

Integrated Approaches to Climate Change-Induced Migration: Policy and Institutional Responses in Muzarabani District, Zimbabwe

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ABSTRACT

Climate change-induced migration is an emerging challenge that threatens sustainability and human security, particularly in vulnerable communities. This study investigates how existing institutional frameworks and policies address the nexus between climate change and migration in Muzarabani District, Ward 1, Zimbabwe. It further identifies policy and implementation gaps while proposing strategies for strengthening community resilience. Guided by sustainable development theory, the study adopts a mixed-method case study design. Data were collected through key informant interviews (n=12) with local leaders, government officials, and NGO representatives; focus group discussions (n=2) with community members; and household surveys (n=193), capturing migration patterns and perceptions of policy effectiveness.

The findings indicate that current policies and institutional arrangements insufficiently integrate climate-induced migration. Key challenges include weak inter-agency coordination, inadequate funding, limited community participation, and gaps in technical capacity building. Traditional coping mechanisms remain important but are increasingly strained under recurrent climate shocks, highlighting the urgency for systemic interventions.

To address these shortcomings, the study recommends the development of integrated policies that explicitly link migration and climate adaptation, stronger institutional collaboration across governance levels and the promotion of community-driven resilience initiatives. Embedding migration considerations into climate adaptation planning can enhance livelihoods, reduce displacements risks and strengthen human security. Overall, this study contributes to the discourse on climate policy and practice in Southern Africa by providing baseline evidence from Muzarabani. It underscores the need for holistic, inclusive and well-resourced approaches to managing climate change-induced migration.

Keywords: Climate change, migration, policy integration, institutional frameworks, community resilience

INTRODUCTION AND BACKGROUND

Climate change is increasingly driving migration across the globe, with millions displaced each year by droughts, floods, cyclones and other climate-related hazards (UNDRR, 2015; World Bank, 2018). While sea-level rise and extreme weather events dominate global discourse, in much of Su-Saharan Africa-including Zimbabwe-the key driver is the deterioration of agricultural livelihoods due to shifting rainfall patterns, prolonged droughts and recurrent flooding (IOM, 2009). As rain-fed agriculture becomes less viable, rural households are compelled to seek alternative livelihoods through migration, either to urban centers or across borders.

In Zimbabwe, climate change interacts with long-standing structural and economic challenges to shape migration dynamics. Rising temperatures, erratic rainfall and frequent droughts have contributed to environmental degradation, declining agricultural productivity and widespread food insecurity (ZIMLAC, 2020). For rural households dependent on subsistence farming, these conditions have intensified vulnerability, forcing people to

migrate in search of food security and income opportunities. The Internal Displacement Monitoring Center (2021) reported on 5000 new internal displacements in Zimbabwe in 2020 alone due to sudden-onset disasters. Broader projections suggest that by 2050, climate-related migration in Sub-Saharan Africa could affect up to 86 million people, underscoring the urgency of the issue (World Bank, 2018).

Muzarabani District, located in northern Zimbabwe, is particularly exposed to climate risks. Its low-lying position makes it highly prone to recurrent floods from the Zambezi and its tributaries, while prolonged dry spells exacerbate food insecurity. These pressures have historically driven seasonal, temporary and sometimes permanent migration, both within the district and beyond. Such mobility is not only a coping strategy but also a reflection of the limited adaptive capacity of rural households when formal support systems are weak.

Policy responses in Zimbabwe remain fragmented. While national climate policies and disaster management strategies recognize the threats posed by climate change, they rarely address migration as a specific outcome. This omission leaves communities in highly vulnerable districts such as Muzarabani without adequate institutional support.

Chiefs, local authorities and humanitarian agencies have often acted in isolation, while national frameworks lack coordination to integrate migration into climate resilience planning. This gap reflects a broader global dilemma: the governance of climate-induced migration remains underdeveloped despite its profound implications for livelihoods, human rights and development (Balsari, et al., 2020).

The study examines the relationship between climate change and migration in Muzarabani District with a particular focus on policy and institutional responses. It seeks to assess the extent to which existing frameworks address the interconnections between climate change and migration, identify gaps and limitations and propose recommendations for strengthening community resilience. By situating the analysis in Muzarabani, the study provides localized evidence to inform both national debates and broader discussions on integrated approaches to climate-induced migration.

METHODOLOGY

Research Design

The study adopted a convergent mixed-methods research design, integrating quantitative household survey data with qualitative insights from key informant interviews (KIIs) and focus group discussions (FGDs). The mixed-method approach was selected because climate-induced migration is a complex socio-environmental phenomenon shaped by interrelated climatic, socioeconomic, institutional, and political factors.

Combining quantitative and qualitative methods enabled triangulation of findings and strengthened the validity, reliability and contextual depth of the study. The case study approach enabled a focused exploration of Muzarabani, aligning with Yin's (2003) descriptive model, which situates complex phenomena within their real-life context.

The quantitative component generated measurable evidence on migration patterns, household vulnerability, adaptation strategies, and perceptions of institutional support, while the qualitative component provided deeper insights into governance systems, policy implementation gaps, community experiences, and local adaptation dynamics. Integration of the two datasets occurred at three stages: (i) during research design through the development of complementary tools, (ii) during data analysis through thematic comparison and convergence coding, and (iii) during interpretation where qualitative findings were used to explain and contextualize quantitative trends.

The study further incorporated retrospective longitudinal perspectives by asking respondents to compare migration trends, rainfall variability, and livelihood changes over the previous 10–20 years. This approach helped capture temporal dimensions of climate-induced mobility and changing adaptation responses in Muzarabani District.

Study Area and Population

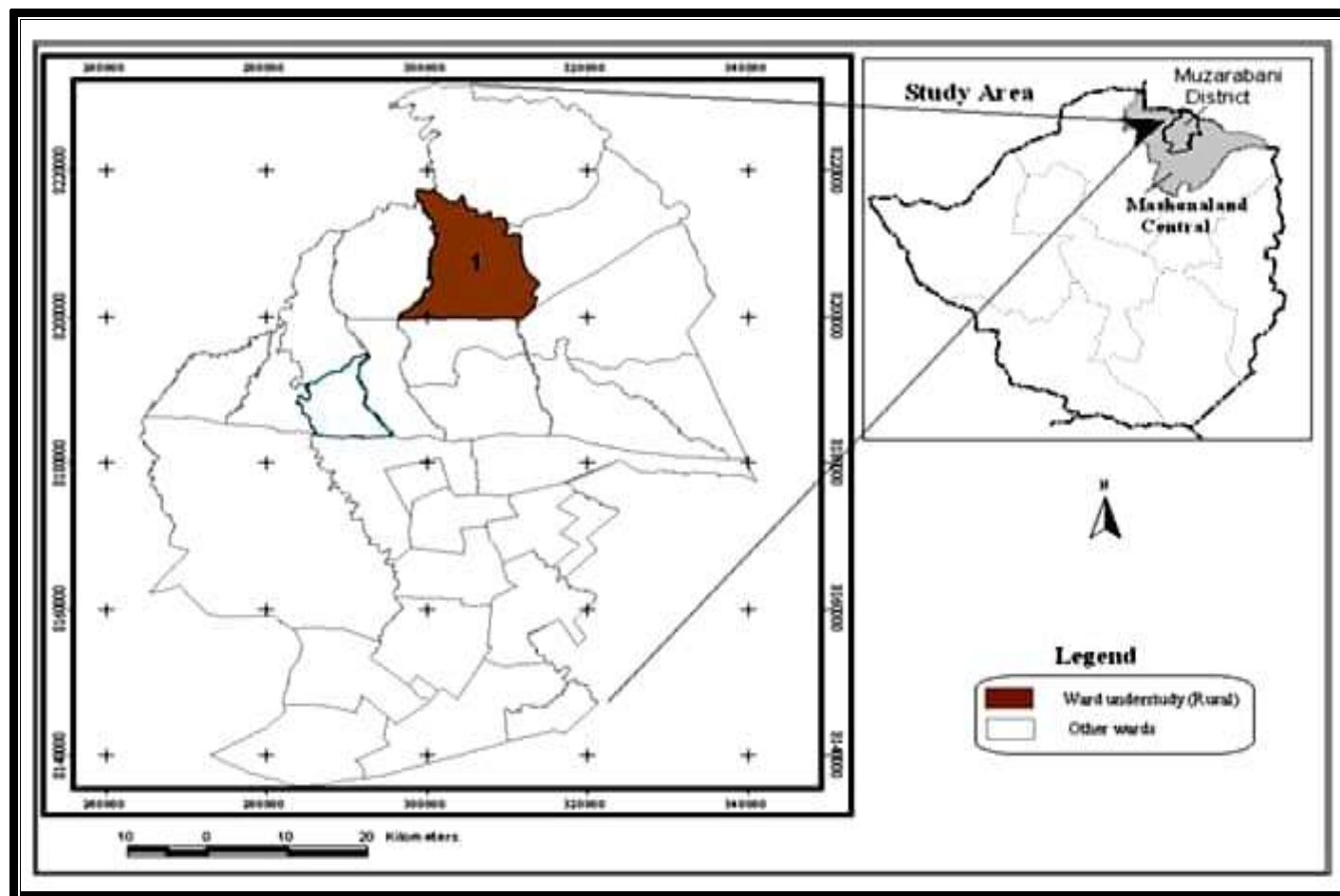


Figure 1: showing the map of Muzarabani District, Ward 1Source: Albert Manyani (2018).

