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Article

## Beyond the Floodwaters: Unraveling the Deep-Rooted Causes of Educational Exclusion in Haor Communities in Bangladesh

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### ABSTRACT

Primary school dropout is an urgent issue in the Haor regions of Bangladesh due to recurrent flooding and socio-economic barriers, leading to educational exclusion. The study aims to highlight the main causes of dropout in Haor villages of Ajmiriganj Upazila, Habiganj District. While progress has been made in providing access to basic education, dropout rates are very high in Haor regions, indicating that structural barriers to basic education are more serious than environmental ones. The study is guided by a theoretical framework that encompasses comprehensive theoretical inputs, such as Social Reproduction Theory and Human Capital Theory. The study adopted a primarily descriptive qualitative research design. Interviews, FGDs, audio recordings, and observations of 350 people (students, guardians, teachers, and school management committee members) in five unions were conducted to gather data. Secondary sources were books, journal articles, official publications, and reputable websites. The results show that the low employment opportunities for guardians, lack of qualified teachers, environmental vulnerability, and early marriage, particularly among girls, are the key factors that lead to school dropouts. Its key policy and practice implications include improving household livelihoods, upgrading school facilities, strengthening teacher recruitment, and holding community-based awareness sessions to reduce the early marriage rate. These are essential strategies to support educational resilience and inclusive development in the Haor regions of Bangladesh.

### KEYWORDS

Flood, Haor, school drop-out, educational marginalization, climate vulnerability, rural education.

## 1. Introduction

Education is accepted by all (or almost all) as the basis for human development, social mobility, and economic development (UNESCO, 2023). In recent decades, Bangladesh has made considerable progress in educational access, gender parity, and literacy rates, driven by state-led initiatives such as the Primary Education Development Program (PEDP-IV) and stipends for female students (BAN-BEIS, 2022; Ahmed & Nath, 2005). Regional disparities within the country continue to be ignored, apart from national averages. Habiganj in northeast Bangladesh is a notably vulnerable region, home to a critically important wetland system called a Haor. The Haor basin is subject to severe seasonal



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flooding and is underwater for 5 to 6 months each year (Bangladesh Haor and Wetland Development Board, 2012). This chronic environmental crisis has disrupted livelihoods, mobility, and access to basic services, especially education. Schools are usually overwhelmed, turned into flood shelters, or cut off, resulting in months of lost learning (Barik et al., 2025; Elkheir et al., 2025; Inusa et al., 2025). Such environmental constraints, coupled with pervasive poverty, inadequate infrastructure, shortage of trained teachers, and pervasive social norms, lead to a disproportionately high rate of attrition from school (Choudhury & Sarkar, 2018).

Educational exclusion in such areas may also be examined through the lens of Social Reproduction Theory (Bourdieu, 1973), which argues that existing socio-economic inequalities are reproduced through institutional structures, such as education, across generations. Similarly, Human Capital Theory (Schultz, 1961) emphasizes the economic justification for investing in education. When families see little return from education, because there are few jobs or the family needs the child's income, they are more likely to take their children out of school. This dichotomous view helps understand the dropout scenario in Haor, where education is often not considered imperative but rather an indulgence. However, despite the urgent need for intervention, there has been very little empirical research explaining why students drop out of schools in the Haor area. The majority of national surveys and development programs fail to consider the specific situation of children living in geographically remote and environmentally fragile areas (Alam & Mushtaq, 2017; Choudhury & Rahman, 2015). This means that current education policies are either urban-biased or generic and insensitive to local needs.

Enrolment has improved substantially at the national level in schools in Bangladesh, but improvements have not been distributed equally. Of these, the Haor areas of the Habiganj district have an alarming dropout rate owing to a cluster of socioeconomic and environmental constraints. Moreover, you have a highly regionally specific set of dynamics that makes this even harder and puts policymakers in an even harder position when trying to interpret and respond to it.

The novelty of the study is its focus on an educationally marginalized and environmentally sensitive region in Bangladesh. The study provides theoretical and practical insights into dropout through a qualitative approach that helps understand the depth of reasons for school dropout. The findings can help make educational planning and policymaking more inclusive and context-sensitive, thereby contributing to the achievement of Sustainable Development Goal (SDG) 4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." (United Nations, 2022).

This study is guided by three main objectives to address this critical research gap. First, to identify the major causes and quantify the dropout rate among school children in the Haor area of Ajmiriganj Upazila, Habiganj; second, to critically examine the specific intersections where socio-economic pressures, environmental vulnerabilities, and institutional failures converge to push students out of the education system; and third, to propose a set of context-specific, actionable policy and community-based interventions designed to mitigate dropout and foster educational resilience. By pursuing these aims, this research seeks to generate nuanced evidence that can contribute to more equitable and effective educational planning for climate-vulnerable areas, such as the Haor.

## 2. Literature review

Haor areas in Bangladesh are low-lying wetlands that undergo annual inundation, posing significant obstacles to schooling. The seasonal occurrence of floods separates communities by impairing roads, bridges, and communication networks. Consequently, youngsters encounter interruptions in their education, restricted access to institutions, and heightened economic strain. Research repeatedly demonstrates that environmental susceptibility directly influences educational engagement in these regions (Alam & Zhu, 2023; Bhuiyan et al., 2024). Although these studies concur on the significant correlation between floods and educational exclusion, they diverge in focus. Alam and Zhu (2023) emphasize structural vulnerability, whereas Bhuiyan et al. (2024) underscore socio-economic factors such as poverty and income instability.

