Migration, Climate, and Education: Proposing Human Rights-Based Education for Internally Displaced Learners in Lower- and Middle-Income Countries

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The growing impacts of climate change are forcing families in low- and middle-income countries to migrate to urban areas, resulting in widespread internal displacement. Despite the significant disruptions this causes to children's education, its educational consequences remain underexplored in climate change research. This study addresses the gap by adopting a Human rights-based approach (HRBA) to education and integrating insights from the Education in Emergencies framework while examining the impact of climate-induced displacement on education. Through a literature review of academic and policy documents, the research examines educational vulnerabilities of internally climate-displaced learners, including restricted access to schooling, declines in academic performance, and difficulties adapting to new learning environments. The challenges are pronounced for girls, reinforcing pre-existing gender disparities in education. Based on the findings, the study proposes targeted policy interventions, including climate-responsive education frameworks and economic protection measures for affected households.

Keywords: Climate change, Displacement, Education in Emergencies, educational policies, Global South, Human rights-based education, International and Comparative Education.

Introduction

The detrimental effects of climate change and natural disasters have forced approximately 21 million global displacements annually since 2008, leaving their homelands and migrating to larger urban centers in search of livelihoods (Bellizzi et al., 2023). These individuals, referred to as internally displaced persons (IDPs), are involuntarily uprooted from their homes due to the impacts of conflicts or climate crises (Internal Displacement Monitoring Center [IDMC], 2019). The situation is severe in lower- and middle-income countries (LMICs), characterized by limited financial resources, weaker infrastructure, and reduced access to social services compared to high-income nations (IDMC, 2019). LMICs experience heightened vulnerability to climate change effects, as they struggle to adapt to or recover from disasters (Anderson, 2023). A deficiency in adaptive capacity exacerbates existing socio-economic challenges and leaves communities increasingly exposed to the long-term impacts of climate change, including extreme weather events, rising sea levels, and agricultural disruptions. These environmental challenges undermine the ability of displaced populations to rebuild their lives and establish sustainable livelihoods in new locations, creating a cycle of vulnerability that is difficult to break without targeted interventions and support systems (Anderson, 2023; Kousky, 2016).

Children and young individuals, including displaced students, are at risk of losing more than just their homes and shelters; they face the potential loss of access to education, training, and opportunities that are pivotal to shaping their future (Chand et al., 2023). While numerous studies have underscored the impact of climate change on displaced families and children, affecting their health, safety, employment, finances, and emotional well-being, the United Nations Children's Fund (UNICEF) (2019) confirmed that educational needs have been overlooked in climate change dialogues, and the inclusion of education systems in these discussions has been peripheral. There is a research gap in comprehending education-related facets for children and youth within climate-displaced households, leaving their challenges in accessing quality education, academic performance, and inclusiveness unexplored (International Committee of the Red Cross [ICRC], 2018; IDMC, 2019; Kousky, 2016; Nordstrom & Cotton, 2020; UNICEF, 2019; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020; Vaughter et al., 2023).

My study seeks to bridge this research gap by exploring the question: How does climate change affect internally displaced learners in LMICs? My goal is to investigate the effects of climate on the education of K-12 displaced learners before and after they leave their homelands to assess the repercussions at the ends of their journey and to gain a comprehensive understanding of the educational disruptions and adaptations these learners undergo. This research ventures into an underexplored realm by bridging the gap concerning educational challenges faced by climate-displaced learners. It also yields valuable insights to inform evidence-based policies aligned with Sustainable Development Goal 4 (quality education), which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. These policies can guide the efforts of policymakers, educational institutions, and development organizations as they tailor interventions to address the unique challenges these learners encounter in LMICs.

