1	Are you formally employed of anyone from the household formally employed? <i>(If so, kindly explain further)</i>		
B2	May you list all your sources of income? <i>(List and explain in order of importance)</i>		
B3	What is your average monthly income? <i>(Tick where appropriate)</i> 1. Below \$ 20 2. \$20-\$40 3. \$40-\$60 4. \$61-\$80 5. \$81-\$100 6. \$101-\$150 7. \$151- \$300 8. Above \$300		
C: FOOD SECURITY RELATED INFORMATION			
C1	On a monthly basis, how much do you spend on food?		
C2	What are your main sources of food? <i>(list all in order of importance)</i>		
C3	In your own understanding, What is food security? And What is food insecurity? <i>(Knowledge and understanding)</i>		
C4	In your own opinion, what do you think are the causes of food insecurity? <i>(list all)</i>		

C5	What has been the impact of food insecurity in your household?
C6	What measures do you adopt when you have no food and no money to buy food?

D: LIVELIHOOD STRATEGIES	
D1	What is your understanding of the term/concept of Livelihood? (explain)
D2	What Livelihood strategies have you adopted in addressing food insecurity?(This includes Agriculture based and Non agriculture based)
D3	What led you to diversify and select these type of livelihood /strategies activity (ies)? – (Determinants)(Factors that influences the choices)
D4	How would you rate the impact and contribution of the strategies/activities in improving food security in your household? a) Rank them by order of their contribution(On farm and Off farm)
D5	What challenges do you still face in improving food security through the various livelihood strategies you engage in?
D6	In your own understanding, what factors have strengthened or weakened the contribution of livelihood strategies on food security?
D7	Have you received any external support towards the livelihood activities you are engaged in? If so what type of support? And from Who?
D8	What do you think can be done to enhance the effectiveness of livelihoods to household food security?
D9	Have you received any Livelihood skills training? who offered those trainings? Briefly describe(e.g.: ISALS,VLS, IGAS, Market linkages, Value addition, etc.)
D10	Are you a Farmer? a) If yes, Kindly list the crops you grow? b) What is your average yearly output? c) What cropping methods do you use? d) Where do you access markets for your produce? e) What challenges do you face as far as markets are concerned? f) How often in a year do you receive technical support from the extension worker?
D11	What physical asserts do you own at this household? (scotch cut, plough, bicycle, hoe, etc) a) How is the assets useful t your daily livelihood?
D12	What mode of transport do you use to visit the growth point? and the nearest health centre?

D13	Any comments you might have pertaining to livelihoods strategies from the discussion we had ?

END OF QUESTIONNAIRE, THANK YOU FOR YOUR PARTICIPATION

Appendix 2: Key Informant Guide (Technical Experts, Government officers, Development workers

1. Which organization/institution do you represent?
2. What role do you occupy? and how long have you been working in this community?
3. What have been the identified impacts of food insecurity in Muzarabani district, in Muringazuva and Kapembere wards?
4. What livelihood strategies have been adopted by communities to mitigate the challenge of food insecurity?
5. What do you think are the contributing factors to the choice of livelihood strategies by the rural households in Muzarabani district? (with focus on the two wards)
6. What support has been rendered by the government and other organizations to the same communities to promote their livelihood strategies?
7. What physical infrastructure is available in the district which supports rural livelihoods?
8. What policy factors influence the viability of rural livelihoods in the area?
9. Describe the practices of irrigation, products and benefits to the overall productivity.
10. Who are the beneficiaries of agricultural extension? What services are available? Utilization level?
11. Credit, seed, training and chemicals? Do you think that the expected outcomes are maintained, why?
12. What do you view as potential threats or factors which affect the efficacy of livelihood strategies to address food insecurity?
13. What is your assessment on the contribution of livelihood strategies on food security?
14. What recommendations would you make to policy makers, donors and other stakeholders on how to strengthen livelihoods and ensure food security at household level?
15. Are there any other issues you would like to share with regards to livelihood strategies and its contribution to household food security?

