

Climate-induced migration and rural household resilience in Zimbabwe: A conceptual analysis

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Abstract: Climate change is increasingly reshaping rural livelihoods in Zimbabwe. Recurrent droughts, erratic rainfall, rising temperatures, and declining agricultural productivity have intensified livelihood vulnerability and encouraged migration as a coping and adaptation strategy. This study examines the relationship between climate-induced migration and rural household resilience in Zimbabwe. The study adopts a qualitative desktop research design based on secondary data. Fifty (50) sources were initially identified from major academic databases and institutional repositories, and purposive screening using relevant keywords resulted in the selection of thirty (30) sources for analysis. Data were analysed through discourse analysis to examine dominant narratives on climate stress, migration, resilience, remittances, gendered vulnerability, and trapped populations. The findings show that migration can strengthen resilience by diversifying income sources, supporting remittances, improving household consumption and reducing dependence on climate-sensitive agriculture. However, migration also produces risks, including labour shortages, family separation, gendered burdens, migrant insecurity and exclusion of poorer households unable to move. The study concludes that migration should be treated as one component of broader climate adaptation, rural development and social protection strategies.

Keywords: *Adaptation, Climate-induced migration, Livelihoods, Resilience, Rural households; Zimbabwe.*

1. Introduction

Climate change has become one of the most serious threats to rural livelihoods in Zimbabwe. Zimbabwe's rural population depends heavily on agriculture, directly or indirectly. However, the sector is highly susceptible to climatic variability, as it is characterised by smallholder and rain-fed production systems [1-3]. This dependence makes rural households particularly vulnerable to droughts, erratic rainfall, heat stress and shifts in seasonal patterns. Agricultural production in many agro-ecological regions of Zimbabwe is closely linked to the availability of rainfall, with limited access to irrigation infrastructure reducing the ability of farmers to buffer production against dry spells and rainfall failure [2, 4]. As rainfall becomes less predictable, traditional farming calendars, planting decisions, and crop management practices are becoming less reliable, thereby increasing livelihood insecurity. The impacts of climate variability are clearly visible in the reduction of crop yields, the decrease in livestock productivity, water shortages and frequent food insecurity. Zimbabwe is among the Southern African countries that are vulnerable to frequent and severe droughts. There have been episodes of drought that have affected agricultural output, household incomes and access to food [2, 3]. Climate change has already led to decreases in crop yields and reductions in rangeland and livestock productivity, which have reduced food security in Africa, and Southern Africa is anticipated to face increasing risks of heat and drought with additional warming [5]. In Zimbabwe, staple crops such as maize are especially vulnerable, as their productivity depends heavily on timely and adequate rainfall. Evidence from drought-prone districts suggests that climate change is a driver of crop failure, declining household food availability, reduced dietary intake and increased dependence on markets or external assistance [4].

These pressures undermine the stability of rural livelihoods and reduce households' ability to meet basic needs such as food, education, healthcare and investment in agriculture.

Increasing uncertainty of agricultural production compels rural households to diversify their livelihood strategies. Migration has therefore become a major coping strategy for climate-related livelihood stress in Zimbabwe. Migration is a coping and adaptation strategy that households pursue to seek alternative sources of income, reduce reliance on climate-sensitive agriculture, and cope with risks to their livelihoods, rather than as displacement or failure to adapt [6, 7]. Climate-related mobility in Zimbabwe often manifests through rural-urban migration, movement to mining areas, seasonal labour migration, and cross-border migration to neighbouring countries such as South Africa and Botswana. In addition to climate stress, poverty, unemployment, social networks, access to resources, and household decision-making processes are also drivers of these movements [8, 9]. Migration can increase the resilience of rural households if it allows for income diversification and remittance flows. Migrants' remittances can fund household consumption, school fees, healthcare, agricultural inputs, small businesses, and recovery from climate shocks [6, 7]. Migration can thus enable households to diversify risk across locations and livelihood activities. Migration has, however, heterogeneous and context-specific resilience impacts. Households that have good social networks, financial resources, and access to opportunities for migration are more likely to benefit, while poorer households may not be able to afford to migrate or may migrate under conditions of distress [5, 10]. Migration can also create new vulnerabilities such as family separation, shortages of labour in rural agriculture, increased workloads for women and elderly household members, and insecurity for migrants in destination areas. The paper thus examines the relationship between climate-induced migration and rural household resilience in Zimbabwe. It argues that migration should be considered as part of a broader adaptation landscape rather than a stand-alone solution to climate vulnerability. Mobility is likely to boost resilience via livelihood diversification and remittances, but can also replicate inequality when access to migration opportunities is unevenly distributed.