Research from Tanguar Haor reveals that approximately 44% of primary school pupils discontinue their education owing to floods and associated socio-economic difficulties, with just about 60% advancing to secondary education. This conclusion is corroborated by Ahmed et al. (2026) and Habiba et al. (2021), who contend that recurrent flooding disrupts educational continuity and diminishes long-term academic engagement. Nevertheless, although these studies robustly demonstrate a link, they frequently lack a comprehensive causal examination of the interplay between environmental and economic variables over time. This creates a gap in the understanding of the long-term educational trajectories of Haor children.

A well-discussed adaptation technique is the installation of floating schools. These mobile classrooms are used for teaching during flood seasons and provide enhanced access in remote areas (Alam & Zhu, 2023; Hossain et al., 2021). Floating schools are more adaptable and context-specific than standard schools. They still work very well, but there is controversy about how well they work. Hossain et al. (2021) claim that floating schools are a realistic short-term option, but Moniruzzaman and Emran (2021) dispute their scalability and sustainability. Most studies focus on enrolment and attendance rather than learning outcomes or the quality of schooling. This points to a major gap in the literature, a lack of examination of whether floating schools actually lead to substantial, long-term educational growth.

Another crucial feature is the effect of socio-economic and cultural issues. School participation is greatly influenced by poverty, child labor, and lack of parental knowledge. According to Mousumi and Kusakabe (2021), families prioritize survival over education, particularly during the flood season. Parvin et al. (2022) extend this idea by showing gender differences, with females more likely to drop out due to family duties and early marriage. This is supported by reports such as Save the Children (2017), which demonstrate that girls face disproportionate impediments to schooling. Although there is consensus on gender inequality, fewer studies address intersectional issues (e.g., poverty, gender, and location), highlighting another research gap.

Institutional challenges further complicate the situation. Most rural schools lack trained teachers, adequate facilities, and post-disaster rehabilitation measures. Uddin (2024) believes that inadequate coordination among stakeholders and weak governance impede the effectiveness of educational activities. Similarly, Tasnim (2022) argues for the inclusion of climate-resilient education into national policy. These policy studies are strong on suggestions but often lack assessments of implementation at the local level. This divide is revealed in reports by UNICEF (2025) and Tasnim (2022), which show that policy goals rarely drive successful action in Haor villages.

Further insights are provided on the linkages between disaster education and recent studies. For example, Izumi et al. (2019) highlight the relevance of community-based catastrophe risk reduction for educational continuity. Climate-related disasters in developed countries, as noted by Pal et al. (2023), destabilize education systems, underscoring the importance of resilience planning. Izumi et al. (2019) highlight the importance of institutional readiness in mitigating educational interruption during disasters. Similarly, Anjum (2020) highlights that localized strategies are more effective than top-down strategies. The presented research offers more general theoretical perspectives than previous studies on Bangladesh and does not provide specific evidence from the Haor areas.

Critically, existing literature on school dropout and educational vulnerability in disaster-prone contexts presents three major limitations. First, most studies primarily emphasize access to education, while comparatively less attention has been given to the quality of education and learning outcomes, particularly in rural and climate-vulnerable settings. Second, there is a significant lack of longitudinal research examining how recurrent flooding and seasonal environmental shocks affect students' continuous educational participation and long-term academic trajectories in Haor regions. Third, a persistent gap exists between policy frameworks and on-the-ground implementation, especially regarding disaster-resilient education strategies. Although initiatives such as floating schools and climate-adaptive education policies have been introduced, their sustainability, scalability, and effectiveness in reducing dropout in highly vulnerable communities remain underexplored.

In conclusion, environmental, economic, and institutional challenges collectively contribute to low educational retention in Haor regions. Although adaptive strategies like floating schools pro-

vide temporary solutions, they do not fully address systemic issues such as poverty, gender inequality, and weak governance. Existing research highlights the importance of resilience and community-based approaches, but empirical evidence at the local level remains limited. Therefore, further research is needed, particularly in underexplored areas such as Ajmiriganj Upazila in Habiganj, to develop sustainable, community-driven educational interventions.

### 3. Theoretical Framework

There is a need to understand school dropout in disaster-prone environments comprehensively, using a multidimensional lens of analysis that goes beyond the individual level. Educational discontinuation in the Haor region of Bangladesh, especially in Ajmiriganj Upazila of the Habiganj district, is not just an educational issue, but a socio-ecological outcome of chronic disaster exposure, structural inequality, and livelihood insecurity. The annual cycle of flooding, coupled with endemic poverty and fragile institutional capacity, provides a context in which schooling is highly vulnerable to interruption.

To analyze this phenomenon within a disaster risk reduction (DRR) and educational vulnerability framework, this study employs two complementary theoretical perspectives: Social Reproduction Theory (Bourdieu, 1973; 1991) and Human Capital Theory (Schultz, 1961; Becker, 1975). These theories together explain the interplay between structural conditions of inequality and rational household responses to risk

#### 3.1. Social Reproduction Theory and Disaster-Induced Educational Inequality

Pierre Bourdieu's social reproduction theory states that education systems are not neutral institutions but mechanisms for reproducing existing social hierarchies through the unequal distribution of cultural, social, and economic capital (Bourdieu, 1977). Schools tend to valorize dominant cultural norms, marginalizing students whose lived realities do not conform to such expectations (Briggs, 2005).

This process of reproduction is amplified in disaster-prone contexts, such as the Haor region, due to exposure to environmental risks. Ajmiriganj Upazila is annually affected by monsoon floods that disrupt schooling infrastructure, displace communities, and curtail institutional continuity. These ongoing threats systematically undermine children's access to stable learning environments, thereby exacerbating existing inequalities.

From a Bourdieusian perspective, children from the Haor community enter education systems with much less consonance with cultural capital. The habits of life formed by agrarian and fishing ways of life are often at odds with the institutional demands of formal schooling. As a result, education is often perceived as culturally remote and socially irrelevant. This perception is not merely individual but socially produced through long-term exposure to deprivation and vulnerability to disaster.