This paper begins by establishing a conceptual framework, followed by an in-depth analysis of the distinct repercussions of climate change on the education of displaced learners in their original and relocated settings. This comparative exploration aims to shed light on the additional challenges that arise as displaced learners navigate transitions to new environments. A dedicated section examines gender inequities in the educational experiences of male and female displaced learners, along with the structural and cultural factors contributing to these disparities. This is followed by a discussion section that synthesizes key insights from the analysis to explore broader implications for policy and practice. It will present a set of recommendations to mitigate the impacts of climate change on the education of displaced students. The conclusion succinctly summarizes the key findings.

Conceptual Framework

The identification of an appropriate theoretical or conceptual framework for this topic presents several challenges. First, the impact of climate change on the education of displaced learners is a relatively new and continually evolving field. Consequently, it is difficult to identify well-established theoretical frameworks that

comprehensively address all of the intricacies of this issue. Climate change is a protracted process that does not always unfold rapidly, comprised only of sudden events. Climate change occurs over extended periods, leaving subtle and enduring effects in its wake. Its impact on education may manifest over years or even decades (Kagawa, 2005). Current research and frameworks on climate change primarily concentrate on immediate or direct coping strategies, with little exploration of the indirect or chronic effects of climate change. This can pose challenges for studies that aim to understand the holistic impact of climate change on education.

In this context, for a comprehensive understanding of the research topic, this study employs a blended approach. It adopts an integrated theoretical framework that combines the Human Rights-Based Approach (HRBA) to education with insights from Education in Emergencies (EiE) research. This integration addresses the complex challenges of studying the impact of climate change on the education of displaced learners, given the field's evolving nature and the varied temporal dimensions of climate-related disruptions.

The HRBA to education, derived from the principles of the Universal Declaration of Human Rights 1948, which asserts the right to education for everyone (UNESCO, 2020), highlights the need for a comprehensive approach to education. According to UNICEF and UNESCO (2007), HRBA encompasses three interlinked and interdependent dimensions, emphasizing that the realization of human rights to education hinges on addressing all three components. Firstly, it upholds the right to education access as the cornerstone of equal opportunity, ensuring that education is available, accessible, and inclusive for all children, fostering regular attendance and reducing dropout rates. Secondly, the framework champions the right to quality education, enabling learners to unlock their full potential, seize employment opportunities, and cultivate essential life skills. This requires an education that is relevant and offers a comprehensive curriculum that empowers learners by nurturing life skills, learning capacities, self-esteem, and self-confidence. Thirdly, it advocates an environment within the learning space that upholds respect and dignity. This means delivering education in a manner consistent with human rights, affording every child equal respect, opportunities for meaningful participation, and ensuring a climate free from discrimination (UNICEF & UNESCO, 2007). HRBA guides my analysis, focusing on the principles of equity, non-discrimination, and the promotion of human rights, providing a comprehensive understanding of challenges and opportunities faced by displaced learners in their educational journeys.

The HRBA framework is valuable for examining systemic issues such as educational exclusion, quality deficits, and gender inequality, which intensify during crises (Tuparevska, 2022). This approach is widely used in research on displaced learners affected by conflict and violence, underscoring that while education is a fundamental human right and a critical need during displacement, it is deprioritized in favor of resettlement and safety concerns (UNICEF & UNESCO, 2007). However, this framework primarily focuses on immediate and direct interventions, such as restoring education for children in emergencies or addressing legal barriers to formal education in host countries (Tomaševski, 2004).

EiE research complements the HRBA framework by providing crucial insights into both acute and chronic emergency contexts. One notable advantage of referencing works in this field is their clarification of the term 'emergency' in natural crises and environmental contexts, and their insights into how such situations impact educational outcomes (Burde et al., 2016). Accordingly, EiE research encompasses not only immediate emergency cases, such as wars, conflicts, floods, and earthquakes, but also accounts for silent or chronic emergencies, such as persistent poverty and complex emergencies, which involve a combination of immediate and chronic impacts (Chand et al., 2023; Kagawa, 2005).