Appendix 3: Focus Group Discussion Guide

1. Kindly describe your understanding of the terms: household food security and Livelihoods?
2. What livelihood strategies do you mostly engage in?(To list them on farm and off farm)
3. Methods of increasing crop production and livestock development
4. Non-farm livelihoods and their contribution of non-farm livelihood in maintaining rural livelihood?
5. Why do you pursue these livelihoods?
6. What factors have influenced the choice of the mentioned livelihood strategies?
7. What factors may have strengthened or weakened the contribution of livelihood strategies on food security?
8. Do you think that livelihood activities in your area are open to all households in this ward ? Why do you think? What are the entry barriers for households not to involve in better livelihood combinations?
9. The role of extension, market and credit service in improving livelihood
10. How would you rate the impact and contribution of livelihood diversification in improving food security? (To list them in order of their contribution)
11. What challenges do you still face in improving food security through livelihoods?
12. Have you received any external support to strengthen your livelihood activities? If so what type of support and from who?
13. What sort of help would you require to improve your livelihoods?
14. Are you aware of government policies that promote or hinder the efficacy of your livelihoods? If yes, which policies and how do they affect your livelihoods?
15. What are the main markets for your produce?
16. Dominant social relations used by farmers to reduce vulnerability in livelihoods

Appendix 4: Observation Guides

1. Land use patterns (irrigation, investment, expansion of farm land, degradation)
2. Road (development, accessibility, means of transport mostly used, bridges)
3. Water sources, protection, schools, and health centres areas.
4. Market places (settings, types of crops, livestock, actors, and transactions)
5. Sources of energy of households, communication facilities
6. Housing condition (structure, partition, type and quality), Farmers training centres
7. Livelihood activities around Kapembere and Muringazuva Wards
8. Relationships, social networks and associations

Appendix 5: Request to conduct research in Muzarabani district – Wards 6 and 8



Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomothe



Department of Anthropology and Archaeology

Muzarabani Rural District Council
Po Box
Centenary
Zimbabwe

Date: 1 November 2021

Dear Sir/Madam

Re: REQUEST TO CONDUCT RESEARCH IN MUZARABANI DISTRICT WARD 6&8

My name is Mike Junior Maketho ID number 58-246742A-86, I would like to seek permission to conduct field work for my PhD studies in Development Studies with the University of Pretoria. My research topic is: **Examining the contribution of rural livelihood strategies to household food security, The case of small holder farmers in Muzarabani district of Zimbabwe.** The permission is to conduct household visits to selected farmers from the two wards, (Kapembere and Muringazuva) and conduct open ended interviews while observing the various livelihood activities they are involved in as well as conduct focus group discussions on the topic. I would also like to seek permission to conduct key informant interviews with technical experts from the local authority, NGOs, Agritex department who work with the farmers daily.

Yours Sincerely

Mike J Maketho
Email: mikemaketho@gmail.com
Cell: +263 772252072

Room 8..14, Humanities Building
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa
Tel +27 (0)12 420 3526 |
Email vusi.thebe@up.ac.za | www.up.ac.za

Appendix 6: Muzarabani Rural District Council assent to research in Wards 6 and 8

1 March 2022

Mr Mike J Maketho
University of Pretoria
Private Bag X20
Hatfield 0028
South Africa

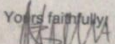
Dear Mr Maketho

REF: REQUEST TO CONDUCT RESEARCH IN MUZARABANI DISTRICT WARD 6 AND 8

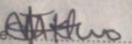
The above matter refers.

We acknowledge receipt of your request to conduct field work in Muzarabani District for your PhD studies.

Please be advised that Council has approved your request and granted you the opportunity to carry out research in wards 6 and 8, Muzarabani district. The information to be obtained during the research should be used solely for academic purposes.

Yours faithfully,

ENNIE MAPA MUTEA
CHIEF EXECUTIVE OFFICER

I, MIKE J. MAKETHO (S-246742 K56) have accepted the offer to conduct research in wards 6 and 8 Muzarabani District. The information I would gather would be used solely for academic purposes.