Moreover, recurrent flood events reinforce institutional fragility. During crises, schools in Ajmiriganj frequently face damaged infrastructure, irregular attendance systems, and a shortage of trained teachers. These conditions undermine the legitimacy of formal education and normalize dropping out as a socially acceptable outcome.

Thus, dropout in Haor regions, from the perspective of Social Reproduction Theory, is a structurally produced form of educational exclusion. Here, both social inequality and disaster exposure reproduce marginalization jointly rather than mitigate it.

### *3.2. Human Capital Theory and Risk-Based Educational Decision-Making*

The Human Capital Theory considers education as an investment that increases productivity, skills, and lifetime earnings (Schultz, 1961; Becker, 1975). Individuals and households make rational decisions according to expected returns versus costs. In this regard, dropout is interpreted as a reaction to negative cost-benefit calculations. The decision-making process in Ajmiriganj Haor is heavily influenced by uncertainties in their livelihoods caused by disasters. Flooding at different times of the year impacts agricultural cycles and fishing activities, thereby increasing the economic vulnerability of households. During these times, children's labor is a key resource for survival, and the opportunity cost of schooling is high. Households that perceive low-quality education, limited employment opportunities, and frequent school interruptions due to disasters have a diminished expected return on investment in education. A rational adaptive strategy is withdrawal from school under conditions of chronic risk and economic insecurity.

Importantly, this decision-making is not only economic but also risk-sensitive. Repeated disasters raise uncertainty about the very continuity of education. Families may prefer the short-term stability of livelihoods to the long-term, uncertain educational gains. This is consistent with behavioral extensions of Human Capital Theory, in which decisions are made under imperfect information and high environmental risk. However, this framework has shortcomings, as it tends to underplay the structural constraints that shape available choices (Leathwood & O'Connell, 2003). Within disaster-prone areas, 'rational choice' is embedded within structurally constrained contexts that limit real educational alternatives.

### *3.3. Integrated Disaster–Structural–Economic Framework*

The combination of Social Reproduction Theory and Human Capital Theory better explains the school dropout in Ajmiriganj Haor. Rather than seeing dropout as structural determinism or individual rationality, this study conceptualizes dropout as a dual-process outcome driven by the confluence of disaster risk and socio-economic inequality. From this integrated view, Social Reproduction Theory explains how structural inequality and disaster vulnerability are institutionalized by the education system, limiting access to stable schooling.

Human Capital Theory explains households' rational responses to livelihood insecurity and the opportunity costs of disasters. Together, they show that dropout is an outcome of a compounded vulnerability mechanism in which environmental hazards erode education systems and structural inequalities squeeze adaptive capacity. Withdrawal from schooling is justified by economic need.

This framework is consistent with current disaster risk reduction (DRR) approaches that emphasize the interplay between hazard exposure, vulnerability, and coping capacity. In this regard, school dropout in Haor areas should be viewed as a risk-induced social outcome, rather than an educational failure.

Therefore, effective interventions must tackle both dimensions at the same time:

- Structural resilience-building (upgrading infrastructure, teacher capacity, and institutional stability in flood-prone areas), and
- Mitigating economic risk (by reducing the dependence of households on child labor through social protection and livelihood diversification).