The integration of HRBA and EiE approaches creates a robust analytical framework that captures the immediate and long-term impacts of climate change on displaced learners' education. This combined framework enables examination of:

- Direct impacts from sudden climate events on educational access and quality.
- Indirect effects through household disruptions, including economic hardship and displacement.
- Long-term consequences for educational environments and learning opportunities.
- Systemic challenges in ensuring educational rights during immediate and chronic emergencies.

Methodology

The study centered on a literature review to examine how climate-induced displacement affects learners' access to and quality of education, along with the effects on the learners' educational environments. To ensure breadth and depth in data collection, I deliberately expanded my search beyond traditional academic databases to include grey literature from policy papers, reports from international organizations, governmental publications, and media articles. I employed a dual-method approach to literature identification: the snowball method, wherein I traced reference lists from key documents to discover additional relevant sources; and direct database searches through Google Scholar and other databases such as Web of Science and Scopus. To mitigate potential biases inherent in the snowball method and ensure comprehensive coverage, I systematically varied search terms and used diverse keyword combinations such as 'displacement,' 'internal displacement,' 'migration,' 'education,' 'climate change impacts,' 'natural disasters,' and 'displaced students.' The search process concluded when searches yielded mostly redundant information, indicating saturation.

From an initial pool of over 100 documents, I refined the selection to 73 based on three inclusion criteria: topic relevance, prioritizing studies that integrated multiple aspects of the research focus (migration, displacement, education, and climate change) while eliminating redundancy; geographic relevance, emphasizing low- and

middle-income countries; and language accessibility, restricting the review to English-language publications.

For the analysis, I identified recurring themes, evaluated methodological approaches, assessed theoretical frameworks, and critically examined research findings to synthesize the current state of knowledge on the educational impact of climate change on internally displaced populations. I considered the immediate and long-term effectswere considered across each dimension, offering a nuanced understanding of the challenges displaced learners face.

Findings

The impacts of climate change are complex and multifaceted, influencing education through various channels such as displacement, resource scarcity, and health consequences (UNESCO, 2020). These effects encompass direct and indirect impacts and simultaneously extend into various societal domains beyond education. It is crucial to acknowledge that disasters unfold at different paces; rapid-onset disasters occur almost instantly, while slow-onset disasters can be predicted in advance and unfold over months or even years. Rapid-onset disasters primarily cause immediate physical impacts, whereas slow-onset disasters generate crises through economic and social repercussions (Randall, 2018). Although types of disasters force people to relocate for survival, each case has different effects on the education of their children. Sudden disasters typically lead to involuntary movements, with little to no time to make preparations for their children's education. Those affected by slow-onset disasters may have more time to prepare psychologically, procedurally, and financially for the transition in their children's education (UNESCO, 2020). This complexity poses a challenge in adequately addressing all dimensions of the issue.

The findings reveal that climate change restricts access to education and undermines its quality for displaced learners. Learning environments in new locations may lack cultural diversity and inclusivity, creating additional barriers to their educational experiences and performance. These difficulties are exacerbated for girls, who face heightened challenges due to persistent gender inequalities.

Educational Barriers and Academic Struggles in Learners' Homelands

Climate change affects learners' educational access and performance through immediate disruptions and long-term challenges. This impact manifests through 3 key mechanisms: direct physical barriers, socioeconomic pressures, and environmental conditions affecting learning capacity.

Physical access disruptions create the most immediate barriers to education. When rapid-onset disasters such as tropical cyclones or floods strike, they destroy school buildings or transform them into emergency shelters, causing learners to face temporary or sometimes permanent interruption to their schooling (Mooney & French, 2005; Randell, 2019). These disruptions extend beyond school buildings to include damaged transport infrastructure, creating additional obstacles that compromise educational access (Anderson, 2019; Kousky, 2016; Sims, 2021).