Signature  Date 01 March 2022

MUZARABANI RURAL DISTRICT COUNCIL
CHIEF SUB OFFICE
01 Mar 2022
100 XOX ST
CENTENARY

SCANNER
ODYSSEY APPS

Appendix 7: Ministry of Youth assent to request for clearance to conduct interviews

All communications should be addressed to "The Secretary for Youth, Sport, Arts and Recreation"
Telephone: +263 242 708373, 777133



Zimbabwe

Ministry of Youth, Sport, Arts and Recreation
Chinengundu Mashayamombe Building (Old Quality Building)
Cnr Nelson Mandela Avenue/S.V Muzenda Street
Harare

Ref: B/14/1

22 April 2022

Mike J. Maketo

REQUEST FOR CLEARANCE TO CONDUCT INTERVIEWS IN EXAMINING THE CONTRIBUTION OF RURAL LIVELIHOOD STRATEGIES TO HOUSEHOLD FOOD SECURITY, THE CASE OF SMALL HOLDER FARMERS IN MUZARABANI DISTRICT OF ZIMBABWE

Reference is made to application to conduct research dated 05 April 2022.

In the letter referred above you requested for clearance to conduct interviews on **EXAMINING THE CONTRIBUTION OF RURAL LIVELIHOOD STRATEGIES TO HOUSEHOLD FOOD SECURITY, THE CASE OF SMALL HOLDER FARMERS IN MUZARABANI DISTRICT OF ZIMBABWE.**

Please be advised that you have been granted the clearance to conduct research on the above mentioned topic and you are required to avail the study report to the Ministry after completing the research.

B. M. Dube (Dr.)

ACTING SECRETARY FOR YOUTH, SPORT, ARTS AND RECREATION

File

Appendix 8: Methodist Development & Relief Agency assent to request to interview staff

METHODIST DEVELOPMENT & RELIEF AGENCY (MeDRA)



An arm of The Methodist Church in Zimbabwe
PVO Number 17/2009

Mrs. Junior Vatsi
The National Director
Connexional Office
Wesley House
17 Selous Avenue
P.O. Box CY71, Causeway
Harare, Zimbabwe
Telephone: 0242246052
Cell: +263 772 348 184
jvatsi@medraim.org.zw
www.medraim.org.zw

31 March 2022

Mike J. Maketho
University of Pretoria
Room xxx, Humanities Building
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa

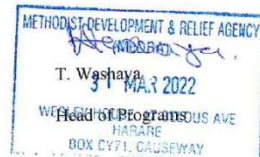
Re: REQUEST TO INTERVIEW OUR EMPLOYEES IN MUZARABANI WARD 6 & 8 FOR A STUDY ON CONTRIBUTION OF LIVELIHOOD STRATEGIES TO HOUSEHOLD FOOD SECURITY

The above matter refers

MeDRA acknowledges receiving a request from you to interview some of our employees who work with farmers in Muzarabani ward 6 and ward 8 as part of your data collection for your PhD Studies.

MeDRA has granted and approved your request to engage with our employees through interviews. We will also give you access to our online documents and any other assistance you might require.