2. Literature Review

2.1. *Climate Variability and Agricultural Decline*

In Zimbabwe, climate variability has become a major driver of agricultural decline, particularly in rural areas where livelihoods are dependent on rain-fed agriculture. Over the past decades, the country has been affected by recurrent droughts, erratic rainfall, prolonged dry spells, and increasing temperatures that have disrupted traditional farming seasons and increased uncertainty in agricultural planning [2, 3]. These climatic changes have made it harder for farmers to know when to plant, which crop varieties to use, and how to handle production risks. Zimbabwe's agricultural sector is particularly vulnerable because its agriculture is dominated by smallholder farmers who are highly dependent on seasonal rainfall and have limited access to irrigation, financial resources, and climate-resilient technologies [2]. As a result, climate variability has diminished the reliability of farming as a basis for livelihoods and increased the vulnerability of rural households.

The decline in agricultural productivity is most apparent in the reduction in crop yields, particularly for staple crops such as maize, which remains at the centre of household food security in Zimbabwe. Drought and lack of rain lower soil moisture, hinder seed germination, cut down growing seasons, and increase the chance of crop failure [4, 5]. High temperatures, rainfall deficits, crop failure, and chronic food shortages associated with climate change have rendered rain-fed agriculture unsustainable without innovative adaptations in drought-prone districts like Mwenezi [4]. Declining pasture availability, water scarcity, and increased animal vulnerability during drought periods have also impacted livestock production. These impacts show that climate variability affects crop and livestock systems and, by extension, the broader base of rural livelihoods.

Declining agriculture has direct implications for food security, income stability, and household well-being. When crop and livestock production decreases, rural households are unable to produce enough food for their own consumption and are often dependent on markets, remittances, government support

or humanitarian assistance. This situation increases vulnerability, particularly for poorer households, which lack savings, irrigation infrastructure, livestock assets or alternative sources of income. The Intergovernmental Panel on Climate Change [5] reports that climate change has already exacerbated food insecurity in Africa due to reduced crop yields, rangeland productivity, and livestock productivity, and Zimbabwe-specific studies have found that drought risk is widespread and unevenly distributed across districts [2]. Climate variability leads to a reduction in agricultural production and exacerbates the existing socio-economic disparities in rural communities.

2.2. *Migration and Environmental Drivers*

Environmental stress is increasingly shaping migration in Zimbabwe, particularly in rural areas where livelihoods are highly dependent on rain-fed agriculture. For many rural families, migration has become a key livelihood strategy as droughts, erratic rainfall, increasing temperatures, and declining agricultural productivity threaten household food security. Climate change does not act in isolation as a driver of migration but interacts with poverty, unemployment, land pressure, weak rural infrastructure and limited livelihood opportunities to influence household mobility decisions [9, 11]. Studies have shown that in drought-prone areas such as Mwenezi, rain-fed agriculture has become unsustainable due to rainfall deficits, high temperatures, crop failure and chronic food shortages, increasing pressure on households to find alternative survival strategies such as migration [4]. Both internal and cross-border migration have become significant features of rural livelihood strategies in Zimbabwe. Internally, rural populations often move to urban centres, mining areas, farms and informal economic spaces in search of employment and income-generating opportunities. Cross-border migration to neighbouring countries such as South Africa and Botswana is also an important strategy, especially for households seeking wage labour and remittance income. These movements may be seasonal, temporary, circular or permanent, depending on household needs, economic resources, social networks and the severity of climate-related stress.

FAO's work on the climate change, migration and rural livelihoods nexus in Zimbabwe indicates that rural areas are increasingly vulnerable to climate-induced migration and that stronger policy coordination is necessary to address the causes and consequences of climate-related mobility [8, 9]. Migration can be an adaptation strategy when it helps households diversify income sources, decrease reliance on climate-sensitive agriculture, and access remittances. Mobility may therefore contribute to resilience by spreading household risk over places and livelihood activities. Black, et al. [6] argue that migration should not be viewed as simply an adaptation failure, as mobility can also provide opportunities for people to cope with environmental change. Food purchases, education, health care, agricultural inputs and small business investment by rural Zimbabwean households may be financed by remittances from migrants. In this way, migration can be used to help households absorb shocks caused by drought, crop failure and income instability.

2.3. *Remittances and Household Resilience*

Migration can help build the resilience of rural households in Zimbabwe through remittances, which are an important channel. In the climate-migration nexus, remittances are a key source of financial and material support for households whose livelihoods have been undermined by droughts, erratic rainfall, crop failure and declining agricultural income. Remittances are often sent by migrants to family members who are still in rural areas, enabling them to meet basic needs such as food, healthcare, education, transport and household consumption [12, 13]. Remittances thus act as a form of informal social protection, especially in contexts where formal welfare systems and rural safety nets are weak. Data on Zimbabwean cross-border food remittances show that migrants in South Africa support their households back home with cash and food transfers, which can improve food security, dietary diversity and household wellbeing [13].