## **4. Methodology of the Study**

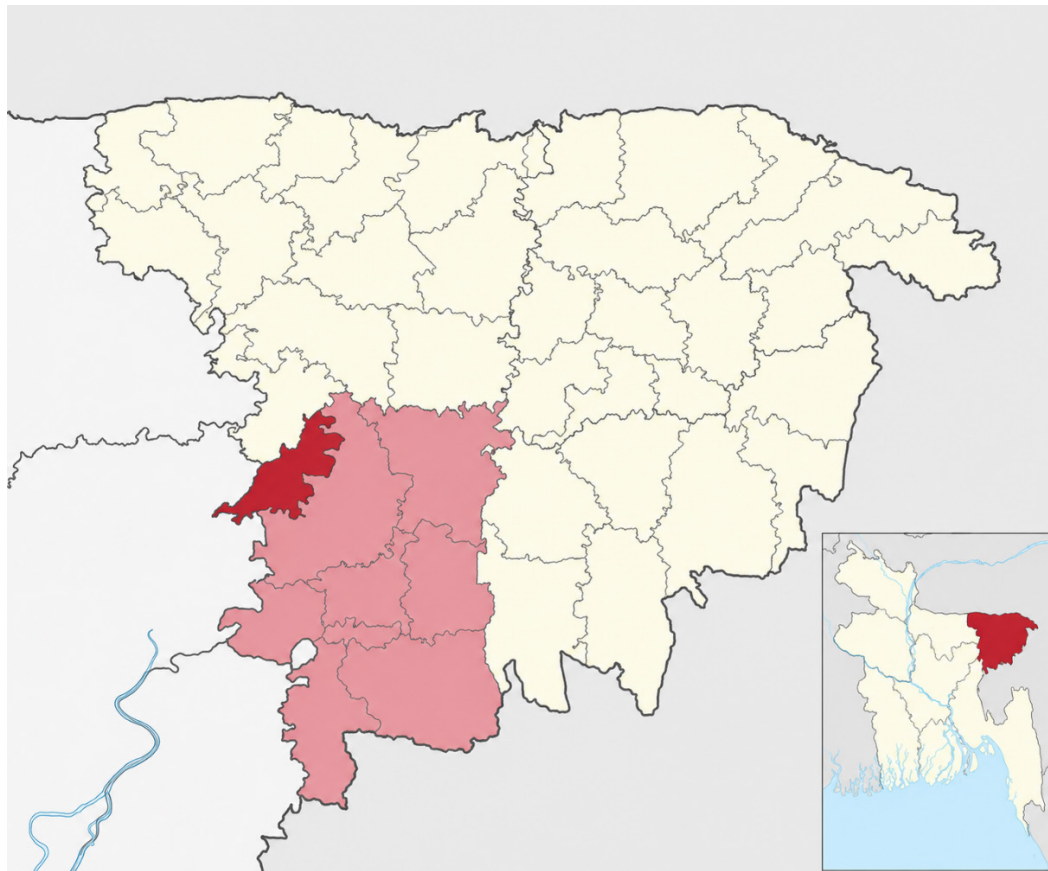
### *4.1. Research Design*

The present study employs a primarily qualitative research design to investigate the socio-economic, environmental, and institutional factors contributing to primary school dropout in the Ajmiriganj Haor region of Habiganj District, Bangladesh. The qualitative approach allows for a deep

exploration of participants' lived experiences and contextual realities in a climate-vulnerable setting. In addition, a short descriptive quantitative part was added to support the qualitative results. Response patterns were summarized using frequency distributions and percentages in SPSS (e.g., percentage of participants who identified poverty, geographical isolation, and parental disengagement as the main drivers of dropout). The statistical outputs are purely descriptive and are intended to aid the interpretation of the qualitative evidence, rather than to determine causal relationships.

#### 4.2. Study Area

The study was undertaken in the Ajmiriganj Haor of Habiganj district. The Haor is a geographically marginalized and environmentally fragile ecosystem with recurrent flash flooding, inadequate infrastructure, and limited access to basic services, including education.



**Figure 1.** The study area, Ajmiriganj, Habiganj. Source: <http://ajmiriganj.habiganj.gov.bd/>.

The Upazila is divided into five Union Parishads: Ajmiriganj Sadar, Badalpur, Kakailsao, Jolsuka, and Shibpasha. From these unions, 10 villages were purposively selected for their high vulnerability to climatic hazards, widespread poverty, limited livelihood opportunities, and educational deprivation. The selected villages are Birat and Nagor (Ajmiriganj Sadar), Piriipur and Jiluya (Badalpur), Shah Nagor and Anandapur (Kakailsao), Pashchimbag and Sikandarpur (Shibpasha), Noaghor and Jolsuka (Jolsuka).

#### 4.3. Sampling Strategy and Participants

A purposive sampling technique was employed to ensure that information-rich cases were selected and were directly relevant to the research objectives. The total number of respondents for the study was 350, comprising 130 male students, 140 female students who dropped out of school, 60 guardians, and 20 primary school teachers and members of school management committees.

There was a clear criterion for the selection of the participants: (i) students identified as school dropouts or at risk of dropout; (ii) guardians with direct responsibility for the educational decisions of the students; and (iii) teachers and management representatives actively involved in the selected primary schools. The multi-stakeholder sampling framework allowed methodological triangulation and enhanced analytical depth.

#### *4.4. Data Collection Methods*

Primary data was collected through in-depth interviews, focus group discussions (FGDs), and direct observation. Several FGDs were held, each with 6–8 participants and lasting 30–40 minutes. These discussions provided the opportunity to explore common experiences and collective perceptions of educational discontinuation. The in-depth interviews followed a semi-structured protocol that enabled systematic yet flexible probing of participants' responses. All interviews and FGDs were audio-taped with informed consent and transcribed verbatim to preserve data integrity. Qualitative data were also corroborated and contextualized by observational techniques.

The secondary data were collected from peer-reviewed academic literature, scholarly books, various governmental and non-governmental reports, newspaper archives, climate and environmental organizations, and authoritative online databases. Primary and secondary datasets were analyzed separately to ensure methodological clarity and to enhance the validity and reliability of the findings.

#### *4.5. Data Analysis*

Thematic analysis was used to analyze the qualitative data following a systematic and iterative process. The transcribed data were first familiarized and coded using open coding procedures. Afterward, the codes were grouped into analytically meaningful categories and subcategories. These categories were further integrated into overarching themes that captured the central patterns within the data. Triangulation of data from interviews, FGDs, and observations was used to ensure analytical rigor. Further, consistency checks and iterative verification of transcripts were conducted to improve the reliability and credibility of the findings.

#### *4.6. Ethical Considerations*

This research adhered to ethical standards. Prior to data collection, all participants gave informed consent. Confidentiality and anonymity were ensured by removing any identifying information from the dataset. Participants were also made aware of the voluntary nature of their participation and their right to withdraw from the study at any stage without repercussion.

The research methodology and analytical strategy of this study are guided by an integrated framework that combines Human Capital Theory and Social Reproduction Theory. Social Reproduction Theory elucidates structural determinants such as home poverty, marginalization, and inequitable access to educational resources, framing dropout as a consequence of systemic inequality. Conversely, Human Capital Theory conceptualizes education as an economic investment and incorporates elements such as income volatility, opportunity costs, and child labor that affect household decisions about education.

Collectively, these viewpoints offer a cohesive analytical framework that links structural limitations to economic actions, thereby enhancing understanding of school dropout trends in the region under investigation.

## 5. Findings of the Study

The findings in Table 1 indicate that the school dropout rate in Ajmiriganj Upazila, Habiganj, is affected by a complex interplay of socio-economic, institutional, environmental, and socio-cultural factors. The study shows that household-level economic hardship is the dominant determinant, followed by institutional inadequacies within the education system and increasing exposure to environmental vulnerabilities typical of the Haor region. The main reason behind school drop-out is the unavailability of employment opportunities for guardians (30% of responses). This underscores the central role of poverty and livelihood insecurity in determining educational discontinuation. In many homes, the absence of a steady income means families cannot afford to keep their children in school.

