



Contemporary narratives on climate-induced migration and community engagement interventions in rural communities: A systematic literature review

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Abstract

The Global Compact on Migration recognised climate change as a critical factor in migration and displacement and called on the global community to address the issue. However, recent reports suggest that global efforts to address the impacts of climate change on migration have not been able to address climate change-induced migration substantially. Global actions have often resulted in suboptimal outcomes. This study, therefore, sought to explore how local challenges can be leveraged in addressing global issues. A systematic literature review was conducted to analyse the potential of local solutions to mitigate the effects of climate change on migration. Information was obtained from full-text peer-reviewed journals published between 2010 to 2023 from the Scopus database. Atlas ti.23 was used to create codes and themes and then construct flowcharts that effectively demonstrate the importance of addressing issues at the local level when dealing with global challenges. This research contributes to the existing body of knowledge on how local approaches can mitigate the impact of climate on migration.

Keywords: *Community engagement, climate change, migration, strategies*

Introduction

Climate change is, without a doubt, one of the most pressing global challenges of our time. It poses a significant threat to our environment and ecosystems and has far-reaching consequences for human populations, especially in vulnerable regions (McKinley et al., 2021). To provide context, climate change aggravates the global refugee crisis as people are forced to leave their homes due to environmental degradation or the loss of coastal areas

to rising sea levels. A critical aspect of climate change that requires our attention and focus is its impact on migration patterns in local communities. As climate change intensifies, it becomes increasingly clear that rural communities are on the front lines of negative impacts (Ferris, 2020; Islam, 2022). Rising sea levels, extreme weather conditions, water scarcity, and desertification are just a few examples of the environmental changes forcing people to migrate from unfavourable climatic regions in pursuit of more favourable areas for refuge (McKinley et al., 2021). These forced displacements give rise to complex and complicated migration patterns within and across borders.

Understanding and addressing the impacts of climate change on migration at the local level is important for several reasons, particularly for rural communities. First, rural communities are most affected by the immediate impacts of climate change (Baldwin & Fornalé, 2017; Campbell, 2014). Host areas, for example, are the hardest hit by the impact of displaced persons. These communities bear the responsibility for providing adequate resources and services to the newcomers and often struggle with social, economic, and political tensions resulting from migration (Birk & Rasmussen, 2014). Therefore, rural communities must be equipped with the necessary tools and resources to effectively manage and adapt to these changes (Kothari, 2014; Islam, 2022). Second, local communities also have valuable knowledge, experiences, and traditional practices that can help build resilience and provide localised solutions to climate-induced migration (Twinomuhangia et al., 2023). Their insights and expertise can provide valuable input to policy and decision-making processes at different levels.

The literature on global solutions promoting sustainable and resilient livelihood options in rural communities has highlighted several challenges that make it difficult to achieve effective outcomes. One key factor is the lack of contextual relevance and understanding, as global solutions often fail to consider the unique socio-economic, political, and cultural contexts of local communities (Pemberton & Furlong, 2021). This results in suboptimal interventions that may not address the specific needs and priorities of the communities, leading to limited success and sustainability of the proposed solutions (Nabong et al., 2023). Additionally, top-down approaches and a lack of meaningful community engagement undermine the sense of ownership and empowerment among community members (Wiederkehr et al., 2018), thereby impeding their abilities to effectively implement and sustain proposed mitigation initiatives (Perch-Nielsen & Bättig, 2008). Thus, involving communities during the research, compilation and implementation of scientific guidelines is essential.