Slow-onset disasters such as droughts or salinization cause climate-related economic pressure, creating significant barriers to education, particularly for agricultural households affected by these events with reduced income and food security (ICRC, 2018; IDMC, 2019). Many families find themselves unable to pay school fees, leading children to withdraw from school to contribute to household income. Examples of this can be drawn from ongoing climate disasters in Iraq, Cambodia, China, and Sub-Saharan countries, as a few examples (ICRC, 2018; IDMC, 2019; UNICEF UK, 2017; Weng et al., 2020). Some families are forced to migrate in search of better opportunities, disrupting their children's education (Anderson, 2019; Chuang et al., 2018; Kousky, 2016). During severe droughts, girls miss school to collect water or face early marriage as families cope with financial pressures resulting from the droughts (Randell, 2019). In extreme cases, families must choose between providing food or education for their children (Mooney & French, 2005).

Research reveals complex relationships between climate conditions and educational outcomes that can develop for years. Higher-than-usual temperatures in Southeast Asia correlate with fewer years of schooling (Randell, 2019), and studies show that each 1°F increase in school-year temperature reduces learning by one percent, with a greater impact on low-income and minority learners (Goodman et al., 2018). Increased rainfall during agricultural seasons and cooler temperatures in early childhood positively correlate with educational achievements in later years of a learner's life (Maccini & Yang, 2009; Randell & Gray, 2016).

Numerous studies have indicated that weather phenomena tend to correlate with school attendance. Randell (2019) found that in Southeast Asia, a region historically characterized by hot and humid conditions, experiencing temperatures hotter than usual is associated with fewer years of schooling compared to other regions. Mottaleb et al. (2015) (as cited in Parkhurst, 2022) indicated that the need to rebuild farms after cyclonic disasters in Bangladesh leads parents to pull boys out of school to assist with reconstruction. Studies have revealed that increased rainfall during the main agricultural season, along with cooler springs and summers during early childhood, are positively correlated with completing more grades of schooling (Maccini & Yang, 2009; Randell & Gray, 2016). These findings are somewhat consistent with other studies that have shown school attendance rates in certain countries rising during extreme periods of natural disasters, with girls exhibiting more consistent attendance than boys (Shah & Steinberg, 2017; Nordstrom & Cotton, 2020). One notable hypothesis is that during such extreme circumstances, household farming activities are disrupted, freeing children from agricultural responsibilities and allowing them additional time to attend school (Nordstrom & Cotton, 2020).

Despite the mixed findings regarding attendance rates, there is consistently compelling evidence suggesting that academic performance is not necessarily improved during disasters (Anderson, 2019). Increased time spent in school does not always equate to enhanced learning outcomes (Anderson, 2019; Weng et al., 2009). Economic hardship and malnutrition impair cognitive function, while psychological trauma from natural disasters affects learning capacity (Randell, 2019; Sims, 2021). Learners in drought-affected areas consistently score approximately 4 percentage

points lower than their peers in unaffected regions (Nordstrom & Cotton, 2020). The impact of these challenges is evident in academic performance measurements. The long-term developmental impacts of climate-related challenges during early childhood can have lasting effects on educational outcomes. Research demonstrates that early-life flooding increases vulnerability to waterborne diseases, while low birth weight and childhood undernutrition correlate with poorer cognitive development (Kousky, 2016; Weng et al., 2020). Early effects can shape a child's education, creating disparities that may persist well into their academic future (Victora et al., 2008).

These interconnected challenges highlight the complex relationship between climate change and education, demonstrating how environmental disruptions create immediate and long-lasting barriers to learning and academic achievement. These difficulties are pronounced in learners' home regions, where the direct effects of climate change are evident. When learners are displaced due to the climate crisis, they encounter additional hurdles in their new environments (including exposure to climate change effects), compounding the barriers to their educational opportunities.

Additional Challenges in New Destinations

Compared to their homelands, displaced learners face additional barriers when seeking education in new environments, ranging from financial difficulties to bureaucratic hurdles, resource constraints, discrimination, and limited access to alternative learning solutions. These challenges, shaped by systemic inadequacies and the broader socio-economic impact of climate change, can significantly hinder their educational access, quality, and overall learning experience.