**Table 1.** Major Determinants of School Dropout in Ajmiriganj Upazila, Habiganj. Source: Field Data, 2025.

Sl. No.	Causes of School Dropout	Percentage (%)
1	Lack of guardians' employment opportunities (poverty-driven constraint)	30
2	Lack of qualified teachers and instructional quality issues	18
3	Environmental vulnerabilities (flooding, river erosion, seasonal hazards)	15
4	Inadequate transportation and mobility constraints	10
5	Child labor and income substitution pressure	8
6	Early marriage among girls	7
7	Poor school infrastructure and learning environment	7
8	Parental disinterest in education	5

The second most important factor is a lack of qualified teachers and instructional quality problems (18%). Respondents reported that the lack of teacher availability, weak pedagogical practices, and low classroom engagement negatively affect students' motivation to learn and educational continuity.

Environmental vulnerabilities – flooding, river erosion, and seasonal hazards account for 15% of dropouts. These results reflect the disaster-prone context of the Haor ecosystem, where recurrent environmental shocks such as floods, droughts, and river erosion hamper school attendance, damage infrastructure, and create long-term barriers to educational continuity.

Inadequate transportation and mobility constraints (10%) further exacerbate access to education, particularly during adverse weather conditions. Students in remote and waterlogged areas face significant difficulties in physically reaching schools, which increases absenteeism and the risk of dropout.

Important determinants also include income substitution pressure (8%) and child labor, which implies that children are often engaged in economic activities to support household survival and consequently limit school attendance.

Early marriage among girls (7%) is another contributing factor. This indicates the persistence of socio-cultural norms that favor early marriage over continued education, particularly for female students.

Weak school infrastructure and learning environment (7%) further reduces student retention by creating an unfavorable, under-resourced educational environment. Second, 5% of parents do not care about education. It means that they are less aware of the long-term benefits of education; therefore, they provide limited educational support at the household level.

In general, the findings reveal that school dropout in the study area is not the result of a single isolated factor but a multidimensional phenomenon shaped by the interplay of economic deprivation, institutional weaknesses, environmental hazards, and socio-cultural constraints.

## 6. Discussion

The findings suggest that a combination of economic deprivation, weak institutions, environmental shocks, and cultural barriers drives school dropout in Ajmiriganj Upazila. This pattern suggests that dropout is not a personal choice but a result of systemic inequality and limited agency (Blanden et al., 2013).

Social reproduction theory focuses on the intergenerational reproduction of disadvantage through household economic insecurity. According to Bourdieu (1977), education systems reproduce class structures through unequal distribution of resources. Financial instability systematically excludes children from poor households in Ajmiriganj. This is consistent with studies in Bangladesh that have found socio-economic inequality to be a major determinant of rural educational attainment and dropout risks (Uddin, 2024; Ahmed et al., 2016).

Institutional weaknesses, such as low teacher quality and low levels of pedagogical involvement, reinforce educational inequality. Schools, rather than equalizing, often reflect wide disparities in resources and human capital. This corroborates evidence that stratification is maintained through differential access to quality education, especially to the disadvantage of disadvantaged learners in Bangladesh, by increasing disengagement.

Flooding and river erosion, as environmental shocks, are important drivers of dropout in the Haor region. These disruptions harm schooling, infrastructure, and family stability, and they interact with poverty to worsen inequality. Studies in Bangladesh confirm that climate shocks exacerbate educational exclusion, serving as accelerators of inequality within the Social Reproduction framework (Al-Samarrai, 2009; ADB, 2024).

From the perspective of Human Capital Theory (Becker, 1964), child labor and early marriage are practical, albeit limited, family responses to uncertain circumstances. In the context of high-cost, uncertain investments in education, families choose immediate survival strategies. This is consistent with evidence that financial constraints and opportunity costs drive secondary-level dropouts (Cvetković et al., 2025).

Early marriage of girls also helps reduce the perceived burden on the household. The perceived value of education is reduced by poor infrastructure and low parental involvement. The declining quality of schools reduces the incentive to stay in school, particularly in rural areas where quality gaps exacerbate educational disparities (Hossain et al., 2021; Moniruzzaman & Emran, 2021).

Both empirical results and theories imply that dropout in Ajmiriganj is driven by structural inequalities as well as by deliberate household decisions. Social Reproduction Theory explains how inequality is reproduced in economic, institutional, and environmental ways, and Human Capital Theory explains how families rationally respond within these constraints. Thus, dropout is a symptom of deep socio-economic and ecological vulnerabilities, not isolated educational failures.

## 7. Conclusion

This study provides complex, multi-level reasons for school dropouts among children in Bangladesh's Haor area, especially in the Habiganj district. The findings demonstrate that dropout is not caused by a single factor but rather by the convergence of poverty, environmental risk, socio-cultural norms, institutional fragility, and parental beliefs. The vulnerabilities are further compounded by the Haor's unique geography, which makes the usual education policies redundant or irrelevant. The study, through an analysis of Social Reproduction Theory, shows how deeply embedded inequalities and social orders perpetuate marginality across generations. On the other hand, Human Capital Theory explains the short-term economic reasons for dropout in poor households. Together, these frameworks highlight the significance of interventions that are contextualized and multi-sectoral, at both the structural and individual levels. The purpose is to inform national and global debates on inclusive education, with a focus on climate-vulnerable and geographically marginalized areas. Such high dropout rates, if sustained, will present a barrier to the educational and socio-eco-

conomic prospects of the future Haor generations and to national development goals and the SDG 4 pledge for educational equity.

This calls for us to develop and implement appropriate, quick, focused, and sustained policy actions that are context-specific, so that all children in Bangladesh, wherever they are born, have access to quality learning and realize their full potential.