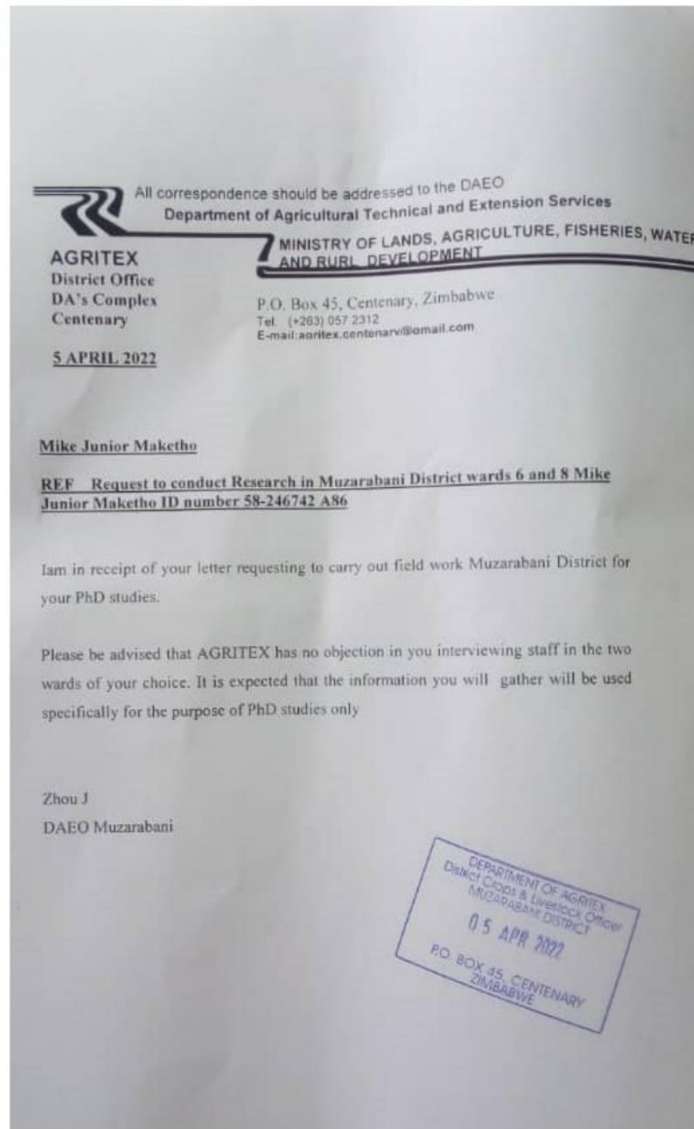
Yours Faithful



"Our help comes from God" Psalm 121 vs 1-2

PRESIDENT BISHOP: Rev. G.T. Mawema, LAY PRESIDENT: Mr. G. Mawema, GENERAL SECRETARY: Rev. Dr. M. Mawema

Appendix 9: AGRITEX assent to the request to interview staff



Appendix 10: Red Cross assent letter to request to conduct interviews with staff

ZIMBABWE RED CROSS SOCIETY

Patron: H.E. The President of Zimbabwe

The Geneva Conventions Act (No.36) 1981

ALL COMMUNICATIONS TO BE
ADDRESSED TO THE
SECRETARY GENERAL



HEADQUARTERS:
Zimbabwe Red Cross
No. 10 ST ANNES ROAD
AVONDALE, HARARE
ZIMBABWE
TELE/FAX: 263-4-335490
P. O BOX 1406
Email: zrcs@ecoweb.co.zw

Your Ref.:

Our Ref.:

Dear Mr Maketho

Re: Request for Research Consent Mike Maketho

We acknowledge receipt of your request to undertake research with our staff in Muzarabani. Your research is hereby approved. Please proceed to engage the district staff as requested.

Kind Regards

A handwritten signature in black ink, appearing to read 'Tapiwa Chadoka'.

Tapiwa Chadoka
Operations Director

Appendix 11: Civic Forum for Human Development (CFHD) Assent to Staff Interviews

 15 Atkinson Drive, Hillside
Harare, Zimbabwe
Landline: +263 8677 103421
Cell: +263 783 830 616
Email: admin@civicforum.co.zw
civicforumonhd@gmail.com
www.civicforum.co.zw

8 April 2022

Mike J. Maketho
University of Pretoria
Room xxx, Humanities Building
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa

Re: REQUEST TO INTERVIEW OUR EMPLOYEES IN MUZARABANI WARD 6 & 8 FOR A STUDY ON CONTRIBUTION OF LIVELIHOOD STRATEGIES TO HOUSEHOLD FOOD SECURITY

The Civic Forum for Human Development (CFHD) acknowledges your request to interview some of our employees who work with farmers in Muzarabani ward 6 and ward 8 as part of your data collection for your PhD Studies.

Our office has approved your request to engage with our employees through interviews.

Yours Faithful


Sam Chalkosa
Programmes Coordinator