Financial barriers are among the most immediate obstacles displaced learners encounter when the education system in the host country involves direct or indirect costs that are difficult to meet. Displacement results in loss of livelihood and income, leaving many families struggling to afford school fees, classroom supplies, and other educational expenses. In this context, climate change exacerbates poverty, intensifying the financial burden on displaced families (Pachauri et al., 2015). Under these circumstances, children and adolescents may prioritize work over schooling, whether due to economic necessity or pressure to send money home to support their families (UNICEF, 2017).

Administrative barriers within host countries can make it difficult for displaced learners to enroll in and attend school. In countries like Vietnam and China, internal household registration systems (e.g., *hukou*) create legal and logistical obstacles for students relocating within their own country (Garcia, 2021; Li & Zhang, 2023). Although these learners technically retain their right to education, the practical implementation of this right is obstructed by rigid administrative frameworks. While internal displacement may allow learners to continue their education in a familiar linguistic and cultural setting, regional disparities in curricula and educational policies can still pose significant challenges (UNESCO, 2019).

Discrimination and social exclusion present additional barriers to displaced learners' successful integration into their new educational environments. While migration can be a crucial adaptation strategy for improving educational and

economic prospects, displaced students frequently encounter racial, religious, and ethnic discrimination in host communities (UNICEF UK, 2017). Cultural and linguistic differences, unfamiliar school environments, and exclusionary practices can result in bullying, diminished self-esteem, and even segregated education (IDMC, 2019; Mooney & French, 2005). These experiences can discourage parents from enrolling their children in school, negatively impacting educational attainment (Şirin & Rogers-Sirin, 2015). Displaced families are underrepresented in school decision-making processes, limiting their ability to advocate for inclusive policies and programs (IDMC, 2019). Exclusion and discrimination can hinder students' ability to engage with classroom material, perform academically, and develop a sense of belonging within the school environment (Şirin & Rogers-Sirin, 2015).

Distance learning and alternative education solutions, introduced as a means to ensure educational continuity, present their own set of challenges. Many governments and international organizations have promoted online learning platforms as a solution for displaced learners. However, access to technology and reliable internet connectivity remains a significant barrier, particularly in displacement settings where mobile phones, computers, and digital resources are scarce (UNESCO, 2020). While online learning content has expanded across multiple countries, these programs are not designed for long-term displacement scenarios (Vaughter et al., 2023). Issues such as inadequate teacher training, uncertified examinations, and unstable funding undermine the effectiveness of distance education (Dryden-Peterson, 2011). Online education reduces opportunities for social interaction, which is a key factor in helping displaced learners integrate into new environments and build supportive peer networks (Joosten & Cusatis, 2020). The lower quality and accessibility of these alternative education models risk limiting the academic potential of displaced students and contradict the HRBA to education, which advocates for equitable access to quality learning opportunities.

While schools and local governments are expected to establish support systems for displaced learners, their **lack of preparedness** significantly limits their ability to provide effective interventions, particularly in immediate emergency contexts such as floods, earthquakes, typhoons, or hurricanes. Anderson (2023) points out that many LMICs face severe financial constraints, making it difficult to invest in infrastructure upgrades, teacher training, or curriculum adjustments that could accommodate displaced students more effectively.

The lack of effective governance and data management systems complicates efforts to track and support displaced learners. Many LIMCs struggle to collect reliable data on displaced students, making it difficult to assess educational outcomes and identify students in need of support (Dryden-Peterson, 2017; Interagency Network for Education in Emergencies [INEE], 2020). Without comprehensive tracking mechanisms, interventions remain fragmented and reactive rather than proactive, limiting their long-term effectiveness.

The challenges faced by displaced learners in their original homelands and new environments go beyond logistical and administrative barriers – they have profound

effects on students' well-being, which in turn influences their ability to succeed in school (UNICEF UK, 2017). Without adequate psychosocial support and access to stable learning environments, these compounded challenges can undermine students' academic engagement and overall development (Burke et al., 2018; Kousky, 2016). As the following section will explore, the intersection of displacement, well-being, and education underscores the urgent need for holistic interventions that address immediate survival needs and long-term educational resilience.