The study was conducted in Muzarabani District in Mashonaland Central Province, Zimbabwe, one of the country's most climate-vulnerable districts. The region is characterized by recurrent droughts, flooding, high temperatures and increasing rainfall variability., all of which have intensified livelihood insecurity and migration pressures. The district's economy is largely dependent on rain-fed subsistence agriculture and livestock production, making households highly sensitive to climatic shocks.

Muzarabani has increasingly experienced different forms of migration, including seasonal labour migration, permanent migration to urban centers and circular migration associated with livelihood diversification. Ward 1, with 8,307 residents across 1,864 homesteads (ZimStat, 2022), was selected as the study site given its recurring vulnerability to climate shocks and resulting livelihood disruptions. The mobility patterns made the district suitable for examining climate-induced migration and institutional responses.

Sampling Procedures and Sample Size

Household Survey: A total of 193 households were surveyed using stratified random sampling to capture variability across settlement patterns, socio-economic conditions and livelihood groups. The sample size was determined using Cochran's (1977) formula for finite populations, ensuring statistical representativeness of households directly or indirectly affected by climate-induced migration.

A multi-stage sampling technique was applied to enhance representativeness and minimize selection bias:

- Ward selection – One ward with the highest prevalence of climate-related migration was purposively selected in consultation with local authorities, traditional leaders, agricultural extension officers and district

development stakeholders. Purposive selection ensured the inclusion of communities experiencing significant climate stress and migration dynamics.

- Village Selection – Within the selected ward, villages were randomly selected using village registers obtained from local leadership structures. Randomization ensured equal chances of participation and reduced researcher bias.
- Household Selection – Systematic random sampling was used to select households. Every ninth household was selected until the desired sample was reached. Where selected households were unavailable or declined participation, the next household was selected.

Structured questionnaires were administered to household heads or adult representatives. The questionnaire captured demographic characteristics, livelihood profiles, migration histories, climate-related stressors, adaptation strategies and perceptions of institutional and policy support.

To strengthen analytical depth, migration was disaggregated into:

- Seasonal migration
- Permanent migration
- Circular migration
- Temporary labour migration
- Distress migration

This categorization enabled a clearer understanding of mobility dynamics and the differentiated impacts of climate variability on household decision-making.

Key Informant Interviews (KIIs): A total of 12 key informants were purposively selected based on their institutional roles, technical expertise and direct involvement in climate adaptation, migration governance, disaster risk reduction and rural development processes within Muzarabani District.

The key informants included:

- Local government officials,
- Traditional leaders,
- NGO representatives,
- Agricultural extension officers,
- Business representatives,
- Health practitioners,
- Educators,
- Disaster risk management personnel

Purposive sampling was considered appropriate because the study sought in-depth institutional and policy perspectives rather than statistical representation. Participants were selected using the following criteria:

- Direct involvement in climate adaptation or migration-related programmes,
- Knowledge of district-level policy implementation,
- Experience working with migration-affected communities,
- Leadership or decision-making responsibilities.

Although the number of KIIs appears relatively small, qualitative research emphasizes information richness, expertise, and thematic saturation rather than numerical representativeness (Patton, 2015; Creswell and Poth, 2018). Saturation was achieved when recurring themes regarding climate vulnerability, migration drivers, institutional coordination, and policy limitations consistently emerged across interviews.

Focus Group Discussions (FGDs): Two focus group discussions comprising eight participants each (n = 16) were conducted with community members drawn from the household survey sample. Participants were

purposely selected to ensure diversity in gender, age, livelihood activities, and migration experiences. Separate discussions were conducted with men, women and youth participants.

The gender- and age-sensitive composition of FGDs was important for capturing differentiated experiences of climate vulnerability, migration decisions, and adaptation strategies. Participants included households with migration experience, return migrants, female-headed households, youth involved in seasonal migration and community members participating in local adaptation initiatives.

The relatively small FGD size allowed for deeper engagement, active participation, and effective moderation of sensitive discussions surrounding displacement, livelihoods, and institutional support. Small-group FGDs are recommended in qualitative disaster and migration studies because they enhance interaction, reduce participant intimidation, and generate detailed contextual narratives.

Data Collection Methods

Quantitative Data Collection: Household questionnaires were administered face-to-face using trained research assistants familiar with local languages and cultural contexts. The survey collected information on household demographics, livelihood systems, climate perceptions, migration trends, institutional support, adaptation strategies and disaster risk exposure.

Qualitative Data Collection: Semi-structured interview guides were used for KIIs to allow flexibility in probing institutional experiences, governance challenges, policy implementation issues, and climate adaptation responses. FGDs explored community perceptions of climate change, drivers of migration, local coping mechanisms, gendered experiences, institutional effectiveness and indigenous adaptation strategies.

Secondary data sources included:

- Government policy documents,
- Climate adaptation frameworks,
- Migration reports,
- NGO reports,
- District development plans,
- Meteorological and disaster risk management reports.

Data Analysis

Quantitative Analysis: Quantitative data were coded and analysed using SPSS Version 25. Descriptive statistics including frequencies, percentages, means, and cross-tabulations were used to examine migration patterns, climate impacts, and adaptation responses.

Inferential statistical techniques such as chi-square tests and correlation analysis were used to assess relationships between climate stressors, livelihood vulnerability, and migration decisions.

Migration trends were analysed according to:

- Seasonal migration,
- Circular migration,
- Permanent migration,
- Temporary labour migration.

This disaggregation improved analytical precision and strengthened interpretation of household mobility dynamics.

Qualitative Analysis: Qualitative data from KIIs and FGDs were transcribed, coded, and analysed thematically using NVivo software. Both inductive and deductive coding approaches were employed.

Pre-determined themes included:

- Climate variability,
- Migration drivers,
- Institutional support,
- Governance,
- Adaptation strategies,
- Policy implementation.

Emergent themes from participant narratives were also incorporated to capture context-specific experiences and perspectives. Data triangulation across surveys, KIIs, FGDs, and secondary documents enhanced credibility and analytical rigor.

Ethical Considerations

Ethical clearance was obtained from the relevant university ethics committee and local administrative authorities. Informed consent was obtained from all participants prior to data collection. Participants were informed about the objectives of the study, confidentiality measures, voluntary participation and the right to withdraw at any stage.

Anonymity was maintained through the use of pseudonyms and coding systems. Particular sensitivity was applied when discussing migration experiences, livelihood insecurity and climate-related losses.

RESULTS AND DISCUSSION

Gender Dimensions and Climate-Induced Migration

The study revealed a gender imbalance among respondents, with women comprising 53.3% and men 46.7%. This reflects the central role women play in rural socio-cultural and household activities in Muzarabani. However, women continue to face social, political and institutional marginalization, particularly through their exclusion from decision-making processes at household and community levels. This exclusion significantly shapes migration patterns as women are less likely to migrate independently compared to men. These findings align Mudefi et al., (2019), who observed that women often remain behind, managing households while men migrate in search of opportunities.

Men's relatively lower representation (46.7%) is partly explained by their mobility and status as household heads and primary decision-makers, which places them at the forefront of adaptive livelihood strategies, including migration. In many cases, male-dominated decisions determine whether households diversify through migration or pursue local adaptive measures such as agriculture, casual labour or trading.

This gendered differentiation in migration responses highlights the need for policy frameworks that integrate gender-sensitive approaches. Without addressing structural inequalities, climate-induced migration risks reinforcing women's marginalization, limiting their agency in shaping adaptive pathways and overburdening them with responsibilities left behind by migrating male counterparts.

Age Structure and Migration Trends

Age distribution among respondents further underscores the dynamics of migration in Muzarabani. The 41–50 years age group (33.3%) dominated the sample, reflecting the centrality of this demographic in households' livelihoods, land use, and decision-making (Figure 2). This cohort often balances responsibilities between providing for families and making critical choices on migration, either temporary or permanent.