Remittances may also encourage productive investment and livelihood diversification beyond immediate consumption. Remittance income can be used by households to buy agricultural inputs, pay

for labour, buy livestock, invest in small businesses, improve housing or fund children's education. These investments can improve long-term resilience by reducing dependence on climate-sensitive agricultural production and diversifying household livelihood options. The New Economics of Labour Migration argues that migration is often a household strategy for risk management, with some members migrating to diversify income sources and support those remaining behind [14]. Remittances can thus help rural Zimbabwean households to diversify risk across geographical areas and sources of income, especially during times of drought or economic uncertainty. Research on remittances and agricultural investment in Zimbabwe shows that remittances from within the country can help finance the use of modern agricultural inputs such as fertiliser and herbicides, but their impact varies across agro-ecological zones and household types [15].

Remittances also have a protective function in climate shocks. Droughts reduce harvests, while livestock losses undermine rural assets. Remittance income can help households smooth consumption, buy food, and recover from livelihood disruptions. This function is of special importance in Zimbabwe, where recurrent droughts have repeatedly increased rural food insecurity and reliance on external assistance. During periods of extreme drought, remittances can help families avoid negative coping strategies such as selling productive assets, withdrawing children from school, cutting meals or taking on exploitative labour. In this respect, remittances can improve absorptive capacity, which is the capacity of households to withstand and recover from shocks without irreversible damage to livelihoods [6, 10]. However, remittances should not be romanticised as a full substitute for public adaptation support, as their effectiveness depends on the stability of migrants' employment, the cost of transfer channels and the needs of receiving households.

3. Methodology

3.1. Methods

This study adopted a qualitative desktop research design to examine the relationship between climate-induced migration and rural household resilience in Zimbabwe. Qualitative desktop research is appropriate for studies that seek to interpret, synthesise and critically analyse existing scholarly and policy-based knowledge rather than generate primary empirical data [16, 17]. In this study, the approach enabled a detailed examination of how climate variability, migration, remittances, livelihood diversification and household resilience are discussed in the existing literature. It also allowed the study to interpret the social, economic and environmental meanings attached to climate-induced migration in rural Zimbabwe.

3.2. Sampling

The study relied entirely on secondary data sources, including peer-reviewed journal articles, books, policy reports, institutional publications and relevant case studies on climate change, migration, rural livelihoods, household resilience and adaptation in Zimbabwe and the broader Southern African region. A purposive sampling procedure was used to identify and select information-rich sources that were directly relevant to the objectives of the study, particularly those addressing climate-induced migration, rural household vulnerability, adaptation, remittances, livelihood diversification, food security and resilience. Purposive sampling was appropriate because the study sought to engage with literature that specifically speaks to the climate–migration–resilience nexus rather than all general literature on climate change or migration. A total of fifty (50) sources were initially identified from major academic databases and search platforms, including Google Scholar, Scopus, Web of Science, JSTOR, ScienceDirect, Taylor & Francis Online, SpringerLink and ProQuest. Additional policy and institutional sources were obtained from repositories such as the Food and Agriculture Organization, the International Organization for Migration, the Intergovernmental Panel on Climate Change, and the World Bank. These platforms were selected because they provide multidisciplinary literature on climate change, migration, rural development, agriculture, and adaptation.

3.3. Data Screening

The screening of sources was guided by keywords directly related to the focus of the study. The main search terms included “climate-induced migration,” “climate change and migration,” “environmental migration,” “rural household resilience,” “Zimbabwe,” “climate adaptation,” “rural livelihoods,” “remittances,” “drought and migration,” “food security,” “livelihood diversification,” “human mobility,” and “trapped populations.” These keywords were used individually and in combination to identify sources that addressed the relationship between climate stress, migration, and rural household resilience. After the initial identification of 50 sources, a screening process was conducted to determine their relevance to the study. Sources were included if they focused on climate change, migration, rural livelihoods, resilience, remittances, adaptation, food security, or household vulnerability. Priority was given to recent publications, empirical studies, policy documents, and widely cited theoretical works that directly contributed to understanding the climate–migration–resilience nexus. Sources were excluded if they were not related to Zimbabwe or Southern Africa, lacked a clear connection to climate-induced migration, focused only on general migration without environmental or climate dimensions, or did not provide sufficient analytical relevance to rural household resilience. Following this process, thirty (30) sources were found to be relevant and were included in the final analysis.

Table 1.
Method of Selection of Sources.