Well-being of Affected Learners

Research reveals that children and youth are at a heightened risk of experiencing poor health outcomes related to climate change due to their greater dependency on others for survival and well-being, ongoing development of their physiological defense systems, and the longer duration over which they will experience the effects of climate change compared to older generations (Augustinavicius et al., 2021). Many children affected by climate or natural crises have been documented to experience serious psychological trauma, jeopardizing their schooling and impacting their concentration and performance (iDMC, 2019). Three years after Hurricane Katrina in the United States, more than one-third of the children who had been displaced or severely affected by the hurricane were at least one year behind in school, which was double the pre-storm rate. This was attributed to issues related to behavior and negative impacts on attendance, suspension, and expulsion (UNICEF UK, 2017).

Related events, such as the loss of a parent (or parents), the loss of home and cherished objects, evacuation from a community, or the disruption of connections to civic institutions like schools and medical services can have detrimental effects on a child's physical, mental, and social development (Burke et al., 2018). Moreover, there is evidence indicating that children from low-income families, who are already vulnerable to insufficient social and educational development, are disproportionately affected by disasters compared to adults (Abramson et al., 2010; Anderson, 2019). Boyden and Mann (2005), in their research on Tamil children who were displaced due to armed conflicts or natural disasters, revealed the children's impaired social and cognitive functioning, expressed by antisocial behavior and an inability to show affection, besides long-term anxieties and fears.

Throughout the lifespan, climate change-related stressors have been shown to affect neurodevelopment and mental health. Children under the age of 10 born with low birth weights typically exhibit cognitive, IQ, and motor scores approximately 5 points lower than those with normal birth weights. This risk of cognitive and motor deficits due to low birth weight persists from early childhood into adolescence (Weng et al., 2020). In this way, child development, encompassing physical and neurological development, as well as subsequent educational progress, is significantly influenced by climate change. Factors such as food and water scarcity, the spread of infectious diseases, toxic stress and early childhood adversity, poverty, disrupted education, and air pollution all contribute to this impact (Anderko et al., 2020; Save the Children, 2007, 2009).

Climate change can indirectly affect the learners' mental health. A study involving 400 children from 10 rural communities in China who were not living with their parents as they migrated for their livelihoods revealed an increase in stress and workload, leading to depression. Girls left behind are particularly vulnerable, facing a greater psychological burden due to heavier workloads (UNESCO, 2019). Specifically, the absence of mothers has been shown to have a negative correlation with children's overall well-being, significantly affecting their educational outcomes. Research indicates that Filipino children are 15 percent more likely to struggle in school when their mothers migrate abroad (Cortés, 2015).

Psychological challenges intersect with pre-existing social vulnerabilities, creating compounded barriers for specific demographic groups (Chuang et al., 2018). Girls, in particular, face a distinct set of obstacles when climate displacement disrupts their education, as gender-based inequalities become more pronounced in crises. Their unique experiences reveal how climate-induced displacement can exacerbate existing educational disparities and create new challenges that require targeted interventions.

Girls' Education and Climate Change Impacts

Girls face heightened educational barriers due to climate-related factors, as climate change amplifies pre-existing gender disparities through entrenched socioeconomic inequalities. These challenges are driven by climate-induced disruptions and reinforced by deep-seated social norms, power imbalances, and discriminatory practices that disproportionately affect girls' education. The intersection of climate vulnerability and gender inequality exacerbates education exclusion, leading to long-term setbacks in gender equity and economic opportunities (Chigwanda, 2016; INEE, 2022; Kwauk et al., 2019; Plan International, 2019).