A comprehensive synthesis of the literature illustrates the different benefits of community engagement in addressing climate-induced migration. One of the primary reasons is that communities hold valuable indigenous knowledge about their local environment and climate patterns (Wilkinson et al., 2016). This knowledge, passed down through generations can provide critical insights and understanding of the changes occurring in the ecosystem (Allgood & McNamara, 2017). Recent studies have highlighted why integrating indigenous knowledge with scientific knowledge allows for a holistic and comprehensive

understanding of the climate change challenges faced by communities (Birk & Rasmussen, 2014; Kothari, 2014). However, despite the significance of understanding and addressing the impacts of climate change on migration in local communities, there is a notable lack of literature and research in this area (Wilkinson et al., 2016; Baldwin & Fornalé, 2017). Most existing studies and discussions on climate-related migration have tended to focus on global solutions for global challenges (Muchaku et al., 2023), neglecting the specific nuances and dynamics at the local level. This knowledge gap hinders our ability to develop targeted interventions, policies, and initiatives that are tailored to the needs and realities of affected communities. Therefore, this literature review aims to bridge this gap by providing a comprehensive and critical analysis of how indigenous knowledge can complement scientific research and provide valuable insights into local adaptation strategies. By doing so, this study can contribute to the development of more context-specific and effective strategies for managing climate-induced migration and supporting impacted communities.

The literature reviewed emphasises the importance of a comprehensive and integrated approach to addressing the impacts of climate change on migration (Kothari, 2014; Islam, 2022). This includes implementing measures to mitigate and adapt to climate change, as well as developing policies and programmes to manage migration effectively. Given the findings of the study, there is an urgent need to explore how communities can play an active role in mitigating the impacts of climate-induced migration. This leads us naturally to the question of how community members can be involved in the co-creation, adoption, and long-term implementation of policies in addressing climate-induced migration.

Theoretical Framework

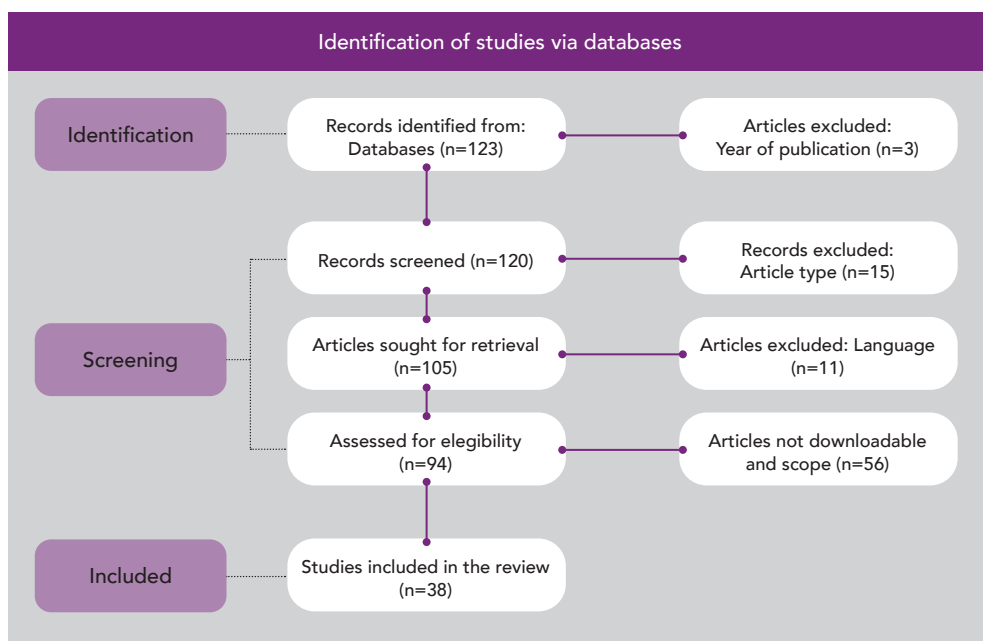
This study employs the theoretical concept of environmental migration and climate change. Environmental migration is defined as “the movement of people who are displaced or forced to move due to environmental factors, including climate change” (United Nations, 2018, p.4). The theoretical framework of this research highlights the interplay between climate change and migration. Considering the theoretical discussions, the findings of this study suggest that climate change has been identified as the main driver of environmental migration, with its effects on weather patterns leading to droughts, floods, and other extreme weather events that can trigger migration. It is important to note that not all people who are displaced due to climate change will become migrants, as some will be able to remain in their communities and adapt to the changing environment. However, individuals who migrate because of climate change may encounter numerous obstacles, such as limited availability of fundamental services and economic opportunities.