Selection Stage	Procedure Followed	Selection Criteria	Number of Sources
Identification of sources	Sources were identified through a desktop search of major academic databases and institutional repositories.	The databases included Google Scholar, Scopus, Web of Science, JSTOR, ScienceDirect, Taylor & Francis Online, SpringerLink, and ProQuest. Additional sources were obtained from FAO, IOM, IPCC, and World Bank repositories.	50 sources identified
Keyword screening	Sources were screened using keywords related to the study topic.	Keywords included “climate-induced migration,” “climate change and migration,” “environmental migration,” “rural household resilience,” “Zimbabwe,” “climate adaptation,” “rural livelihoods,” “remittances,” “drought and migration,” “food security,” “livelihood diversification,” and “trapped populations.”	50 sources screened
Relevance assessment	Titles, abstracts, and full texts were assessed to determine relevance to the study.	Sources were included if they addressed climate change, migration, rural livelihoods, resilience, adaptation, remittances, food security, or household vulnerability in Zimbabwe or Southern Africa.	30 sources retained
Exclusion of unsuitable sources	Sources that did not meet the inclusion criteria were removed.	Excluded sources were those that did not focus on Zimbabwe or Southern Africa, those that addressed migration without a climate or environmental dimension, and those that lacked relevance to rural household resilience.	20 sources excluded
Final selection	Relevant sources were selected for detailed review and discourse analysis.	Final sources were selected based on relevance, credibility, recency, and contribution to understanding the climate–migration–resilience nexus.	30 sources included

3.4. Data Analysis

Data were analysed using discourse analysis. Discourse analysis was suitable because the study sought not only to summarise existing literature but also to examine how climate-induced migration is framed, interpreted and linked to rural household resilience. Discourse analysis allows researchers to investigate how language, ideas and narratives shape understandings of social and environmental problems [18, 19]. In this study, it helped to identify dominant arguments, assumptions and framings in the literature, particularly around migration as adaptation, migration as distress, remittances as resilience mechanisms, gendered vulnerability, trapped populations and policy responses. The selected

sources were carefully read, coded, and organised around recurring themes. These included climate variability and agricultural decline, migration as a coping and adaptation strategy, remittances and livelihood diversification, gendered and social dimensions of migration, barriers to mobility, trapped populations and the socioeconomic implications of migration. Attention was given to how different scholars and institutions conceptualise climate stress, mobility, adaptation, and resilience in relation to rural Zimbabwean households. This enabled the study to identify both common patterns and areas of disagreement in the literature.

4. Results and Discussion

4.1. *Climate Stress and Livelihood Vulnerability*

Climate stress has become a major factor undermining rural livelihoods in Zimbabwe, not least because agricultural production is still largely dependent on rainfall. Recurring droughts, erratic rainfall, prolonged dry spells, and rising temperatures have disrupted established farming seasons and undermined the reliability of rain-fed agriculture. This has resulted in increasing unpredictability in agricultural planning as farmers attempt to identify appropriate dates for sowing, suitable crops, and production risks under changing climate conditions. The agricultural sector in Zimbabwe is particularly vulnerable as many rural households rely on smallholder farming systems with limited access to irrigation, climate information, credit, and adaptive technologies [2, 3]. Climate stress has thus been slowly eroding the economic and environmental pillars of rural household resilience. The effects of climate stress are reflected most clearly in falling crop productivity, especially in staple crops such as maize. The soil has less moisture when there is less rain and longer dry periods; germination is disrupted, growing seasons are shorter, and crops do not perform well. In drought-prone areas such as Mwenezi district, climate change has been associated with high temperatures, rainfall deficits, crop failures, and chronic food shortages, thus demonstrating the direct link between climatic shocks and household food insecurity [4]. The IPCC also notes that climate change has already reduced food security in Africa through losses in crop yields, rangelands, livestock, and fisheries, with maize-growing areas particularly vulnerable under continued warming [5]. These trends indicate that climate variability is not only an environmental problem but also a livelihood crisis for rural households.