## 8. Policy Recommendations

The policy recommendations of this study are based on empirical findings that indicate the key determinants of school dropout in Ajmiriganj Upazila, Bangladesh. The recommendations are set within a disaster-prone, rural, and socio-economically vulnerable context. To maintain coherence, feasibility of implementation, and alignment with Bangladesh's national education and social protection frameworks, the recommendations are presented in decreasing order of empirical weight.

### 8.1. Strengthening of livelihood security in rural areas and stability of household income

The biggest reason for dropping out of school is economic instability at home, especially the lack of consistent jobs for parents. Income shocks related to climate variability, seasonal unemployment, and dependence on agriculture reduce school retention in rural Bangladesh, with a significant increase in child labor participation.

The Government of Bangladesh should: (1) provide cash assistance to the very low-income families when their children attend school; (2) provide food to those most in need; and (3) provide school money to support students. Together, they will build an all-in-one plan that links education and social support. Similar country studies show that these steps increase the likelihood that children attend school and decrease the likelihood of dropping out (Sugiyama & Hunter, 2020; World Bank, 2018).

In addition, the Ministry of Social Welfare and the Ministry of Education should work together to implement climate-adaptive rural livelihood programs, including vocational training in disaster-resilient income-generating activities (e.g., agro-processing, fisheries, and small enterprise development). There is a need to institutionalize a georeferenced poverty-mapping system to target beneficiaries accurately. This combined approach will reduce economic stress at the household level and directly reduce dependence on child labor.

### 8.2. Improving Teacher Quality and Instructional Effectiveness

The second most important determinants are low-quality instruction and low teacher capacity in rural schools. Teachers' effectiveness is key to student retention and the continuity of learning (UNESCO, 2022). The Ministry of Education shall (1) prepare and implement a competency-based teacher recruitment and deployment policy to ensure recruitment based on merit and appropriate deployment in rural areas; (2) establish continuous professional development programs in learner-centred pedagogy, inclusive teaching strategies and classroom management in disaster-prone settings; and (3) introduce a digital teacher monitoring and evaluation system through the Upazila Education Office to monitor attendance, performance and instructional quality. These steps align with global evidence that structured accountability mechanisms improve teaching outcomes (Hanushek & Rivkin, 2010).

### *8.3. Establishing Climate-Resilient Education Infrastructure*

Frequent floods, river erosion, and seasonal flooding severely disrupt the continuity of education in Bangladesh's haor areas. The Government of Bangladesh should invest in building elevated, flood-resilient, and modular school infrastructure in high-risk areas through the Ministry of Education and LGED. This aligns with the proposed climate adaptation strategies for South Asian education systems (ADB, 2024). In addition, disaster-prone areas can institutionalize flexible school calendars that are seasonally aligned with the local context's climatic patterns. In the event of an extreme event, education should continue quickly by establishing temporary learning centers or community-based classrooms.

### *8.4. Enhancing Rural Transportation and Educational Accessibility*

School attendance is greatly affected by geographical isolation and transport barriers, particularly during the monsoon season. The local government should introduce community-managed boat transport systems in the waterlogged areas of Sylhet and in the haor areas. In addition, the maintenance fund for rural corridors and waterways should be decentralized to the union level to ensure a prompt response. Research from rural education systems shows that greater accessibility leads to higher attendance and lower dropout rates (World Bank, 2018).

### *8.5. Reducing Child Labor through Strengthened Social Protection*

Child labor remains an important coping strategy of economically vulnerable households in Bangladesh. The government should implement the Child Labor Elimination Policy (2010) with more robust enforcement and scale up school-based incentive mechanisms such as stipends, free meals, and attendance-linked financial assistance. Schools should have early-warning attendance-tracking systems that can identify children at risk and allow social protection agencies to intervene promptly.

### *8.6. Preventing Early Marriage through Community-Level Enforcement*

Early marriage still has a disproportionate impact on the educational continuity of female students in rural Bangladesh. Religious leaders and NGOs should establish community surveillance and reporting mechanisms for child marriage prevention at the local administration. Awareness campaigns should be included in the school curriculum and community forums. The Child Marriage Restraint Act (2017) should be strictly implemented at the Union Parishad level. Multi-stakeholder enforcement has been shown to significantly reduce early marriage and improve girls' retention in school (UNICEF, 2019, 2025).

### *8.7. Improving School Infrastructure and Learning Environment*

Poor school infrastructure negatively affects student motivation and retention. Therefore, the Ministry of Education and LGED should prioritize improving rural schools by providing safe, climate-resilient classrooms, gender-sensitive sanitation facilities, adequate teaching and learning materials, and digital learning support infrastructure. In addition, annual infrastructure audits should be conducted to ensure that school facilities remain safe, functional, and well-maintained. Creating a supportive and well-equipped school environment is essential for encouraging students to remain in education and complete their schooling (UNDESA, 2022; UNESCO, 2023).

### 8.8. Strengthening Parental Awareness and Community Engagement

Dropouts are also due to parents' lack of knowledge. Schools should set up School Management Committees and hold regular meetings of parents and teachers. Upazila Education Officers should conduct campaigns on the importance of education. Parental involvement reduces dropout rates and increases results (Sabates et al., 2010).

There are many reasons for dropout in Ajmiriganj Upazila, including economic, institutional, climatic, and social factors. Policies need to connect education, social protection, climate adaptation, and local action in disaster-prone rural areas. Effective prioritization of key interventions brings better results and efficient use of resources.

**Declaration Statement:** The authors declare that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. All research activities were conducted in compliance with institutional ethical guidelines and relevant national regulations.

**Authorship Contribution:** Dr. Mohammad Fakhrus Salam, Shimul Gope, and Sharmin Akter conceived and designed the study, conducted the literature review, developed the theoretical framework, and wrote the initial manuscript draft. They also carried out data analysis, integrated reviewer feedback, and finalized the manuscript. The authors approve the final version for submission and agree to be accountable for all aspects of the work.