The younger group's -21–30 years (23.3%) and 31–40 years (16.7%) - showed relatively lower participation in this study, partly due to active migration to Mozambique and urban centers (Figure 2). Proximity to the Mozambique border facilitates cross-border mobility, often informal, as youth pursue opportunities in farming,

causal work, or trading. This trend resonates with broader migration literature which positions youth as the most mobile group in contexts of livelihood vulnerability.

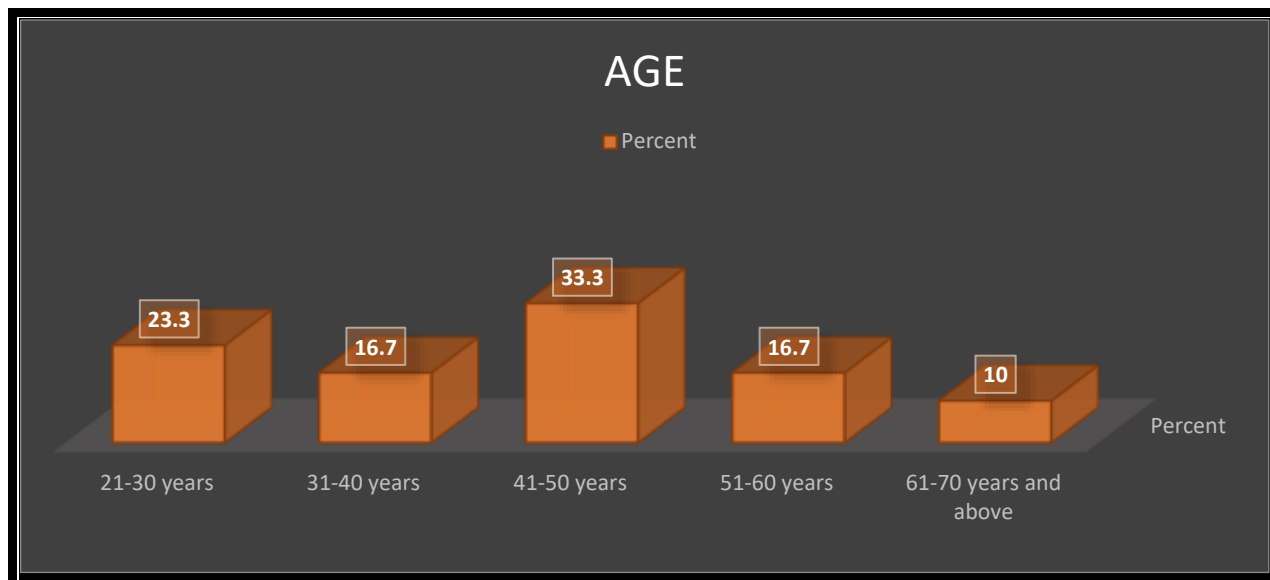


Figure 2: Age ranges of study participants

Notably, the 61-70 years group (10%) had the lowest participation, reflecting both lower life expectancy and reduced mobility in old age. Older residents are less likely to migrate, instead relying on social networks, remittances or local coping strategies such as subsistence farming and reliance on extended family.

Migration, Livelihoods and Policy Implications

The demographic trends underscore two critical insights. First, youth migration is both a livelihood diversification strategy and a sign of local vulnerability. While migration provides remittances, it also risks depopulating the productive workforce in rural settings, thereby weakening local adaptive capacity to climate stressors. Second, the gendered dynamics reveal how migration, if poorly governed, can exacerbate inequalities, leaving women with disproportionate burdens of food production, caregiving and community participation, without corresponding decision-making power.

From a policy perspective, these findings emphasize the need for integrated, multi-level responses to climate-induced migration. Local authorities and national institutions must:

- Mainstream gender into migration and climate policies, ensuring women are empowered in decision-making and benefit from migration outcomes.
- Develop youth-centered livelihood alternatives to reduce overdependence on migration, such as climate-smart agriculture, vocational training and small business support.
- Strengthen cross-border migration governance, particularly with Mozambique, to safeguard migrant rights and facilitate remittance flows that can be reinvested into local resilience.
- Support older populations through targeted social protection schemes, given their limited mobility and high vulnerability to climate shocks.

Overall, the findings reveal that climate-induced migration in Muzarabani is shaped by gender roles, age structures and cross-border proximity. Migration is not merely a livelihood option but a survival strategy, with deep implications for household resilience, community cohesion and local development. Without robust institutional and policy responses, these demographic patterns risk entrenching inequality and eroding local adaptive capacity. An integrated approach, combining traditional coping strategies, gender-sensitive policies, youth empowerment, and cross-border cooperation, is thus essential for transforming migration into a pathway for resilience rather than vulnerability.

Primary Drivers and Patterns of Climate Induced Migration

Findings from Muzarabani District reveal that climate variability-manifested through rising temperatures, erratic rainfall and recurrent droughts- has emerged as the foremost driver of migration. Agriculture, the principal livelihood for most households, has become increasingly untenable due to declining crop yields, water scarcity and loss of income. Approximately, 73.5% of respondents with over five years of residence in Ward 1 reported experiencing severe climate change impacts, while 60% indicated either direct or indirect involvement in migration. The diminished availability of clean water, worsened by siltation of local dams, has compelled many households to rely on rivers, increasing vulnerability to waterborne diseases and further straining community resilience.

These ecological pressures have translated into significant socio-economic transformations. Migration is predominately undertaken by economically active individuals, particularly young men in their twenties and thirties, who move to urban centers such as Mutare or across the border into Mozambique. However, migrants often encounter precarious conditions in host areas, including limited employment opportunities and exploitation. The outflow of youth has left behind predominately elderly populations who lack the physical capacity to cultivate land effectively, thereby reducing agricultural output even further.

Socio-Economic Impacts of Migration

The consequences of climate-induced migration are multi-faceted and extend beyond the immediate household. In receiving areas, increased population pressure has contributed to overcrowding, heightened competition for limited resources and rising crime rates. At the community level in Muzarabani, social disruptions are evident. Drug abuse among non-migrating youth has intensified, attributed to unemployment and growing poverty.

Family structures have been destabilized, with many migrants unable to remit sufficient income or return home, leaving elderly caregivers burdened with the responsibility of raising grandchildren. In some cases, economic strain has forced the withdrawal of children from school, undermining educational attainment.

Women have been disproportionately affected by climate stress and migration. Approximately, 65% of women reported engaging in seasonal migration due to declining agricultural production. Those who remain face increased workloads, particularly in water collection, as dam capacities continue to decline. Livestock losses-averaging two to four cattle per household in the past nine months-have also been reported, further eroding wealth, given that cattle function as critical assets and symbols of economic security.

Policy and Institutional Dimensions

The findings highlight a significant gap in policy and institutional responses to climate-induced migration. While NGOs provide critical relief, their interventions have occasionally generated conflict over aid distribution, underscoring weaknesses in coordination and governance. Respondents emphasized that migration, rather than alleviating vulnerability, has in many cases deepened poverty and social fragility. Overall, 80% of participants perceived climate-induced migration as having predominately negative effects, hindering progress towards Sustainable Development Goals (SDGs) 1-4-no poverty, zero hunger, good health and well-being and quality education. The Muzarabani case illustrates the urgent need for integrated strategies that go beyond humanitarian relief to address structural vulnerabilities. Policy interventions should focus on strengthening climate-resilient agricultural systems, improving water infrastructure and creating local livelihood opportunities to reduce the necessity of migration. Institutional frameworks at district and national levels must also recognize migration as a central dimension of climate adaptation, ensuring that governance, social protection and development policies are harmonized to mitigate the adverse consequences of displacement while safeguarding community resilience.

Effectiveness of Current Policies and Institutional Frameworks

The survey results (Figure 3) reveal that the existing policy and institutional frameworks in Muzarabani District are largely perceived as ineffective in addressing climate-induced migration. Of the 193 respondents, only 4.1% considered policies effective, while 68.9% deemed them ineffective, and 25.9% acknowledged them as only

partially effective. The overwhelming perception of ineffectiveness suggests that the current frameworks are inadequate in mitigating the growing challenge of migration driven by climate variability and extreme events.

