

Does Geography Matters for Dropout? A Study on Secondary Education in Haor Regions of Bangladesh

Mohammad Akteruzzaman^{*}
and
Mohammad Najimul Hoque^{**}

Abstract

Over the past few decades, Bangladesh has made impressive progress in secondary education with improvements in enrolment, infrastructure, and gender parity. However, a number of socioeconomic and geographic factors continue to contribute to the alarming secondary dropout rate in the Haor areas of Bangladesh. This study investigates the geographical factors associated with secondary-level school dropout in geographically disadvantaged Haor regions. A mixed method approach (predominantly qualitative) has been executed to collect primary data through the questionnaire surveys, FGDs, case studies, and KIIs. The survey purposively selected 80 dropout students from three secondary schools in Austagram Upazila, Kishoreganj district. The study reveals that geographical factors such as spatial inequality in school distribution, seasonal accessibility barriers, natural disasters, teacher shortages, poor infrastructures and local production cycles contribute to long-term absenteeism and dropout rates in Haor regions of Bangladesh. To reduce dropout rates and ensure quality education, the study recommends building flood-resistant schools, enhancing transportation facilities, implementing flexible academic calendars, and providing teacher incentives in collaboration with NGOs and community-based organizations.

Key words: Secondary Education, Dropout Rates, Haor Regions, Geographical Barriers.

Introduction

Education is a fundamental human right and a key driver of a country's socioeconomic development. The secondary level of education is a crucial stage that ties the primary level with the tertiary level. After independence, Bangladesh has made a significant stride in the education sector along with other sectors. The literacy rate has risen from 26.8% to 74.66%.¹ About 98% of the children (51.67% of whom

^{*} PhD Researcher, Institute of Bangladesh Studies, Rajshahi University & Assistant Professor (Sociology), OSD, Directorate of Secondary and Higher Education, GoB

^{**} Professor, Institute of Bangladesh Studies, Rajshahi University

¹ *Key Findings of Population and Housing Census 2022*, www.sid.gov.bd, (accessed: November 5, 2022).

are girls) are now enrolled in primary school with an 86.25% completion rate. While progress in primary education is commendable, its lack is observed in secondary education. Although the enrolment rate at the secondary level has increased from 49.53% in 2010 to 72.20% in 2023, the completion rate (67.15%) remains unsatisfactory.² This means that 32.85% of students are dropping out before completing their study at the secondary level, which is a major obstacle in achieving the overall goal of education.

However, these dropout rates are not uniform across the country. Generally, dropout rates are higher in rural areas than in urban ones. According to the Bangladesh Bureau of Statistics, 80% of dropout students are students from rural areas.³ In addition, gender disparity is evident; the trend of dropping out is more observed in girls than boys. According to UNICEF, Bangladesh has the highest dropout rate (14.6%) in eighth grade at the secondary level, and the dropout rate of girls in sixth and seventh grades is double that of boys.⁴ Moreover, the dropout rate is particularly acute in geographically disadvantaged areas like hilly areas, chars, and Haor regions.

The Haor regions of Bangladesh are located in the northeastern part of the country. There are seven Haor districts in the country, namely Sylhet, Sunamganj, Moulvibazar, Habiganj, Kishoreganj, Netrokona, and Brahmanbaria. Among these districts, Kishoreganj, a district of central Bangladesh, is one of the core Haor basin areas with 97 Haors covering 133,943 hectare areas of total 273,100 hectare areas.⁵ Kishoreganj has 13 upazilas with four Haor-based upazilas namely Austagram, Itna, Mithamoin, and Nikli. Austagram upazila is a haor-centric upazila located in the deep Haor basin of Bangladesh with areas of 355.53 square kilometers.⁶ These Haor regions characterized by unique geo-natural features, face significant challenges in secondary-level education, particularly high dropout rates among students. Several geographical factors, such as inadequate schools, long travel distances, transportation challenges, frequent natural calamities, teacher shortages, poor infrastructure, and local production cycles, all hastened the dropout rate to a great extent. Failing to address these challenges, many students drop out before completing the secondary level of education. This study investigates which geographical factors contribute to secondary school dropout in the Haor region and how they interact with socioeconomic conditions.

2 Bangladesh Bureau of Educational Information and Statistics (BANBEIS), *Bangladesh Education Statistics 2023* (Dhaka: Ministry of Education, 2024), pp. 42-80

3 Bangladesh Bureau of Statistics and UNICEF Bangladesh, *Bangladesh Education Fact Sheet 2020*, p. 20

4 UNICEF Bangladesh, "Adolescent Education", www.unicef.org/bangladesh (accessed: August 1, 2022)

5 Bangladesh Haor and Wetland Board, *Master Plan of Haor Area 2012*, Vol 1, p. 1

6 <https://austagram.kishoreganj.gov.bd> (accessed: on 16 September 2023)

Theoretical Framework

This study is primarily guided by Spatial Inequality Theory which explains how geographically challenged regions experience unequal access to education due to distance, poor communication networks, and infrastructural constraints. Additionally, Bronfenbrenner's Ecological Systems Theory is employed as a supporting lens which explains how geographical conditions interact with social and institutional factors. Furthermore, Environmental Constraints Theory provides insight into how recurrent flooding and seasonal isolation in the Haor ecosystem disrupt students' mobility and learning continuity. These theories offer a comprehensive framework to analyze how geographic realities shape the educational experiences and dropout patterns of secondary students in the Haor regions of Bangladesh.