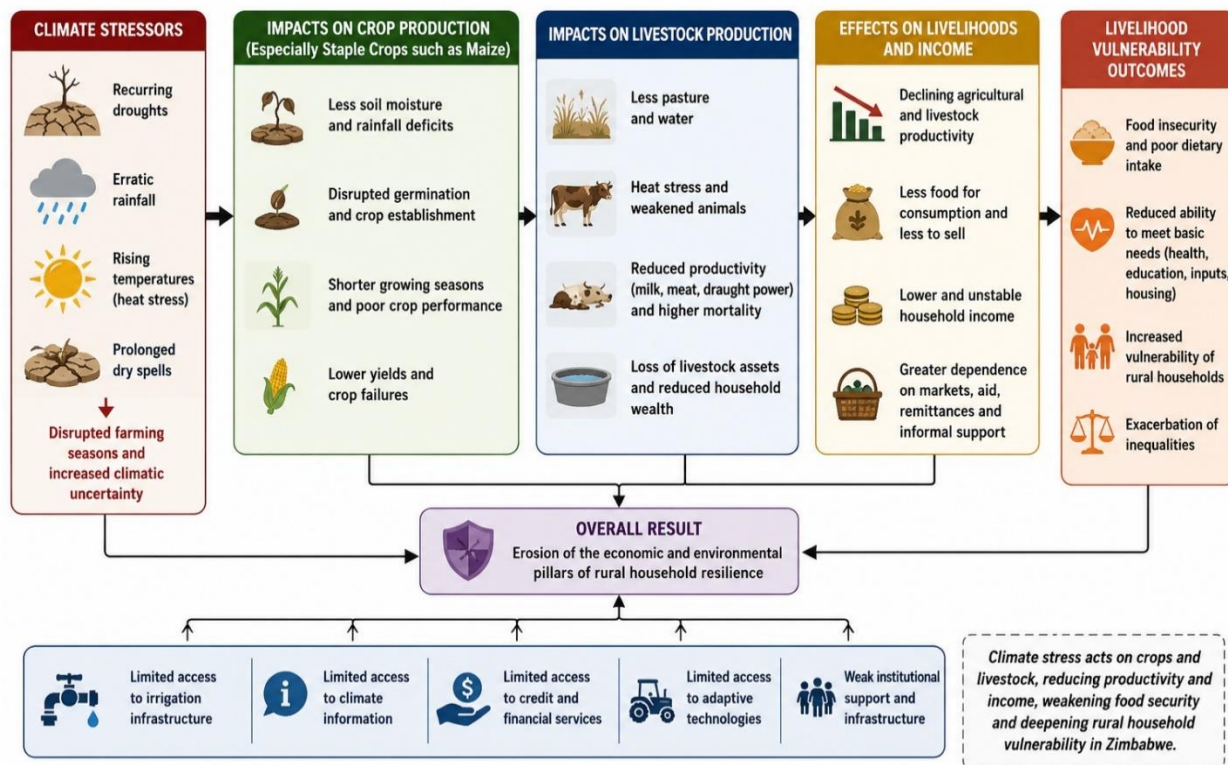


Figure 1.
Climate Stress and Livelihood Vulnerability in Rural Zimbabwe.

Figure 1 illustrates how climate stressors such as recurrent droughts, erratic rainfall, rising temperatures, and prolonged dry spells disrupt crop and livestock production in rural Zimbabwe. These disruptions reduce agricultural productivity, household income and food availability, thereby increasing dependence on markets, aid, remittances and informal support systems. The figure further shows that limited access to irrigation, climate information, credit, adaptive technologies and institutional support intensifies livelihood vulnerability and weakens rural household resilience.

Livelihoods based on livestock are also negatively affected by climate stress. Less pasture, less water, and heat stress weaken animals, reduce the amount of food they produce, and cause more deaths. Livestock are not only a source of food and income for many rural households, but also an important form of savings, social status and security in times of crisis. Thus, livestock losses reduce household assets and weaken families' ability to recover from climatic shocks. Drought risk assessments in Zimbabwe reveal that drought impacts have resulted in water shortages, declining agricultural yields and periods of food insecurity, especially in smallholder rain-fed farming systems [2]. This shows that climate stress impacts both crop and livestock systems, which reduces the overall resilience of rural livelihoods. Declining agricultural and livestock productivity is undermining the income stability of rural households. Lower harvests mean less food for households to consume and fewer surplus crops to sell. This limits their ability to meet such basic needs as food, healthcare, education, farming inputs, and household maintenance. In many cases, families have no choice but to rely on markets, humanitarian aid, remittances or informal support networks to survive periods of drought and food shortage. Climate-related food insecurity affects poor households with no savings, livestock assets, irrigation facilities or alternative income sources in particular. As a result, climate stress exacerbates existing inequalities as it

impacts households differently depending on their access to resources, infrastructure, social networks and institutional support.