Several factors contribute to this pattern, including an increase in household chores and responsibilities, prioritizing the education of male siblings, and difficulties in managing menstrual hygiene (Chigwanda, 2016; Sims, 2021). Rao and colleagues (2019) indicate that "across contexts, agriculture is feminized in terms of women's labor contribution" (p. 20). A World Health Organization (WHO) (2019) report highlights that in 53 out of 73 surveyed countries, over half of households without on-premises water access rely on women to collect water, with 73.5 percent assigning this responsibility to women. Low-income women and female-headed households have frequently been identified as among the most vulnerable to climate change, facing specific forms of inequality such as limited access to formal education (Rao et al., 2019).

During displacement, educational access highlights persistent gender biases that manifest through economic and cultural mechanisms. When migrant families face financial constraints, they systematically prioritize boys' education across different contexts (UNESCO, 2019). In South Africa, migrant families' exclusion from local fee exemption programs leads to boys receiving educational priority. Chinese migrant parents exhibit similar patterns, investing more resources in their sons' education through enhanced documentation efforts and a willingness to pay for distant state schools, while their daughters typically attend lower-quality migrant schools

(UNESCO, 2019). The extent of this bias is quantifiably demonstrated in Cambodia, where 75 percent of surveyed households (from a sample of 600) indicated they would withdraw their daughters rather than their sons when facing financial constraints (Save the Children, 2016; UNICEF UK, 2017).

Parental migration creates an additional layer of gender-specific educational barriers through two mechanisms. When parents migrate, older girls assume expanded household responsibilities, a pattern documented across Mexico, China, and Kyrgyzstan (Kwauk & Braga, 2017). The educational impact is significant: in Chinese migrant households without remittances, girls' high school attendance drops to 20 percent compared to 29.76 percent for boys (Hu, 2011). Cultural factors compound these challenges, as evidenced in Mali, where internally displaced adolescent girls discontinue education due to concerns about male interactions and domestic responsibilities (UNESCO, 2019). These intersecting economic and cultural barriers not only reflect historic gender norms but actively reinforce them, creating long-term economic disparities through reduced educational access (Sims, 2021).

Once girls discontinue their education, they have a limited timeframe to re-enter school before being compelled to pursue alternative paths, including early marriage or migration for work (Polak, 2010). Consequently, the impacts of climate change are not gender-neutral; women and men encounter the consequences of exposure to climate change and environmental degradation differently (Kwauk et al., 2019; UNDP, 2016). In certain contexts, climate change and environmental degradation worsen gender inequalities, affecting the capacities of individuals, households, and communities to adapt.

Discussion

The findings underscore the multifaceted barriers that climate-displaced students face in accessing education, with financial instability, administrative challenges, and gender disparities emerging as key concerns. Tackling these issues requires a comprehensive strategy that integrates targeted financial assistance, streamlined bureaucratic processes, and gender-responsive policies to ensure educational continuity and equity.

Financial Constraints as a Persistent Barrier

Financial instability is a challenge for students affected by climate change, whether they remain in their homeland or relocate. Climate-induced displacement disrupts household income, forcing families to deprioritize education in favor of immediate survival (ICRC, 2018; UNICEF UK, 2017; Weng et al., 2020). In LMICs, where social safety nets are limited, displaced students, particularly those from marginalized communities, face heightened risks of school dropout (Anderson, 2023). While economic interventions like scholarships and cash transfers have been proposed to support educational continuity, their implementation is hindered by bureaucratic inefficiencies and inconsistent funding (Sims, 2021; UNESCO, 2019, 2020).

To prevent educational disruption, governments and international organizations can explore scalable financial support mechanisms tailored to climate-vulnerable populations. Cash transfers, insurance schemes, and school-based financial aid programs should be designed with local implementation challenges in mind, ensuring accessibility and long-term sustainability. Beyond direct financial assistance, integrating education funding into broader climate adaptation policies can create more resilient support systems for displaced learners.

The Need for Administrative and Support Systems

Beyond financial challenges, displaced students struggle with administrative and institutional barriers that disrupt their education. Complex enrollment procedures, documentation requirements, and rigid education policies make it difficult for displaced learners to access schooling in their new locations (Mooney & French, 2005; UNESCO, 2020). Simplified registration processes and digital identification systems could significantly ease school entry for displaced students.