Methodology

The methodology employed in this study entailed a systematic literature review examining the effects of climate-induced migration on rural communities. A systematic review approach was preferred because of its advantages in collecting, reviewing, and analysing

large literature documents. This methodology was specifically designed to identify peer-reviewed publications that addressed the topic of the study. The identification of these publications was supported by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) method to ensure transparency and reliability (Moher et al., 2009). Figure 1 shows the sequence of steps followed in this screening process. In the steps shown in Figure 1 below, peer-reviewed articles from the Scopus database were considered in this search process.

Figure 1: Flow chart of literature review-based articles excluded and included



A multi-stage screening process was used to ensure that the selected publications were reasonably representative of the prevailing situation. The initial search included a rigorous screening of each publication based on title, abstract and keywords to capture the most relevant articles for this study. A total of 123 articles were found, of which three (3) were excluded based on the year of publication. In the second phase, only peer-reviewed articles were included. This screening excluded fifteen publications that did not meet the exclusion criteria. This screening yielded 105 publications, of which eleven (11) were further excluded, and only articles written in English were considered. This screening yielded 94 peer-reviewed articles. In the final screening phase, all articles were checked for their objective relevance to the scope of the study. In this way, 56 articles were screened out and a final selection of 38 articles was made that could be downloaded and were considered relevant to the scope of the study.

Table 1: *The Boolean operator used to retrieve articles*

Boolean Operator	Number of Articles
TITLE-ABS-KEY (Community AND "climate change" OR "climate change induced" AND Migration AND "Africa")	123
TITLE-ABS-KEY (community AND "climate change" OR "climate change induced" AND migration AND "Africa") AND PUBYEAR > 2009 AND PUBYEAR < 2024	105
TITLE-ABS-KEY (community AND "climate change" OR "climate change induced" AND migration AND "Africa") AND PUBYEAR > 2009 AND PUBYEAR < 2024 AND (EXCLUDE (DOCTYPE, "bk") OR EXCLUDE (DOCTYPE, "no")) AND (EXCLUDE (LANGUAGE, "Russian") OR EXCLUDE (LANGUAGE, "French") OR EXCLUDE (LANGUAGE, "Czech"))	94

Table 2: *Criteria for inclusion and exclusion were employed during the literature search and document selection phase*

Inclusion criteria	Exclusion criteria
Keywords: climate change, migration, community	Does not include keywords
Type of Study: peer-reviewed article, book chapter	Type of Study: book, working paper, report, conference paper
Must be focused on climate change-induced migration	NOT climate change-induced migration-focused
English language publication	Non-English language publication
Date range: post-2010 to present	Date range: pre-2010

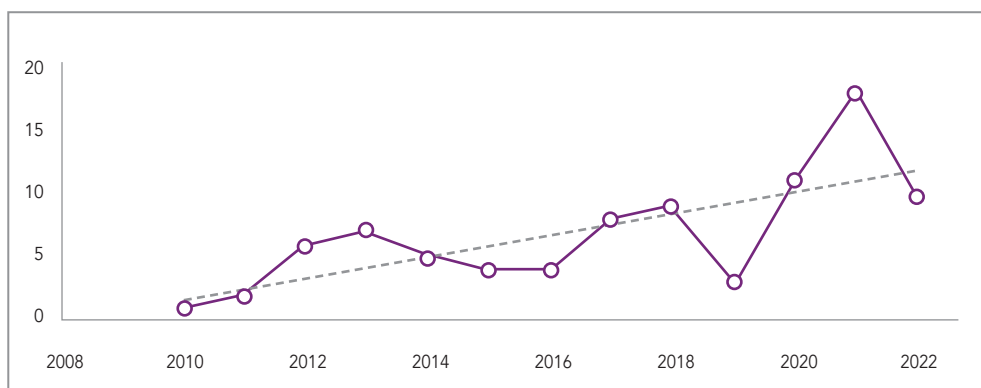
Data Analysis

After the extraction of relevant data, the article files were uploaded into Atlas ti.23 for analysis. By employing Atlas.ti.23, vast amounts of textual data extracted from these reviews were organised, categorised, and analysed. The software electronically generated codes and themes, assisting in identifying patterns, relationships, and insights within the data. It also facilitated the creation of memos and annotations, which helped researchers keep track of their thought processes and interpretations throughout the analysis. In addition, the software facilitated the creation of visual representations, such as network diagrams, that enhanced understanding of the connections between different types of qualitative data.