4.2. Migration as a Coping and Adaptation Strategy

Climate stress continues to undermine rain-fed agricultural livelihoods, making migration an increasingly important coping and adaptation strategy among rural households in Zimbabwe. The reliability of farming as a primary source of food and income has been eroded by recurrent droughts, erratic rainfall, rising temperatures and declining crop productivity. In response, households are increasingly using mobility to diversify livelihoods, access alternative sources of income and reduce reliance on climate-sensitive agriculture [6, 9]. In this sense, migration should therefore not be understood only as displacement or livelihood failure, but as one of a wider range of household strategies for managing risk under conditions of environmental uncertainty. The concept of migration as adaptation is useful because it acknowledges that mobility can offer households opportunities to cope with climate shocks and build resilience when migrants find jobs and can send resources home [6, 7]. Seasonal and temporary migration is especially important as it allows households to maintain their rural base but supplement income through work elsewhere. Some household members migrate during the lean season, during droughts or when opportunities for local livelihoods decrease. These movements may be towards urban centres, mining areas, commercial farms, informal trading spaces or to neighbouring countries such as South Africa and Botswana. These forms of mobility can help households diversify risk across different places and income sources, reducing exposure to climate-sensitive livelihoods [8, 11]. For example, income from construction, domestic work, informal trading, artisanal mining, or other urban-based activities may help households to lessen their dependence on agricultural production that is impacted by climate variability [9].

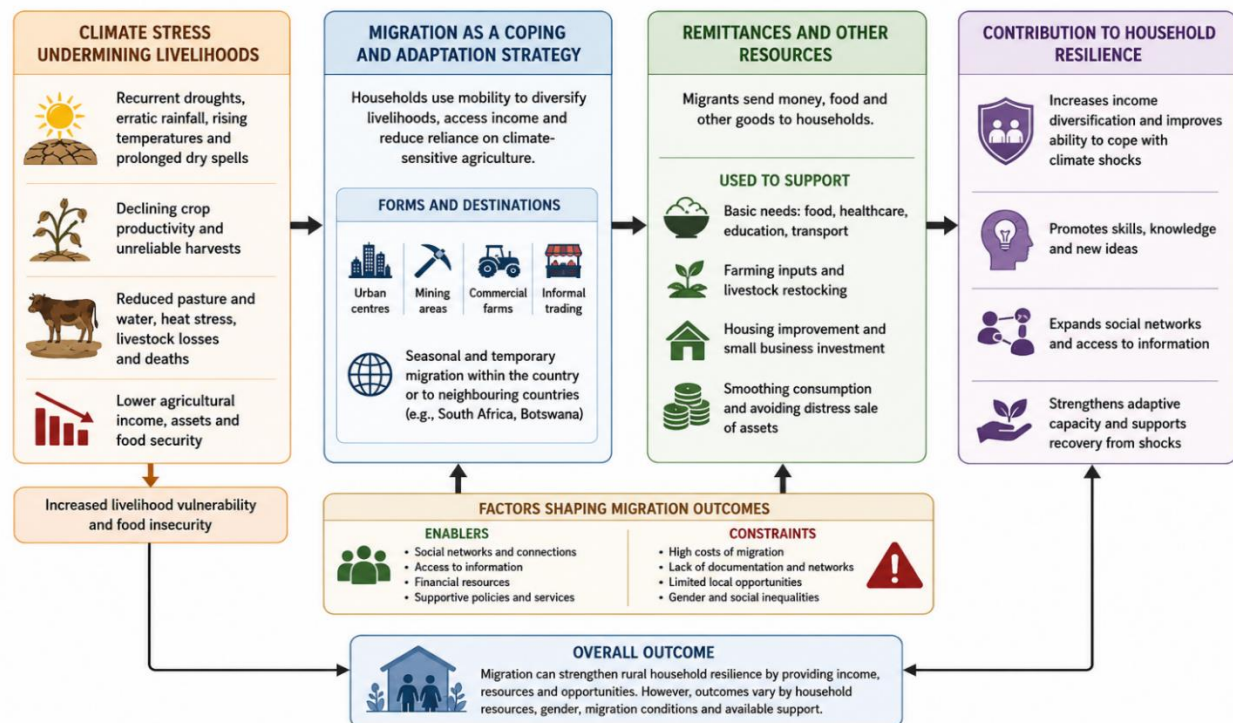


Figure 2.
Migration as a Coping and Adaptation Strategy.

Figure 2 shows how climate stress undermines rural livelihoods and encourages households to use migration as a coping and adaptation strategy. It illustrates how migration may support resilience through remittances, livelihood diversification, skills transfer, social networks, and improved adaptive capacity. However, the figure also shows that migration outcomes are shaped by enabling and constraining factors such as financial resources, documentation, social networks, gender inequalities and access to support.