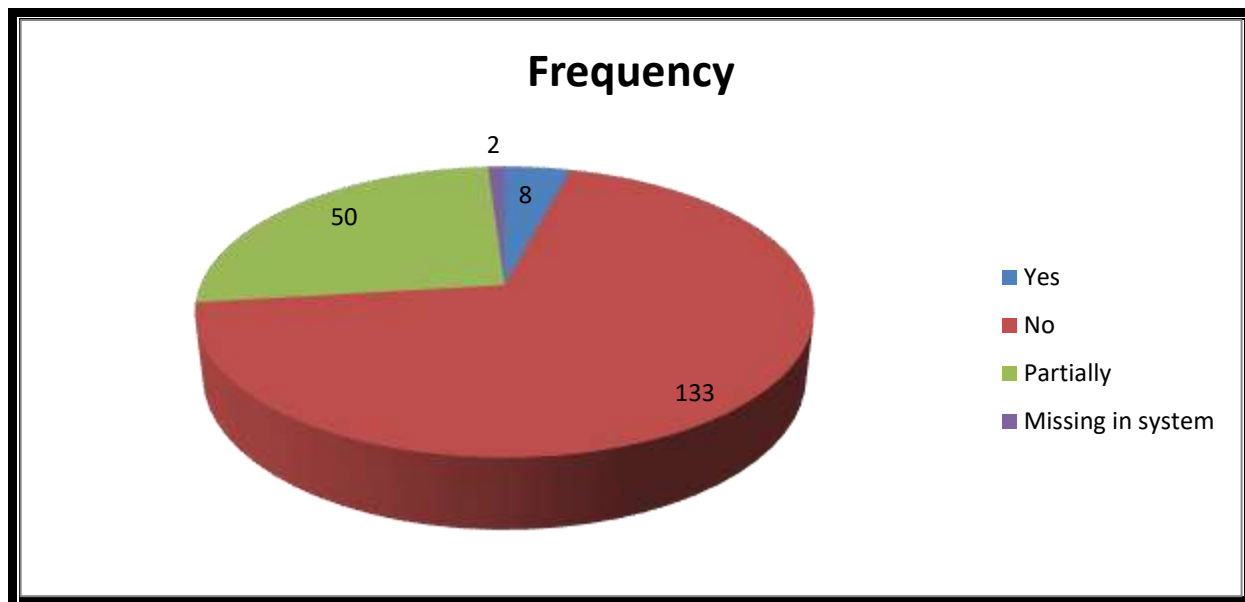


Figure 3: Effectiveness of policies and frameworks in addressing climate-induced migration

The few respondents who considered policies effective were mostly individuals with intellectual or professional backgrounds that enabled them to interpret existing policies more broadly. Their perception reflects a belief that climate policies indirectly address migration by supporting adaptation and resilience measures. However, the majority emphasized that climate-induced migration remains unrecognized within both policy design and implementation.

At the community level, policies and initiatives have primarily focused on climate adaptation rather than migration governance. For instance, non-governmental organizations such as Dan Church Aid, ADRA, GEF 6, Scope Zimbabwe, African Wildlife Foundation, My Trees, Zimbabwe Apiculture Trust, and Environment Africa have implemented interventions aligned with the National Climate Change Policy (2019). These include the promotion of drought-tolerant traditional grains and sesame, conservation agriculture, small livestock rearing, use of chilies to reduce human-wildlife conflicts and borehole drilling to minimize crocodile attacks. While these interventions contribute to household resilience and food security, they do not explicitly address migration dynamics.

Focus group discussions and key informant interviews further revealed that migration is often marginalized and misrepresented. While households frequently rely on seasonal and temporary migration as a survival strategy, policy narratives rarely frame migration as a legitimate form of climate adaptation. This disjuncture results in migration being treated as a failure of adaptation rather than a coping mechanism embedded within local livelihood systems.

The National Climate Change Policy (2019) provides a comprehensive framework covering thematic areas such as climate modeling, adaptation, mitigation, awareness and inclusivity. However, the absence of migration within its scope reflects a critically policy gap. Respondents consistently highlighted that migration, despite being a significant consequence of climate stress in Muzarabani, is neither mainstreamed into climate change policies nor integrated into development planning. This omission has created uncertainty at the community level, where people remain unclear on whether migration is supported, discouraged or recognized as part of resilience-building.

Moreover, the lack of collaboration between climate change policies and migration governance frameworks underscore weak institutional coordination. Respondents' inability to identify linkages suggests either a limited awareness of policy overlaps or that such collaboration remain theoretical and absent in practice. This finding is

consistent with broader critiques of Zimbabwe’s climate governance, where strong policy statements are often undermined by limited implementation capacity and resource constraints.

While adaptation initiatives in Muzarabani contribute to reducing household vulnerability, they remain insufficient in addressing the multidimensional nature of climate-induced migration. The results highlight the need for integrated policy framework that explicitly recognize migration as both a risk and an adaptive response to climate change. Institutional coordination between climate, migration and development sectors is crucial to avoid fragmented interventions and to ensure that community strategies-such as seasonal migration-are harnessed as part of broader resilience-building.

Awareness of Climate Change-Induced Migration among Stakeholders

Survey findings reveal that in Muzarabani District, 50% of respondents identified climate change as a major driver of migration (very aware), while 46.6% demonstrated relatively high awareness, largely correlated with higher educational attainment (Figure 4). Only 3.3% of respondents were unaware of the link between climate variability and migration. This generally high level of awareness suggests that local communities and stakeholders increasingly recognize the inseparability of climate shocks, livelihoods ad mobility patterns.

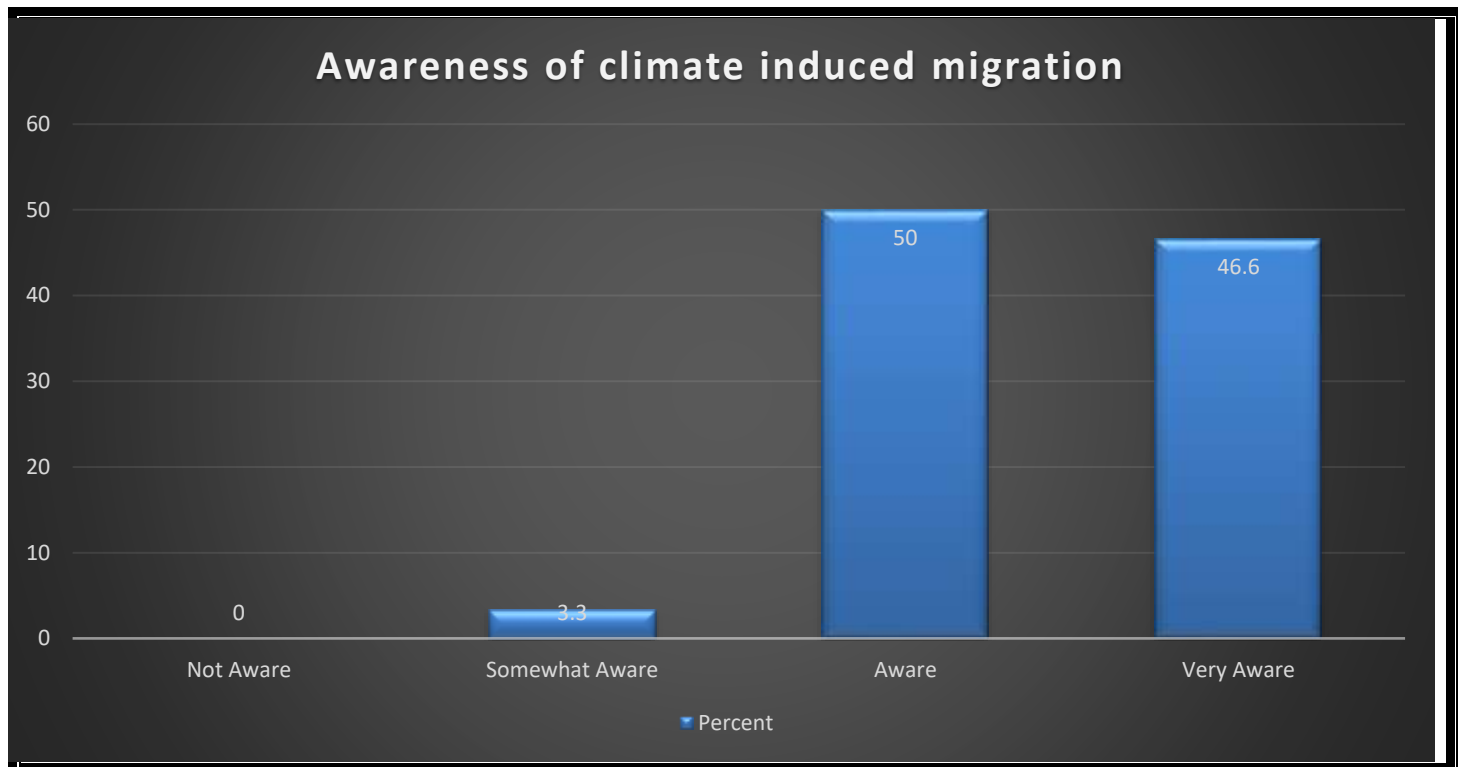


Figure 4: Awareness of climate induced migration in the district

Droughts were perceived as the most critical climate-related hazard, followed by floods, consistent with the district’s ecological profile as part of the Zambezi Valley. These hazards undermine agricultural productivity-mainstay of local livelihoods-creating a push factor for seasonal and sometimes permanent migration. Similar patterns have been documented in other climate-vulnerable regions of southern Africa., where declining rainfall reliability accelerates livelihood insecurity and drives mobility as a coping strategy.