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## 9. References

1. Ahmed, J. U., Ashikuzzaman, N. M., & Nisha, N. (2016). Understanding operations of floating schools: A case of Shidhulai Swanirvar Sangstha in Bangladesh. *South Asian Journal of Business and Management Cases*, 5(2), 221–233. <https://doi.org/10.1177/2277977916665993>
2. Ahmed, M., & Nath, S. R. (2005). Quality with equity: The primary education agenda (Education Watch Report 2003/4). Campaign for Popular Education (CAMPE).
3. Alam, G. M. M., Alam, K., & Mushtaq, S. (2017). Perceptions of climate change and local adaptation strategies among hazard-prone rural households in Bangladesh. *Climate Risk Management*, 17, 52–63. <https://doi.org/10.1016/j.crm.2017.06.002>
4. Alam, M. B., & Zhu, Z. (2023). The floating schools of Bangladesh: An indigenous solution for the lack of access to primary education in flood-prone areas. *ECNU Review of Education*. <https://doi.org/10.1177/20965311231189521>
5. Al-Samarrai, S. (2009). The impact of governance on education inequality: Evidence from Bangladesh. *International Journal of Educational Development*, 29(4), 356–365. <https://doi.org/10.1016/j.ijedudev.2008.04.001>
6. Anjum, S. (2020, February 14). Floating classrooms bring education to flooded communities in Bangladesh. *Global Voices*.
7. Asian Development Bank. (2024). *Climate change and education playbook: Investing in education and skills for climate resilience in Asia and the Pacific*. Manila: ADB. <https://www.adb.org/publications/climate-change-education-playbook>
8. Bangladesh Bureau of Educational Information and Statistics. (2022). *Bangladesh education statistics 2022*. Dhaka, Bangladesh: Ministry of Education. Retrieved from <http://www.banbeis.gov.bd>
9. Bangladesh Haor and Wetland Development Board (BHWDB). (2012). *Master plan of Haor area (Vols. 1–3)*. Ministry of Water Resources, Government of the People's Republic of Bangladesh. <https://dbhwd.portal.gov.bd>

10. Barik, P., Bhuyan, A., & Hodam, S. (2025). University Students' Perception, Knowledge, and Preparedness of Flood Disaster Risk Management in Assam (India). *International Journal of Disaster Risk Management*, 417–430. <https://doi.org/10.18485/ijdrm.2025.7.1.24>
11. Becker, G. S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education. National Bureau of Economic Research / Columbia University Press.
12. Becker, G. S. (1975). Human capital: A theoretical and empirical analysis, with special reference to education (2nd ed.). National Bureau of Economic Research / Columbia University Press.
13. Bhuiyan, M. Z. A., Sarker, N., Hossain, M. K., & Huq, N. A. (2024). Impact of climate change disasters on the education sector of coastal Bhola district, Bangladesh. *International Journal of Environment and Climate Change*, 14(6), 237–251. <https://doi.org/10.9734/ijecc/2024/v14i64224>
14. Blanden, J., Gregg, P., & Macmillan, L. (2013). Intergenerational persistence in income and social class: The effect of within-group inequality. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 176(2), 541–563. <https://doi.org/10.1111/j.1467-985X.2012.01053.x>
15. Bourdieu, P. (1973). Cultural reproduction and social reproduction. In R. Brown (Ed.), *Knowledge, education, and cultural change* (pp. 71–112). London, England: Tavistock.
16. Bourdieu, P. (1977). Cultural reproduction and social reproduction. In J. Karabel & A. H. Halsey (Eds.), *Power and ideology in education* (pp. 487–511). Oxford, England: Oxford University Press.
17. Bourdieu, P. (1991). *Language and symbolic power*. Cambridge, MA: Harvard University Press.
18. Briggs, J. (2005). The use of indigenous knowledge in development: Problems and challenges. *Progress in Development Studies*, 5(2), 99–114. <https://doi.org/10.1191/1464993405ps105oa>
19. Choudhury, R. K., & Rahaman, M. (2015). Education for all: Realities, achievements and challenges—The story of Bangladesh. *ZEP: Zeitschrift für internationale Bildungsforschung und Entwicklungspädagogik*, 38(2), 33–37. <https://doi.org/10.25656/01:14018>
20. Chowdhury, R., & Sarkar, M. (2018). Education in Bangladesh: Changing contexts and emerging realities. In R. Chowdhury, M. Sarkar, F. Mojumder, & M. M. Roshid (Eds.), *Engaging in educational research: Revisiting policy and practice in Bangladesh* (pp. 1–18). Springer. [https://doi.org/10.1007/978-981-13-0708-9\\_1](https://doi.org/10.1007/978-981-13-0708-9_1)
21. Cvetković, V. M., Aleksova, B., Renner, R., Gačić, J., Ivanov, A., & Milašinović, S. (2025). Community-Based Disaster Risk Reduction: Overcoming Barriers to Build Stronger Communities. *International Journal of Disaster Risk Management*, 7(2), 113–130. <https://doi.org/10.18485/ijdrm.2025.7.2.7>
22. Elkheir, A. Z., Abdelhamid, M., Mohammed, L., Ali, A., Mohammed, S., Said, E., & Mohammed, M. (2025). Advanced Flood Risk Mapping in Bouarfa Watershed Using Integrated Machine Learning, GIS, and MCDM. *International Journal of Disaster Risk Management*, 1–20. <https://doi.org/10.18485/ijdrm.2025.7.2.1>
23. The Child Marriage Restraint Act, 2017 (Act No. VI of 2017). Ministry of Women and Children Affairs. Retrieved from <http://bdlaws.minlaw.gov.bd>
24. Habiba, U., Jui, F. T. Z., Meem, T., & Kabir, F. (2021). Disaster and education: Impact of flood on school going children at Keshabpur Upazilla in Bangladesh. *Journal of Disaster and Emergency Research*, 4(2), 81–92. <https://doi.org/10.18502/jder.6028>
25. Hanushek, E. A., & Rivkin, S. G. (2010). Generalizations about using value-added measures of teacher quality. *American Economic Review*, 100(2), 267–271. doi:10.1257/aer.100.2.267
26. Hossain, A., Naser, M. N., & Sultana, N. (2021). Determinants of secondary school dropout in Bangladesh: A logistic regression analysis. *International Journal of Educational Research*, 108, 101795. <https://doi.org/10.1016/j.ijer.2021.101795>
27. Inusa, M., Chukwudi Nnaemeka, E., Nyomo, J. D., Osawe, I. E., Obadaki, Y. Y., Ismail, A., Abdullahi Bichi, A. (2025). Nature and Extent of Flood Risk Downstream of the Kubanni Dam, Kaduna State, Nigeria. *International Journal of Disaster Risk Management*, 1–14. <https://doi.org/10.18485/ijdrm.2025.7.1.1>