Results

The data on climate change-induced migration, obtained through a systematic review method, unveils interesting patterns. The number of articles published throughout the years indicates a growing interest and recognition of the issue. In 2010, only two articles were published, suggesting that climate change-induced migration may have been a relatively nascent topic back then. However, the number increased significantly in subsequent years, with six articles in 2013, ten in 2018, eighteen in 2021, and eight in 2022. This exponential growth reflects the intensifying concern and research in the field of climate change and its impact on human migration. It demonstrates a recognition of the urgent need to understand and address the consequences of climate change-induced displacement.

Figure 2: Trend of peer-reviewed articles found in the Scopus database



Discussion

The literature findings in this paper on addressing the impacts of climate change on migration in local communities highlight several key findings. First, the research highlights that climate change is an important driver of migration in many parts of the world (Lama, Hamzaand, & Wester, 2021). Secondly, the literature highlights that local communities are often the most affected by the impacts of climate change and subsequent migration (Akinabge & Irohibe, 2014). These communities, particularly in developing countries, often lack the resources and infrastructure to cope with the influx of migrants. This can lead to tensions and conflicts between refugees and host communities and exacerbate social and economic inequalities.

Challenges of global approaches when addressing context-specific challenges

A review of the literature revealed that global solutions can be integrated with local solutions by considering the specific needs, contexts, and cultures of local communities (Birk & Rasmussen, 2014). Scholars of this view argue that a bottom-up approach engages local stakeholders and ensures their active participation in decision-making processes (Ferris, 2020). An additional supporting argument is that several global-based strategies have often failed in promoting sustainable and resilient livelihood options in certain regions due to a lack of understanding and recognition of local realities (Brzoska & Fröhlich, 2015; Baldwin & Fornalé, 2017). As a result, this article asserts that the current strategies struggle to meaningfully contribute towards community development as they are hypothetical and not derived from communities with specific and different characteristics. This highlights the importance of adapting local solutions to global challenges rather than imposing one-size-fits-all approaches.

Mitigation efforts

Rural communities can take several actions to reduce greenhouse gas emissions and slow climate change (McMichael et al., 2012). First, they can encourage the adoption of sustainable energy sources, such as solar panels by providing incentives and financial support to residents and businesses (Nishimura, 2015). In addition, promoting energy-efficient practices, such as adopting LED lighting and energy-efficient appliances, can significantly reduce carbon emissions (Kothari, 2014). Local municipalities can also invest in public transportation infrastructure to improve transit access and encourage people to use buses or trains instead of cars (Balsari et al., 2020). When these systems are not available, implementing policies that promote sustainable land use practices, such as protecting forests and creating green spaces, can help absorb carbon dioxide and mitigate climate change. Finally, educating residents about the importance of recycling, waste reduction, and water conservation can also contribute significantly to reducing greenhouse gas emissions.

Challenges of the current climate adaptation strategies

There is an increasing collection of literature accentuating the significance of rural communities in implementing strategies to adapt to the impacts of climate change. One key strategy is to improve infrastructure, such as building stronger and more resilient homes. Studies have shown that retrofitting homes to be more energy efficient and installing measures to protect against extreme weather events can effectively reduce the vulnerability of communities to climate change impacts (Piguet et al., 2011). Another important strategy is the implementation of early warning systems for exceptionally severe or unusual weather phenomena that can cause significant damage and pose a threat to human life and property. The literature suggests that the implementation of effective early warning systems can

substantially reduce the impact of disasters by providing communities with timely and precise information to communities and enabling them to take appropriate measures to minimise potential damage (McMichael et al., 2012). In addition, developing local climate action plans has proven to be an effective strategy for building community resilience. These plans can help communities identify and prioritise adaptation actions tailored to their specific needs, facilitate stakeholder engagement, and coordinate efforts across sectors. However, the literature also points to challenges in implementing these strategies, such as limited financial resources, insufficient institutional capacity, and lack of community awareness. Therefore, it is imperative that forthcoming efforts concerning addressing these challenges to ensure effective and equitable adaptation at the community level.