Climate-induced migration has profound implications for the attainment of the Sustainable Development Goals (SDGs) in Muzarabani. Education is particularly affected: households facing livelihood shocks withdraw children from school, either because of financial constraints or due to lack of adult mentorship when guardians migrate. This undermines SDG 4 (Quality Education) and has intergenerational consequences, as dropout rates reinforce cycles of poverty. Beyond education, SGD 3 (Health and Well-being) is also threatened, as migration-induced family separation has resulted in heightened psychological stress, particularly among men left behind.

Women also migrate under similar pressures, challenging traditional gendered assumptions that men are the primary movers.

The migration observed is often seasonal, reactive and unplanned, reflecting limited institutional and policy frameworks to guide adaptive migration strategies. This unstructured movement generates both financial and psychological hardships, perpetuating vulnerability for both migrants and those left behind. The lack of planned migration frameworks also limits opportunities to transform migration into an adaptive strategy that could build resilience through remittances, skills transfer or diversified livelihoods.

While awareness of climate change-induced migration in Muzarabani is high, institutional support mechanisms remain weak, leaving migration largely unmanaged and its negative consequences unchecked. Addressing this requires integrating migration into climate adaptation planning, strengthening safety nets to reduce forced migration and reframing mobility as a potential resilience-building mechanism when adequately supported by local and national policies

Perceptions on Climate Induced Migration

Findings reveal that an overwhelming majority of respondents in Muzarabani District (96.7%) perceive climate-induced migration as an urgent and escalating issue with profound implications for household and community well-being. Respondents underscored how recurrent climate shocks-particularly floods, droughts and erratic rainfall-destabilize household structures, weaken kinship support systems and fragment communities. This aligns with broader scholarship which positions migration not merely as a physical displacement but as a transformation of social and cultural fabrics (Black et al., 2011; Warnet, 2012).

Respondents highlighted the multidimensional ramifications of migration:

- Socially, migration disrupts family cohesion, leading to loss of cultural continuity and increased child-headed households.
- Economically, it disrupts agricultural productivity, erodes asset bases, and deepens dependence on precarious livelihoods.
- Environmentally, migration pressures receiving areas, often leading to unsustainable land use and further ecological stress.

A central concern emerging from the data is the gendered vulnerability of climate-induced migration: Women, as primary caregivers and managers of household food security, bear a disproportionate burden. They are often left behind when men migrate, resulting in feminization of agriculture under conditions of resource scarcity, heightened exposure to gender-based violence and limited access to decision-making spaces. Children, too, face heightened risks, including disrupted education, food insecurity and psychological stress. These findings echo previous studies in Zimbabwe (Chikanda and Tawodzera, 2017) and the wider Southern African region (Tacoli, 2009), which emphasize the compounding risks faced by women and children in migration contexts.

In contrast, a small minority (3.3%) expressed uncertainty or skepticism regarding climate-induced migration. Their views ranged from denial of climate change impacts to doubts about the feasibility of governance interventions. Such perspectives may stem from limited awareness, political allegiances or a reluctance to confront the long-term implications of displacement. While numerically small, this group's perceptions matter because they shape local-level resistance to adaptation policies and influence collective action. The divergence in community perceptions reflects wider debates in climate policy circles about framing migration as a risk versus an adaptation strategy (McLeman, 2014).

From a policy and intuitional perspective, these findings suggest that interventions must move beyond narrow technocratic approaches to embrace socially embedded, inclusive responses. Addressing climate-induced migration requires not only infrastructural resilience (e.g. improved irrigation and flood defenses) but also social protections that safeguard vulnerable groups. This includes:

- Gender-sensitive legal frameworks

- Expanded social safety nets for displaced households and,
- Targeted education and awareness campaigns to build consensus around migration governance.

Furthermore, the results point to the importance of integrated governance approaches. Traditional leadership structures remain influential in Muzarabani and can serve as critical entry points for mobilizing local participation. However, their role must be complemented by formal institutions that ensure accountability, resource mobilization and alignment with national climate adaptation policies.

Community perceptions in Muzarabani underscore the urgency of addressing climate-induced migration as both a developmental and humanitarian challenge. While the overwhelming majority recognize its destabilizing effects, the persistence of skepticism among a minority indicates the need for deliberative dialogue, awareness building and inclusive policy design. Unless root causes such as environmental degradation, livelihood insecurity and gender inequality are addressed, migration will continue to strain both sending and receiving communities, undermining resilience in the face of climate change.

Knowledge on Climate-Induced Migration

The study revealed a mixed landscape of knowledge on climate-induced migration in Muzarabani District. Among government (GoZ) and non-governmental organizations (NGOs), 46.6% demonstrated high levels of awareness, recognizing migration, recognizing as a significant adaptation strategy in response to climate variability and environmental stressors. These stakeholders acknowledged that migration decisions are closely linked to household survival, particularly through diversifying income sources and reducing vulnerability to recurrent floods and droughts. Their perspectives align with broader scholarship that frames migration not only as a coping strategy but also as a proactive adaptation mechanism in resource-constrained rural settings.

In contrast, local leaders and farmers exhibited partial awareness. While 75% acknowledged that climate change is driving migration of local leaders and farmers, while acknowledging the existence of climate-induced migration, they demonstrated limited understanding of its broader and long-term implications. Migration is generally perceived as a short-term household decision rather than part of a systemic shift in livelihoods and demographic patterns. This knowledge gap is likely linked to the reliance on informal information channels such as social media, peer-to-peer communication and limited outreach activities. These channels tend to simplify or underplay the structural dimensions of migration, leading to fragmented knowledge. This particularly concerning because local leaders are critical actors in mobilizing communities and shaping grassroots responses to climate shocks; their limited awareness risks undermining the integration of migration into community development and disaster risk reduction planning.

A small proportion of stakeholders (3.3%), displayed minimal awareness, coupled with skepticism regarding the scientific basis of climate-induced migration. This skepticism appears linked to shorter residency in the district, limiting firsthand experience of long-term climatic changes and their livelihood impacts. Such perspectives highlight how experiential knowledge strongly influences perceptions of climate risks in rural contexts.

An important finding relates to the institutional knowledge. While some stakeholders were familiar with existing climate change policies and frameworks, these are primarily environmental in orientation, focusing on land degradation, deforestation and water scarcity, with little explicit attention to migration. This reflects a broader policy gap in Zimbabwe, where migration is often addressed with labour, urbanization or disaster relief domains rather than integrated into climate adaptation frameworks. The absence of migration-sensitive policies risks leaving communities such as Muzarabani inadequately supported, as mobility continues to evolve as a key adaptation pathway.

The findings underscore critical disparities in knowledge across different stakeholder groups. Government and NGO actors possess relatively advanced understanding, reflecting exposure to policy debates, donor-driven research and programmatic interventions. However, this knowledge has not sufficiently cascaded to the local level, where community leaders and farmers operate with partial or distorted understandings. Such asymmetry

undermines policy effectiveness, as top-down strategies may fail to resonate with or be implemented by local actors who lack clarity on the long-term dynamics of migration.

The results also highlight the dominance of experiential learning in shaping local perspectives. For many residents, recurrent flooding and drought events validate the link between climate stress and mobility. Yet without structured knowledge-sharing platforms, communities interpret migration primarily through immediate livelihood needs, overlooking cumulative social, economic and demographic transformations. This narrow framing risks limiting the development of proactive adaptation strategies, such as planned relocation, skills training for migrants or sustainable remittance investment.

From a governance perspective, the absence of explicit migration considerations within climate policy frameworks represents a critical blind spot. While Zimbabwe has made progress in mainstreaming climate change into development planning, the findings from Muzarabani reveal that policies remain largely reactive and environmentally focused, neglecting the social dimensions of climate stress. Migration, therefore, operates in a policy vacuum, often managed informally by households and communities without institutional guidance. This reinforces vulnerability, as unplanned migration can exacerbate land pressure in host areas, disrupt social networks and increase exposure to urban poverty.

The study also suggests opportunities for strengthening institutional responses. Bridging the knowledge gap requires deliberate investment in climate literacy campaigns tailored to local contexts, ensuring that scientific knowledge is communicated in accessible and culturally resonant ways. Integration of climate-induced migration into district-level development plans would also enhance policy coherence, enabling local authorities to anticipate and manage mobility rather than responding to it as a crisis. Moreover, aligning traditional leadership structures with formal governance could help mobilize community trust and participation in migration-sensitive adaptation planning.