28. Izumi, T., Shaw, R., Djalante, R., Ishiwatari, M., & Komino, T. (2019). Disaster risk reduction and innovations. *Progress in Disaster Science*, 2, 100033. <https://doi.org/10.1016/j.pdisas.2019.100033>
29. Leathwood, C. and O'Connell, P. (2003) 'It's a struggle': the construction of the 'new student' in higher education. *Journal of Education Policy*, 18(6), pp. 597–615. DOI: <https://doi.org/10.1080/0268093032000145863>
30. Moniruzzaman, M., & Emran, S. J. (2021). Education and inequality in rural Bangladesh: A longitudinal study. *Asia Pacific Journal of Rural Development*, 31(1), 25–48. <https://doi.org/10.1177/10185291211010867>
31. Mousumi, M. A., & Kusakabe, T. (2021). School education system in Bangladesh. In P. M. Sarangapani & R. Pappu (Eds.), *Handbook of education systems in South Asia* (pp. 443–477). Springer. [https://doi.org/10.1007/978-981-15-0032-9\\_11](https://doi.org/10.1007/978-981-15-0032-9_11)
32. Pal, A., Tsusaka, T. W., Nguyen, T. P. L., & Ahmad, M. M. (2023). Assessment of vulnerability and resilience of school education to climate-induced hazards: A review. *Development Studies Research*, 10(1), 2202826. <https://doi.org/10.1080/21665095.2023.2202826>
33. Parvin, G. A., Takashino, N., Islam, M. S., Rahman, M. H., Abedin, M. A., & Ahsan, R. (2022). Disaster-induced damage to primary schools and subsequent knowledge gain: Case study of the Cyclone Aila-affected community in Bangladesh. *International Journal of Disaster Risk Reduction*, 72, 102838. <https://doi.org/10.1016/j.ijdr.2022.102838>
34. Sabates, R., Akyeampong, K., Westbrook, J., & Hunt, F. (2010). School dropout: Patterns, causes, changes and policies. Paper commissioned for the EFA Global Monitoring Report 2011. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000190771>
35. Save the Children. (2017). Education disrupted, education denied: Bangladesh – Monsoon floods threaten children's right to education. Save the Children. Retrieved from [https://resourcecentre.savethechildren.net/pdf/bangladesh\\_monsoon\\_advocacy\\_brief\\_eng\\_2017.pdf](https://resourcecentre.savethechildren.net/pdf/bangladesh_monsoon_advocacy_brief_eng_2017.pdf)
36. Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17. Retrieved from <https://www.jstor.org/stable/1818907>
37. Sugiyama, N. B., & Hunter, W. (2020). Do conditional cash transfers empower women? Insights from Brazil's Bolsa Família. *Latin American Politics and Society*, 62(2), 53–74. <https://doi.org/10.1017/lap.2019.60>
38. Tasnim, R. (2022). Climate disasters drive Bangladesh children from classrooms to work. Thomson Reuters Foundation / Pulitzer Center. Retrieved from <https://pulitzercenter.org/stories/climate-disasters-drive-bangladesh-children-classrooms-work>
39. Uddin, M. K. (2024). Environmental education for sustainable development in Bangladesh and its challenges. *Sustainable Development*, 32(1), 1137–1151. <https://doi.org/10.1002/sd.2728>
40. UNESCO. (2022). *Global Education Monitoring Report 2022, South Asia: Non-state actors in education: Who chooses? Who loses?* Paris: UNESCO. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000383550>
41. UNESCO. (2023). *Global education monitoring report 2023: Technology in education: A tool on whose terms?* Paris: UNESCO. <https://doi.org/10.54676/HABJ1624>
42. UNICEF Regional Office for South Asia. (2019). *Ending child marriage in South Asia*. Kathmandu, Nepal: UNICEF ROSA. Retrieved from <https://www.unicef.org/rosa/reports/ending-child-marriage-south-asia>.
43. UNICEF. (2025). *Learning interrupted: Global snapshot of climate-related school disruptions in 2024*. New York: UNICEF. Retrieved from <https://www.unicef.org/press-releases/nearly-quarter-billion-childrens-schooling-was-disrupted-climate-crises-2024-unicef>
44. United Nations Department of Economic and Social Affairs. (2022). *The Sustainable Development Goals report 2022*. New York: UN DESA. Retrieved from <https://unstats.un.org/sdgs/report/2022>
45. World Bank. (2018). *World development report 2018: Learning to realize education's promise*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1096-1>