Remittances are a key pathway through which migration supports household resilience. Migrants often send money, food and other goods to rural households, helping families meet basic needs such as food, healthcare, education, transport and agricultural inputs. Remittances can supplement household incomes, smooth consumption, avoid distress sales of livestock or assets, and maintain access to basic services in times of drought or crop failure [12, 13]. They may also support productive investment in agriculture, housing, small business, and livestock restocking. Migration can therefore increase absorptive and adaptive capacity by enabling households to cope with climate shocks and recover from livelihood disruptions [6, 10]. Migration can also promote resilience through skills transfer, exposure to new ideas and the expansion of social networks. Migrants working in urban areas or across borders may acquire knowledge, technical skills, business experience and new livelihood practices that can later be transferred to rural communities [9, 11]. These forms of social and human capital can enable innovation, enterprise development and improved adaptive decision-making [7, 8]. Migration can also sometimes temporarily relieve pressure on local natural resources by reducing dependence on scarce land, water and grazing resources. However, such benefits should be interpreted with caution, as reduced household labour may also inhibit agricultural production, especially during critical periods.

Despite its potential benefits, it is not always a positive or voluntary adaptation mechanism. Migration can be prompted by distress as well as opportunity, particularly where climate shocks are compounded by poverty, lack of employment opportunities and weak rural support systems. Households with lower incomes may not be able to afford transport, documentation, accommodation or job searches. Others may not have social networks in destination areas, making migration risky and uncertain [11, 20]. These barriers mean that opportunities for migration are not equally available. Better-resourced households are often more able to migrate safely and benefit from remittances, while poorer and more vulnerable households may remain exposed to climate risks or become trapped in vulnerable locations [10, 11]. Migration can also expose new vulnerabilities for households and communities. The out-migration of working-age adults can lead to a decline in the number of agricultural workers, changes in family structures and greater responsibilities for those who stay. Women, the elderly and children may bear the heavier loads associated with farming, domestic work, childcare and household management [9, 21]. Women migrants may also be at risk in destination areas, including insecure employment, exploitation, unsafe accommodation and limited access to social protection [21, 22]. Such gendered and social effects imply that migration is not necessarily a resilience-enhancing process, but rather that the outcomes of migration are context-specific and dependent on the circumstances of migration and the types of support available to migrants and households of origin.

4.3. Barriers and Constraints

Although migration has the potential to be a coping and adaptation strategy, rural Zimbabwe is confronted with several structural, economic, social and institutional barriers that limit migration. These constraints shape who is able to move, the conditions under which movement occurs, and whether mobility contributes to household resilience or produces new forms of vulnerability. Migration can provide a means for households to diversify their income sources and reduce their reliance on climate-sensitive agriculture, but it is not equally accessible to all rural households. The ability to migrate is determined by household resources, social networks, information, gender relations and policy environments [7, 10, 11]. Financial constraints are among the most important constraints to migration as an adaptation option. For poorer households, the costs of transport, documentation, accommodation, job searching and settlement in destination areas can be unacceptably high. Where drought, crop failure

and livelihood decline threaten survival, some people may not be able to migrate if they lack savings, credit or external support. This means that migration is often easier for households that are relatively better resourced, whilst poorer households are left exposed to climate stress with fewer options [11, 20]. In this sense, migration may reproduce inequality, as those most affected by climate vulnerability may also be least able to migrate.

Policy and legal restrictions also affect migration patterns and outcomes. Immigration laws, border controls, documentation requirements and labour policies limit mobility within and across borders. Insecure legal status may increase vulnerability to exploitation, low wages, deportation risks and limited access to social services for Zimbabwean migrants moving to neighbouring countries such as South Africa and Botswana. Such conditions undermine the benefits that can be gained from migration and can make mobility a source of increased insecurity as an adaptation strategy [9, 23]. Thus, the policy context is of critical importance in deciding whether migration will enhance resilience or raise the risks for migrants. Social networks are also important for successful migration. Those with established family, community or work connections in urban centres, mining areas or neighbouring countries are more likely to get information, accommodation and employment and to integrate in destination areas. Households without strong social networks, on the other hand, are more insecure and could be vulnerable to failed migration, exploitation or unsafe living conditions. Migration decisions are therefore shaped not only by environmental pressure but also by the social capital available to households and individuals [7, 11]. This explains why some households exposed to the same climate shocks have different migration outcomes.

Information gaps also limit the use of migration as an adaptation strategy. Many households in rural areas have no reliable information on job opportunities, migration procedures, documentation needs, transportation costs, and possible dangers in the places of destination. Limited access to information on climate change, labour markets and institutional support hampers households' ability to make well-informed decisions about migration. As a result, migration may be reactive and unplanned, resulting in a higher probability of unsuccessful or exploitative outcomes [8, 23]. Hence, better access to accurate information is crucial if migration is to be a safer and more effective adaptation pathway. Participation in migration and its outcomes are also affected by gender inequalities. Women often experience additional barriers such as lack of control over household resources, cultural expectations, safety concerns, care responsibilities, and limited access to formal employment. As a result, women may have fewer opportunities to migrate or, when they migrate, they may be restricted to precarious, low-paid, and informal work. At the same time, women who remain in rural areas may have to work harder, as they take on farming, household management and caregiving in the absence of male migrants [21, 22]. These gendered constraints underscore the deep interconnections between migration, climate adaptation and uneven power relations within households and communities.