Overall, the Muzarabani case demonstrates that while migration is already a lived adaptation practice, institutional and policy frameworks have yet to catch up. Knowledge asymmetries and policy blind spots risk perpetuating reactive, fragmented responses. A more integrated approach-linking scientific evidence, local experiences, and institutional support-would strengthen both the ecological and social resilience of communities in the face of climate-induced mobility.

Strategies for Mainstreaming Migration into Climate Change Adaptation and Disaster Risk Management

The findings reveal a significant policy and institutional gap in Muzarabani District's approach to managing climate change-induced migration. While disaster risk management (DRM) and climate adaptation frameworks exist at national and local levels, they remain largely silent on the drivers, processes and consequences of migration triggered by climate-related hazards.

This omission limits the district's ability to anticipate and respond to the socio-economic and ecological pressures that displacement generates, leaving vulnerable communities exposed to recurrent risks. Similar gaps have been noted in broader sub-Saharan African contexts, where migration is often treated as an emergency outcome rather than as a proactive adaptation strategy.

Community-Centered Adaptation as a Priority

A recurring theme from focus group discussions was the need to anchor adaptation and DRM planning in local realities. Participants stressed that communities should not merely be recipients of policy decisions but active contributors to the design and implementation of adaptation initiatives. This participatory approach ensures that interventions align with local needs and knowledge systems, thereby enhancing legitimacy and effectiveness.

Approximately, one third of respondents advocated for community-based adaptation strategies such as livelihood diversification, improved water harvesting techniques and climate-smart agriculture. These measures were seen as critical in building resilience against erratic rainfall patterns and recurrent flooding, which are major triggers of migration in Muzarabani.

Strengthening Social Protection and Inclusive Governance

The findings also underscore the importance of reinforcing social safety nets to cushion vulnerable households against climate shocks. Access to social protection, healthcare, and education was cited as inadequate, particularly for women, children and persons with disabilities, who often bear the brunt of migration's disruptive effects. Without such support systems, forced migration becomes an inevitable coping mechanism, exacerbating poverty and social dislocation. The call for inclusive governance was clear: adaptation and migration policies must be gender-sensitive and disability-responsive, recognizing the differentiated vulnerabilities within affected populations.

Institutional Coordination and Stakeholder Engagement

Participants highlighted weaknesses in institutional coordination, noting fragmented responses among government agencies, NGOs and community structures. Effective management of climate-induced migration requires robust partnerships that harness the strengths of multiple actors. This includes improved horizontal coordination between local authorities and line ministries, as well as vertical integration to ensure that national frameworks empower district-level responses. Civil society organizations were identified as key intermediaries, particularly in mobilizing resources, building awareness and facilitating dialogue between communities and policymakers.

The Role of Early Warning Systems and Regional Cooperation

Another priority identified was the establishment of functional early warning systems. Current arrangements were viewed as inadequate, with information often reaching communities late or in inaccessible formats. Participants argued that timely, localized and culturally appropriate communication of climate risks is essential to reduce displacement pressures. Furthermore, given Muzarabani's geographical proximity to Mozambique, fostering cross-border cooperation emerged as a strategic imperative. Seasonal floods and droughts in the Zambezi basin do not recognize political boundaries, and collaborative frameworks for information sharing, joint planning and humanitarian assistance could significantly enhance resilience.

Towards Integrated and Sustainable Responses

Taken together, these findings suggest that climate-induced migration in Muzarabani cannot be addressed through sectorial or reactive interventions. Instead, an integrated approach is required—one that situates migration within the broader climate adaptation and DRM strategies while recognizing its potential as both a risk and an adaptive response. Embedding migration considerations into policy frameworks, strengthening social safety nets, promoting inclusive participation and enhancing regional cooperation are critical for building resilience and safeguarding livelihoods. Without these reforms, Muzarabani is likely to experience escalating cycles of displacement, deepening vulnerability and missed opportunities for sustainable development.

Key Barriers and Challenges in Integrating Climate Change-Induced Migration into Policies and Strategies

Findings from key informant interviews revealed several institutional and policy-related challenges constraining the integration of climate change-induced migration into Zimbabwe's climate governance framework. These challenges reflect both structural weaknesses within the national policy environment and gaps in local implementation capacities.

Data and Research Deficiencies

The most widely cited barrier was the lack of comprehensive disaggregated and longitudinal data on climate-induced migration. Without reliable data on the scale, drivers, and trajectories of migration in Muzarabani, policymaking remains largely speculative. This undermines the operationalization of the National Climate Change Policy (2017), which emphasizes evidence-based approaches for adaptation planning. Limited research funding and inadequate technical capacity compound this gap, constraining the development of robust early

warning systems and migration-sensitive adaptation frameworks. Similar findings are echoed in regional literature, where data scarcity remains a recurring challenge in aligning climate governance with mobility dynamics (Gemenne, 2011; Zinyama and Tawodzera, 2020)

Policy Transparency and Legislative Gaps

Although Zimbabwe has developed several policy frameworks relevant to climate change adaptation, disaster risk reduction, and migration governance—including the National Climate Policy (2017), the National Development Strategy 1 (NDS1), the Civil Protection Act, and the National Disaster Risk Management Bill—implementation at local level remains fragmented and insufficiently coordinated.

The findings from Muzarabani District reveal significant gaps between policy formulation and practical implementation. While national frameworks acknowledge climate vulnerability and resilience-building, they provide limited operational guidance on climate-induced migration, planned relocation, or mobility-sensitive adaptation strategies. Migration is often treated as a socio-economic issue rather than an adaptation and resilience concern.

Institutional fragmentation further weakens policy effectiveness. Government departments responsible for disaster risk management, agriculture, social welfare, migration, and environmental management frequently operate in silos, limiting integrated responses to climate-related displacement. Respondents highlighted weak coordination among stakeholders, inadequate funding, limited decentralization of adaptation resources, and poor community participation in decision-making processes.

The study also found that local institutions in Muzarabani remain heavily reactive rather than proactive. Existing interventions largely focus on post-disaster relief instead of anticipatory adaptation, resilience-building, and sustainable livelihood transformation. This limits long-term adaptive capacity and increases dependence on humanitarian assistance.

Comparatively, lessons from countries such as Bangladesh, Ethiopia, and Kenya demonstrate the importance of integrating climate mobility into national adaptation planning, strengthening anticipatory action systems, and supporting climate-resilient livelihoods in high-risk areas. For instance, Ethiopia's Productive Safety Net Programme (PSNP) combines social protection with climate adaptation, while Kenya's drought management frameworks integrate early warning systems with mobility-sensitive resilience strategies.

In contrast, Zimbabwe's climate governance frameworks remain weakly integrated with migration management systems. There is limited policy recognition of seasonal and circular migration as adaptive livelihood strategies. Furthermore, local authorities often lack technical and financial capacity to operationalize national adaptation priorities.

The findings suggest the need for:

- Integrated climate-migration governance frameworks,
- Decentralized adaptation financing,
- Stronger institutional coordination,
- Mobility-sensitive disaster risk reduction strategies,
- Community-based adaptation planning,

Mainstreaming climate migration into district development planning.

Future policy interventions should also incorporate longitudinal climate and migration monitoring systems to track evolving mobility patterns and inform evidence-based planning. Greater recognition of indigenous knowledge systems, local adaptation practices, and participatory governance approaches is essential for strengthening resilience among climate-vulnerable populations.

Competing Development Priorities

Another recurring theme was the marginalization of climate-induced migration in the face of pressing socio-economic challenges such as food insecurity, unemployment, and public health. Policymakers often perceive migration as a secondary issue, overlooking its direct implications for livelihoods, urban planning, and social cohesion. This de-prioritization reflects broader political-economic dynamics, where immediate development concerns overshadow long-term adaptation planning. Yet, as informants argued, ignoring migration risks aggravating vulnerabilities, particularly in high-risk districts such as Muzarabani that already grapple with recurrent flooding and droughts.

Stigmatization of Climate Migrants

A critical but less frequently acknowledged barrier relates to the stigma associated with climate-induced migration. Informants noted that policy discourse risks framing migrants as burdens rather than as adaptive agents, reinforcing negative stereotypes. This stigmatization undermines rights-based approaches and deters inclusive policy solutions. International frameworks such as the Global Compact for Migration stress the importance of protecting the dignity and rights of migrants, yet Zimbabwe's current policy framework falls short in addressing these normative concerns.