Build local capacity

According to scholarly research, developing local communities' proficiency in responding to climate change and its effects is essential for enhancing adaptive capacity and resilience (Naser et al., 2019). Providing training and education on climate change adaptation and mitigation strategies is highlighted as an effective approach (Wilkinson et al., 2016). that enables communities to understand local climate change impacts, identify vulnerabilities, and develop appropriate responses (Piguet *et al.*, 2011). Supporting local initiatives such as community-based natural resource management and sustainable agricultural practices is also highlighted as enabling communities to take ownership of their adaptation efforts (Mortreux & Barnett, 2009). In addition, promoting community-led resilience-building projects, such as establishing early warning systems or implementing nature-based solutions, can strengthen local adaptive capacity and promote community cohesion (McKinley et al., 2021). However, challenges remain in terms of funding and resource availability, ensuring inclusion and equitable participation, and integrating traditional knowledge and scientific approaches (Brzoska & Fröhlich, 2015). Therefore, further research and collaboration between researchers and communities is needed to develop context-specific capacity-building strategies that address the unique challenges and opportunities of individual communities.

Strengthen social protection systems

Evidence from the literature examined supports the argument that rural communities play a critical role in ensuring the implementation of social protection systems that support vulnerable populations affected by climate change-induced migration (Baldwin & Fornalé, 2017). Financial assistance and sustainable practices are considered essential, as they can help displaced persons and impacted communities meet their basic needs and recover from the loss of livelihoods (Upadhyay et al., 2014). Social services, such as counselling and psychosocial support, are crucial to address the psychological impacts of displacement and facilitate their integration into new communities. McMichael et al. (2012) and McKinley et al. (2021) observe that displaced populations have limited access to healthcare making it difficult for them to access preventative care and necessary screenings, resulting in

potential outbreaks within these vulnerable communities. Additionally, education is vital for displaced children and adults, as it enables them to acquire skills and knowledge for future employment and self-reliance (Kothari, 2014). However, the literature also highlights challenges in implementing these social protection systems, such as limited resources and the need for tailored approaches that consider the unique needs of different communities. Moreover, the involvement and participation of the displaced populations themselves in decision-making processes are crucial for ensuring the effectiveness and sustainability of these systems (McKinley et al., 2021).

Support sustainable livelihoods

The results are often mixed in the literature on promoting sustainable and resilient livelihood options in rural communities (Ferris, 2020). On the one hand, studies have highlighted successful cases where interventions such as capacity building, access to resources, and income diversification have led to improved livelihoods and resilience in rural communities (Kothari, 2014). These initiatives have enhanced agricultural productivity, promoted natural resource management, and empowered vulnerable groups (McMichael et al., 2012). However, the literature also acknowledges the challenges and limitations in implementing sustainable livelihood approaches. Many initiatives have faced difficulties scaling up, creating long-term impacts, and addressing complex socio-economic and environmental dynamics. Additionally, there are concerns that certain interventions may perpetuate inequalities or overlook broader structural issues (Brzoska & Fröhlich, 2015). Thus, while the literature presents promising results, there is a need for ongoing research and critical evaluation to identify effective strategies that can truly promote sustainable and resilient livelihood options in rural communities.