Access to education alone is insufficient if students lack the necessary support services to navigate the academic and psychological challenges of displacement. Academic assistance and mental health counseling are crucial in mitigating the long-term impact of forced migration on learning outcomes. To build an effective support system, there is an urgent need for robust data collection and evaluation frameworks to track immediate and long-term educational outcomes of displaced learners. This includes assessing access, academic performance, retention rates, and long-term socioeconomic mobility. Without comprehensive data, policies risk being reactive rather than proactive to address the education needs of displaced students.

Gender-sensitive Approaches in Climate-affected Education

Girls face compounded vulnerabilities in the context of climate-induced displacement. Economic hardship forces families to prioritize boys' education, while cultural norms and safety concerns increase the risk of early marriage and school dropout for girls (Chigwanda, 2016; Kwauk et al., 2019). Despite growing awareness of gender disparities in education, the impact of climate-related displacement on gender inequality remains under-examined.

Policies should integrate gender-sensitive strategies to ensure that displaced girls receive targeted financial support, access to safe learning environments, and protection from gender-based barriers to education. This includes community-based interventions to challenge entrenched gender norms and promote equal educational opportunities. Without such measures, the intersection of climate change, displacement, and gender inequality will continue to deepen educational disparities.

Research Gaps and Contributions

Despite increasing recognition of the educational challenges posed by climate displacement, several critical gaps remain in the research landscape. First, limited focus on climate-related displacement in EiE: While EiE is an established field, it has historically centered on conflict-induced displacement, with limited research dedicated to education in the context of climate-related disasters (Burde et al., 2016). Although natural disasters are acknowledged in emergency education frameworks,

operational research continues to prioritize conflict-driven crises over environmental disruptions (Kagawa, 2005). This study contributes to addressing this gap by framing climate-induced displacement as an educational emergency that requires distinct policy and intervention strategies.

Second, there is a lack of research on long-term educational outcomes. Existing studies primarily focus on immediate access to education, neglecting long-term impacts such as academic performance, mental health, and the cumulative effects of climate displacement on learning trajectories. This study underscores the need for research that examines chronic and systemic barriers beyond the initial phase of displacement, particularly regarding educational attainment, long-term economic mobility, and the intergenerational consequences of disrupted schooling.

Third, there are reactive rather than proactive policy responses. Policy solutions for climate-displaced learners have largely been short-term, addressing immediate educational disruptions without accounting for the protracted nature of climate displacement. Current education policies fail to integrate with climate adaptation strategies, leaving displaced learners vulnerable to long-term exclusion. This study highlights the need for climate-specific EiE frameworks that move beyond temporary relief and ensure sustained educational support for displaced students.

Conclusion

This study underscores the significant challenges that climate-displaced students face in accessing education, with financial instability, administrative barriers, and gender disparities emerging as key obstacles. Findings reveal that financial constraints force families to deprioritize education in LMICs where social safety nets are limited. Bureaucratic hurdles, such as complex enrollment procedures and rigid documentation requirements, disrupt displaced students' educational continuity. Without adequate academic and mental health support, the long-term effects of displacement can lead to educational disengagement. The study also highlights the heightened vulnerabilities of displaced girls, who face cultural and economic pressures that increase their risk of early school dropout.

To address these challenges, this research advocates for a comprehensive approach that includes scalable financial support mechanisms, streamlined administrative processes, and gender-sensitive policies to ensure equitable access to education. It identifies critical research gaps, including the limited focus on climate-induced displacement within EiE, the lack of long-term impact assessments, and the reactive nature of existing policy frameworks. By framing climate displacement as an educational emergency, this study contributes to expanding the discourse on climate change and education, emphasizing the need for proactive, climate-specific education policies that integrate with broader adaptation strategies. Ensuring educational continuity for climate-displaced students requires a shift from short-term responses to long-term, systemic solutions that recognize education as a right and a key component of climate resilience.

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