Limited Community Participation

Community participation in policymaking was reported as minimal, with decision-making processes largely driven by government agencies and external partners. This exclusion weakens the contextual relevance of policies and diminishes community ownership of adaptation strategies. Informants stressed that affected households often have valuable indigenous knowledge on mobility and coping mechanisms, yet their voices remain marginalized. Participatory governance has been widely recognized as essential for tailoring policies to local realities (Adger, et al., 2008) and its absence in Muzarabani reflects a critical governance gap. There is a notable deficiency in involving affected communities in the policymaking process. This exclusion hampers the development of policies that truly address the needs and realities of those most affected by climate-induced migration.

Challenges in Displacement and Resettlement Management

Displacement and resettlement emerged as one of the most pressing yet inadequately addressed challenges. Informants reported limited planning for equitable land allocation, livelihood restoration and social integration of displaced households. Past experiences with government-led resettlement programmes in Zimbabwe highlight risks of inadequate compensation, disruption of social networks and conflicts over land rights. In Muzarabani, these unresolved issues exacerbate tensions between migrants and host communities. Underscoring the need for comprehensive, migration-sensitive adaptation strategies.

Implications of the Findings

The findings highlight a governance paradox: while climate-induced migration is increasingly visible in Muzarabani, it remains weakly embedded in policy and institutional frameworks. Structural barriers such as data scarcity, legislative ambiguities and competing policy priorities hinder integrated responses. At the same time, sociocultural dimensions-such as stigmatization of migrants and exclusion of communities-further undermine the legitimacy and effectiveness of governance mechanisms.

Addressing these challenges requires a multi-pronged approach. First, investment in data systems and applied research is crucial to ground policy in empirical evidence. Second, legislative reforms should explicitly integrate migration within climate adaptation and disaster risk reduction policies, clarifying institutional responsibilities. Third, participatory approaches that center community voices can strengthen both the design and implementation of migration-sensitive strategies. Finally, resettlement planning must adopt rights-based and livelihood-oriented frameworks to safeguard social cohesion and sustainability.

The Muzarabani case illustrates the urgent need for integrated, participatory and evidence-based approaches to climate change-induced migration. Without such measures, both the ecological integrity of the district and the well-being of its residents remain at risk.

Analysis of Migration Drivers

Survey data highlighted climate variability as the dominant factor influencing migration patterns in Muzarabani District. An overwhelming 96% of respondents confirmed that shifts in weather patterns-particularly recurrent droughts and floods- play a critical role in shaping migration decisions. These events undermine household food security, agricultural productivity and income stability, echoing findings from other contexts where environmental stressors are closely linked to population mobility (Siddiqui and Hosain, 2019; Yan and Alvi, 2022).

The destinations of migrants revealed rural-to-urban bias, with Mutare city emerging as a primary hub, suggesting urban centers function as perceived spaces of opportunity and resilience. A smaller but notable fraction of respondents reported cross-border migration to Mozambique, reflecting the district's borderland geography and the fluidity of regional mobility in Southern Africa. These trends align with literature demonstrating that migration is both a local adaptation strategy and a regional phenomenon, influenced by geographic proximity and historical ties (Tacoli, 2009; IOM, 2021).

Age disaggregation showed that youth in their 20s and 30s are the most mobile demographic. This finding is consistent with global evidence that younger cohorts migrate more readily due to greater physical resilience, fewer household responsibilities and a higher willingness to explore economic opportunities (MacMahon and Grey, 2021). Importantly, this suggests that climate-induced migration in Muzarabani is reshaping local demographics, potentially leading to labour deficits in agriculture and increased dependence on remittances.

Migration as an Adaptation Strategy

Migration in Muzarabani District emerges less as a voluntary choice than as a coping mechanism to environmental stress. Drought-induced crop failures and flood damage to homesteads push households toward migration as a means of diversifying risk. Such mobility fits within the broader framing of migration-as-adaptation (Black et al., 2011), where relocation functions as a household-level resilience strategy. Yet, respondents also highlighted the erosive dimension of migration, such as family separation, loss of cultural ties and limited reinvestment of remittances into climate adaptation. This duality underscores the need for nuanced policy approaches that maximize migration's adaptive potential while minimizing its social costs.

Policy and Institutional Gaps

Findings revealed weak institutional engagement with climate-induced migration. Local government responses remain fragmented, with limited coordination between disaster risk reduction (DRR), climate change adaptation (CCA), and migration governance frameworks. The absence of structured policy instruments at the district level means that migration is not explicitly recognized as an adaptation pathway, leaving households to navigate mobility largely on their own. This mirrors challenges in other Sub-Saharan contexts, where climate-mobility linkages remain underrepresented in policy (Zickgraf, 2019).

Moreover, the Rural District Council and traditional leadership structures focus on disaster relief than on proactive integration of migration into adaptation planning. While humanitarian agencies have supported emergency responses to floods, long-term institutional mechanisms to harness migration for resilience-building remain weak. Respondents expressed that if local authorities provided livelihood diversification programmes, climate-resilient agriculture and migration-sensitive social protection, the need for distress migration would decline.

Towards Integrated Approaches

Muzarabani case illustrates urgency of integrating migration into climate adaptation and development planning.

Three critical policy lessons emerge:

- **Strengthening Local Governance:** Local authorities should mainstream migration into DRR and CCA frameworks by developing early warning systems, climate-smart agriculture programmes, and livelihood diversification initiatives to reduce forced mobility.
- **Regional Cooperation:** Given cross-border flows into Mozambique, bilateral and SADC level policy dialogues are essential to manage climate mobility within a regional resilience framework.
- **Harnessing Remittances and Youth Mobility:** Migration of young adults presents opportunities if remittances are channeled into climate-resilient investments. Policy support for financial literacy, community cooperatives and migrant networks could turn migration into a driver of resilience rather than vulnerability.

Given these findings, Muzarabani District exemplifies how climate variability shapes migration as both a necessity and a strategy, but without institutional recognition, its adaptive potential remains underutilized. Aligning local governance, national policy and regional frameworks is therefore critical for transforming climate-induced migration from a sign of vulnerability into a structured resilience pathway.

Implications for Policy and Practice

Findings from Muzarabani District highlight the urgent need for integrated strategies that move beyond fragmented responses to climate-induced migration. The research underscores that migration in the district is not merely a livelihood strategy but also a coping mechanism in the face of recurrent floods, droughts and erratic rainfall. Yet, the absence of coherent policy frameworks and institutional support has left affected communities vulnerable, often managing displacement and relocation through informal, community-led arrangements. The following implications for policy and practice are particularly significant:

Enhanced Data Collection and Research

A key challenge in Muzarabani is the absence of comprehensive data on climate-induced migration trends, drivers and impacts. Current policy responses are hindered by reliance on fragmented or outdated information. Investment in systematic data collection—such as household surveys, migration tracking and impact assessments—would enable evidence-based decision-making. This aligns with the National Climate Policy’s call for data-driven implementation and provides a basis for predictive modeling of future migration flows. Strengthening collaboration between government, academia and civil society could close existing information gaps and enhance policy responsiveness.

Policy Transparency and Legislative Reform

The study revealed limited awareness and uneven enforcement of existing climate-related policies among communities and local authorities. Legislative gaps—particularly regarding the status, protection and resettlement of climate migrants—create room for ad hoc and politically influenced decisions. Ensuring transparency in climate governance and reforming legislation to explicitly recognize climate-induced migration would foster trust, accountability and collaboration among key stakeholders. Legal clarity would also safeguard against arbitrary displacement and ensure that migrants’ rights are protected.

Prioritization of Climate Migration Issues

Despite its growing impact on livelihoods and community stability, climate-induced migration remains under-prioritized in Zimbabwe’s national agenda. Health, food security and education dominate policy discourse, while migration is often treated as a secondary effect rather than a central challenge. This study suggests that climate-induced migration requires equal policy and financial attention, given its interconnectedness with poverty, gender inequality and social cohesion. Mainstreaming migration within climate adaptation and disaster risk management frameworks would ensure holistic responses that address both immediate humanitarian needs and long-term resilience.

Combating Stigmatization and Protecting Rights

Field interviews indicated that displaced households often face stigmatization in host communities, being perceived as burdensome or outsiders. Such marginalization undermines integration and resilience. Developing policies that explicitly protect the rights of climate migrants and promote social acceptance is critical. Human-rights-based approaches, coupled with awareness campaigns, can reduce stigmatization and foster solidarity. Regional instruments, such as the Kampala Convention on the Protection of Internally Displaced Persons, offer valuable reference points for strengthening Zimbabwe's legal and institutional frameworks.