4.4. Socioeconomic Implications

Migration has wide socio-economic implications for rural households in Zimbabwe, especially in terms of household structure, labour availability and livelihood organisation. Climate stress often leads to migration by household members, with the result that the roles and responsibilities of the family must be redistributed among those who remain. Women, children and the elderly may have to take on additional productive and reproductive responsibilities, such as farming, caring for children, preparing food, collecting water and caring for dependants. Migration can result in labour shortages in rural areas, particularly when working adults migrate during critical agricultural periods such as land preparation, planting, weeding and harvesting. Migration can provide access to income and remittances [6, 9, 21]. One of the main socio-economic benefits of migration is the contribution of remittances to household income stability. Often migrants send money, food, and other goods home to help families meet basic needs such as food, education, health care, clothing, and transport. In Zimbabwe, remittances from migrants in South Africa have been found to make a significant contribution to rural household welfare and livelihood support, especially in the southern districts where migration has long been part of

household survival strategies [12]. Recent evidence also indicates that food remittances sent by Zimbabwean migrants in South Africa across borders contribute to food security in receiving households in Zimbabwe [13]. These flows are thus important for the resilience of households in times of drought, crop failure, and economic instability.

Remittances may also support productive investment and livelihood diversification beyond consumption. Some households use the income generated from remittances to buy agricultural inputs, pay school fees, invest in livestock, upgrade housing, or establish small businesses. Such investments can reduce dependence on rain-fed agriculture and expand sources of household income, thus improving adaptive capacity. The New Economics of Labour Migration suggests that migration can be seen as a household strategy for coping with risk and diversifying income in situations of uncertainty [14]. However, the developmental impacts of remittances are contingent on the regularity of migrant income, employment security in destination areas, transfer costs, and household decision-making processes [6, 7]. Migration can also deepen the socio-economic inequalities of rural communities. Households with financial resources, education, documentation, and strong social networks are more likely to access safer opportunities for migration and receive regular remittances. Poorer households, in contrast, may lack the financial means to finance migration, or they may lack networks in urban areas and neighbouring countries [10, 11, 20]. Thus, such households are likely to remain highly vulnerable to climate-related livelihood risks, while better-resourced households benefit from mobility and remittance flows. This differential access implies that migration can enhance resilience for some households but exacerbate inequalities among them.

The social impact of migration is also important. Long periods of separation can weaken family bonds, affect childcare arrangements and cause emotional stress for migrants and the families they leave behind. Shifts in household roles may create tensions, especially when women take on more responsibility for farming and household management without commensurate control over income, land or productive assets. Parental migration can also lead to care gaps or increased domestic responsibilities for children. Migration can change traditional forms of cooperation, mutual support and social cohesion at the community level, especially where long-term absence reduces participation in local agricultural, cultural and social activities [21, 22]. Migration also affects the areas of destination, in particular urban centres and informal economic spaces. Rural-urban migration can place a strain on housing, infrastructure, water, sanitation, transport and social services, especially in cities already affected by unemployment and economic problems. Many migrants find informal employment in construction, domestic work, vending, artisanal mining and casual labour. These activities may provide opportunities for income but may also expose migrants to insecure work, poor living conditions, exploitation and limited access to healthcare or social protection [9, 23]. Thus, migration can reduce the vulnerability of sending households while at the same time creating new vulnerabilities in destination areas.

5. Conclusion

Climate-induced migration is increasingly reshaping rural livelihoods in Zimbabwe, reflecting the growing pressure that climate variability places on agricultural systems and household survival strategies. As droughts, erratic rainfall, and rising temperatures undermine traditional livelihoods, migration has become a central response for many rural families. Migration plays a key role in adaptation by enabling households to diversify income sources and reduce dependence on climate-sensitive activities. Through remittances and exposure to new opportunities, migration can strengthen household resilience and provide a buffer against environmental shocks. It has therefore become an integral component of rural livelihood strategies. However, the outcomes of migration are complex and varied. While some households benefit from improved income and stability, others experience challenges such as labor shortages, family separation, and increased inequality. Migration is not always a voluntary or beneficial choice; in many cases, it reflects distress and limited alternatives. Despite migration being used as an adaptive strategy, vulnerability among rural households remains high. Structural constraints such as poverty, limited access to resources, and weak institutional support

continue to hinder effective adaptation. Certain groups, including women and marginalized households, remain particularly vulnerable.

Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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