Global solutions can be integrated with rural, context-based strategies in promoting sustainable and resilient livelihood options in rural communities through a multi-level approach (Barnett & Webber, 2010). Firstly, global solutions can provide a framework for guiding local strategies by establishing overarching goals and objectives (Uddin et al., 2021). For example, global initiatives such as the Sustainable Development Goals (SDGs) can provide a roadmap for addressing various aspects of sustainable livelihoods, such as reducing poverty, promoting gender equality, and combating climate change. Local strategies can then be developed based on the specific needs and conditions of each community (Twinomuhangia et al., 2023), considering their unique resources, challenges, and cultural practices. Employing a localised approach guarantees that solutions are crafted specifically for the context, making them more likely to be accepted and embraced by the local community (Birk & Rasmussen, 2014). Moreover, global solutions can provide technical expertise, financial support, and best practices to assist local communities in implementing their strategies effectively. A more comprehensive and holistic approach to promoting sustainable and resilient livelihoods can be achieved by combining the global perspective with local knowledge and participation.

In addition, global solutions can support local communities by facilitating knowledge exchange and networking opportunities. This can be done through platforms, forums, and partnerships connecting communities and practitioners from around the world (Islam, 2022). By sharing experiences, lessons learned, and innovative ideas, local communities can benefit from global expertise and adapt successful approaches to their specific contexts (Baldwin & Fornalé, 2017). Furthermore, global solutions can also facilitate access to markets and create opportunities for local products and services to reach a wider consumer base (Ferris, 2020). This can help diversify local economies and enhance their resilience by reducing dependence on a single source of income. On the other hand, local solutions can contribute to the global agenda by providing valuable insights and alternative approaches that can inform global policies and strategies (Uddin et al., 2021). Their contextual knowledge and innovative practices can help identify gaps and areas for improvement in global initiatives, ensuring they are relevant and effective on the ground. By integrating global solutions with local strategies, a mutually beneficial relationship can be established, where both levels benefit and contribute to sustainable and resilient livelihoods at the global and local levels.

Study recommendations

Based on the literature review on the impacts of climate-induced migration in rural communities and community engagement, the following recommendations can be made:

1. **Strengthen community engagement:** recognise the importance of community engagement in addressing climate-related migration issues. Create platforms for meaningful collaboration between policymakers, community leaders, and residents. Encourage active participation and empower communities to shape policies and programmes.
2. **Improve information and awareness:** Invest in education and awareness campaigns to ensure rural communities have access to accurate and up-to-date information about climate change, its impacts, and available adaptation and migration options. Tailor information to the local context and ensure it is available in multiple languages and formats.
3. **Support local decision-making:** Community leaders should engage in open and respectful dialogue within their community to promote self-learning. This will help them understand people's concerns, experiences, and hopes, change their mindsets, and encourage them to actively participate in decision-making processes.
4. **Strengthen livelihoods and resilience:** implement programs to improve rural livelihoods and strengthen community resilience to reduce the need for migration as an adaptation strategy. This may include promoting sustainable agricultural practices, diversification of income sources, and access to credit, insurance, and social safety nets.

Implications of the study on policy and practice

The findings of this study have several implications for policy and practice. First, the findings suggest that local strategies should be developed to address the issue of climate change-induced migration. These strategies should focus on the implementation of adaptation measures such as water harvesting, early warning systems, and disaster risk reduction. In addition, the findings suggest that disaster risk reduction strategies should be used to reduce the impacts of climate change on migration. Finally, the findings suggest that international and regional strategies should be developed to address the issue of climate change-induced migration.

Conclusion

In conclusion, this paper has reviewed the current literature on the impacts of climate change on migration and explored local strategies that can be used to address the issue. The systematic literature review results revealed that climate change is increasingly becoming a major driver of migration, with its effects on weather patterns leading to increased displacement. Therefore, the challenges related to climate-induced migration appear to be becoming more frequent and urgent as the impacts of climate change become more apparent. It was also found that local strategies in the implementation of adaptation measures and disaster risk reduction can be used to reduce the impacts of climate change on migration. Given these and other considerations, this study concludes by recommending that we engage local communities in addressing the issue of climate change-induced migration.

Conflict of interest

The authors declare that they have no conflict of interest.

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