Community Participation in Policymaking

Communities in Muzarabani expressed frustration over top-down decision-making, particularly in relation to resettlement planning and land allocation. The absence of meaningful consultations has led to mistrust, poor compliance with resettlement arrangements and conflicts over resources. Actively involving communities-especially women and youth-in policy design and implementation would ensure that strategies reflect local realities, cultural values and adaptive practices. Community-driven policymaking also builds ownership, enhances legitimacy and increases the sustainability of interventions.

Equitable Management of Displacement and Resettlement

Displacement in Muzarabani has often been managed inconsistently, with some households receiving support while others rely solely on kinship networks or informal negotiations. Such inequities generate tensions and undermine social cohesion. Establishing transparent and fair processes for displacement management-including clear guidelines on compensation, housing, land and livelihood support-can mitigate conflict. Institutionalizing grievance mechanisms would also provide displaced communities with platforms to seek redress and hold authorities accountable.

Towards Integrated Approaches

Overall, the findings underscore the necessity for Zimbabwe to adopt integrated approaches to climate change-induced migration that combine traditional resilience practices with formal institutional support. Effective responses require bridging local and national scales, aligning customary knowledge with scientific research, and ensuring coordination across government ministries, NGOs and community organizations.

Strengthening adaptive capacity in Muzarabani demands a multi-pronged approach integrating migration into climate change adaptation planning, enhancing early warning systems, diversifying livelihood options and securing financial support for both preventive and adaptive measures. By embedding migration into broader development and resilience frameworks, Zimbabwe can safeguard ecological integrity, protect vulnerable populations and promote sustainable adaptation pathways.

Consolidated Insights

Findings demonstrate that while awareness of climate-induced migration is high in Muzarabani, institutional and policy frameworks remain fragmented and reactive. Traditional coping mechanisms and community-driven initiatives provide a foundation but without state support and integration into broader climate adaptation and disaster risk reduction strategies, vulnerabilities will persist.

The discussion underscores three priorities for Zimbabwe and comparable contexts:

- **Policy Integration**-Aligning climate change adaptation, migration management and disaster risk frameworks under a coherent institutional mandate.
- **Community-Centered Approaches**- Embedding local knowledge, inclusive participation and protection of marginalized groups (especially women and children).
- **Institutional Coordination and International Learning**-Enhancing collaboration across government levels and leveraging global best practices, while tailoring them to local socioeconomic and ecological contexts.

Such integrated approaches are essential to safeguard livelihoods, reduce displacement pressures and build resilience in climate-vulnerable regions like Muzarabani.

RECOMMENDATIONS

The findings from Muzarabani District reveal that climate change-induced migration is both a survival strategy and a symptom of deeper structural challenges in governance, livelihoods and policy coherence. Communities in the district are highly exposed to recurrent floods, droughts and seasonal variability, forcing households to engage in temporary or permanent migration to sustain livelihoods. This aligns with broader evidence from sub-Saharan Africa where migration is increasingly understood as an adaptive response to climate variability rather than merely a failure to cope. The study therefore posits the following recommendations:

Policy and Institutional Gaps: Despite the growing importance of migration as an adaptation strategy, there is a notable absence of explicit policies or institutional frameworks addressing climate change-induced migration in Zimbabwe. Interviews with government officials and community representatives indicated that migration remains largely treated as a social or economic issue, separate from climate policy frameworks. As a result, responses remain fragmented and reactive. The lack of early warning systems, structured preparedness plans and migration-sensitive adaptation measures has left communities to rely on their own coping mechanisms. This confirms findings from regional studies that highlight weak institutional alignment between climate change adaptation policies and human mobility management.

To address these gaps, findings strongly suggest that government agencies, universities and development partners must collaborate in developing clear policies and institutional frameworks that directly address the nexus between climate change and migration. These should include systems for early detection of climate hazards, risk assessments and preparedness measures to minimize forced displacement. Furthermore, migration considerations should be mainstreamed into both national and regional climate policies, enabling a coordinated and comprehensive response across governance levels.

Capacity, Awareness and Resources: A recurrent theme from the community-level discussions was the lack of awareness and limited understanding of climate-induced migration among key stakeholders, including local policymakers, civil society and communities themselves. Extension services and civic education on climate risks and mobility patterns are minimal, leaving affected populations underinformed about their rights, adaptation options and available support. This has contributed to ad hoc migration decisions that often increase vulnerability rather than building resilience.

Accordingly, the study highlights the need to enhance awareness and understanding of climate change-induced migration through targeted outreach by government extension services, universities and civil society organizations. Moreover, capacity building for local governments, community institutions and NGOs is essential to improve their ability to manage migration dynamics, including training on planning, funding mobilization and technical support for adaptation programming.

Equally critical is the issue of financing. Communities emphasized that lack of financial resources constrains both adaptation and planned migration strategies. At present, there is no dedicated budgetary allocation at district or national level to address climate migration. Thus, increased funding from government, international donors, private sector and financial institutions is required to support adaptation programmes and reduce the need for distress migration.

Governance, Participation and Knowledge Gaps: The study found that while migration decisions are largely household-driven, there is little structured participation of affected communities in policy formulation or programme design. This exclusion undermines ownership and weakens the sustainability of interventions. Respondents consistently called for a stronger role of traditional leaders, community committees and local governance structures in shaping migration and adaptation strategies. Active participation of communities in planning, implementation and oversight of migration-related policies is therefore critical for ensuring that interventions are contextually relevant and address real needs.

Data and monitoring gaps also emerged as a significant limitation. Current migration data is fragmented, anecdotal and poorly integrated into district planning. Without reliable data, it is difficult to design responsive policies or assess the impacts of migration on livelihoods and ecosystems. Consequently, investment in robust data collection and monitoring systems by universities, research institutions and government agencies are necessary to better understand migration trends and their relationship with climate change. Such knowledge can also be embedded into the school curriculum to build generational awareness and capacity for long-term resilience.

Regional and Development Dimensions: The Muzarabani case underscores that climate migration is not confined to district boundaries but increasingly involves cross-border movements, particularly into Mozambique and South Africa. Yet, there is no formal framework for managing cross-border climate migration at national or regional levels. This poses risks of unregulated mobility, social tension and inadequate protection for migrants. The study therefore highlights the importance of enhanced cross-border collaboration through regional agreements and projects under the Southern African Development Community (SADC) and other international frameworks.

At the development planning level, migration remains marginalized in district and national strategies. Integrating migration considerations into broader development plans-including agriculture, health, water and infrastructure planning-would help address the structural drivers of vulnerability. Linked to this is the urgent need for livelihood diversification initiatives to reduce overreliance on climate-sensitive sectors such as rain-fed agriculture. Supporting alternative income-generating activities, skills development and climate-resilient enterprises can reduce distress migration and promote adaptive capacity.

Finally, concerns around human rights and protection emerged prominently. Migrants-whether internally displaced, cross-border workers or seasonal movers-often face exploitation, inadequate housing or lack of legal protection. The study thus calls for legal and social protection frameworks for climate migrants, supported by government and international human rights organisations, to safeguard the dignity and well-being of vulnerable groups.

CONCLUSION

Climate-induced migration in Muzarabani District reflects the complex interplay between environmental stressors, socio-economic inequalities and institutional responses. Households adopt migration as both an adaptive and survival strategy, highlighting its dual role in reducing vulnerability while exposing migrants to new risks. Persistent drivers-such as water scarcity, soil infertility, flooding and land degradation-underscore the urgency of addressing migration not as an isolated phenomenon but as part of a broader climate resilience agenda.

While Zimbabwe's policy frameworks, notably the National Climate Change Response Strategy (2012) and the National Climate Change Policy (2017), provide a foundation for resilience-building, they remain insufficiently aligned with the realities of climate-induced migration. Current responses lack integration across sectors, spatial scales and institutions, thereby limiting their capacity to address both the root causes and consequences of migration. Policy principles emphasizing inclusivity, gender responsiveness, historical context and vulnerability assessment are critical entry points for strengthening governance and institutional coordination.

The Muzarabani case demonstrates the importance of integrated, multi-level approaches that combine traditional knowledge, community-based adaptation and formal policy interventions. Strengthening local institutions, ensuring active participation of vulnerable groups, and mainstreaming migration into disaster risk management and climate resilience planning are essential for building adaptive capacity. Moreover, regional cooperation within SADC can enhance cross-border governance of climate-induced mobility, recognizing migration as a regional rather than purely local challenge.

Climate-induced migration in Muzarabani District should be framed not only as a challenge but also as an opportunity to build resilience, foster inclusive development and advance Zimbabwe's commitments to the Sustainable Development Goals. By integrating climate, migration and development policies, Zimbabwe can

transform migration from a symptom of vulnerability into a strategic tool for adaptation and sustainable livelihoods.

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