Methodology of the Study

This study has been executed using a mixed-methods approach, using both qualitative and quantitative techniques for primary data. The qualitative component included Focus Group Discussions (FGDs), Case Studies, and Key Informant Interviews (KIIs), while quantitative component consisted of a semi-structured questionnaire survey containing both open-ended and closed-ended questions.

The study focused on secondary-level school dropouts in the Haor region. Austagram Upazila in Kishoreganj district was selected as the study area through purposive sampling due to its geographical characteristics and high vulnerability to school dropout. The upazila has 10 secondary schools, among which three schools—one government school located in the upazila sadar and two MPO-affiliated private schools located in the rural Haor pockets—were chosen for data collection.

A total of 80 dropout students participated in the questionnaire survey. For qualitative insights, three FGDs were conducted where guardians of the dropout students, school teachers and school managing committee members took part. Each FGD consisted of 6-10 members by following a semi-structured guideline. To capture nuanced experiences, six family case studies (three male and three female) were carried out with recently dropped-out students. Additionally, five KIIs were undertaken with the District Education Officer, the Upazila Secondary Education Officer and three Headmasters from the selected schools.

Secondary data were also collected from various sources, comprising government publications (BANBEIS, Bangladesh Haor and Wetland Board & other relevant reports), institutional documents (Provided by school authorities), journal articles, and media reports.

All collected data were systematically coded and analyzed. Descriptive statistics such as frequencies and percentages were computed and findings were presented in the form of necessary tables, graphs, and charts.

Haor Regions of Bangladesh

Haor (wetland) areas are large bowl-shaped floodplain depressions with unique hydro-ecological features located in the northeastern region of Bangladesh, covering 1.99 million ha (hectares) of the area and accommodating about 19.37 million people. There are almost 373 haors located in the districts of Sunamganj, Habiganj, Netrokona, Kishoreganj, Sylhet, Moulvibazar, and Brahmanbaria. These 373 haors cover an 858,000-hectare area that is around 43% of the total area of the Haor region.⁷ This area is known as the largest Haor area on the Asian continent. Most of the Haors in the country are located in Sylhet, Kishoreganj, and Sunamganj districts. The following table shows the number and size of Haors in Bangladesh.

Table 1: District-wise Haor Regions of Bangladesh.

District	Total Area (ha)	Haor Area (ha)	No. of Haor
Sunamganj	367,000	268,531	95
Sylhet	349,000	189,909	105
Habiganj	263,000	109,514	14
Moulvibazar	279,900	47,604	03
Netrokona	274,400	79,345	52
Kishoreganj	273,100	133,943	97
Brahmanbaria	192,700	29,616	07
Total	1,999,800	858,460	373

Source: Master Plan of Haor Area 2012, Ministry of Water Resources.

Does Geography Matters for Dropout?

The study revealed that a number of geographical factors contribute to secondary level school dropout in Haor regions of Bangladesh, such as-

Spatial Inequity in School Distribution: Haor vs. Non-Haor Areas

Unlike other parts of Bangladesh, where schools are more densely distributed, Haor upazilas face acute shortages which severely limit access to secondary education. Most of the unions of Haor areas have only one secondary school, while upazila sadar may have 2 to 3 (including private institutions). There are a total of 262 public and private (MPO-affiliated) secondary schools in 13 upazilas of the Kishoreganj

⁷ Bangladesh Haor and Wetland Board, *Master Plan of Haor Area 2012*, Vol. 1, p. 1

district. Out of this, Austagram upazila, inhabited by Haor, has only 10 schools, which is the least in this district.

Table 2: School Density in Kishoreganj.⁸

Upazila	Type	Area (sq.km)	Schools	School density (per sq.km)
Austagram	Haor	355.53	10	0.028 (1:35.5)
Nikli	Haor	214.39	10	0.047 (1:21.4)
Mithamoin	Haor	222.91	11	0.049 (1:20.3)
Itna	Haor	401.93	13	0.032 (1:30.9)
Tarail	Non-haor	141.43	13	0.092 (1:10.9)
Kuliarchar	Non-haor	104.01	17	0.163 (1:6.1)
Bajitpur	Non-haor	193.76	18	0.093 (1:10.8)
Karimganj	Non-haor	200.50	20	0.100 (1:10.0)
Bhairab	Non-haor	139.32	21	0.151 (1:6.6)
Hossainpur	Non-haor	121.29	22	0.181 (1:5.5)
Katiadi	Non-haor	219.21	29	0.132 (1:7.6)
Kishoreganj	Non-haor	193.72	37	0.191 (1:5.2)
Pakundia	Non-haor	180.53	41	0.227 (1:4.4)
Total		2688.59	262	

The data reveals a significant disparity in secondary school density between Haor and non-Haor upazilas. The data indicate that Haor upazilas have 3 to 5 times lower school density than non-Haor upazilas. For instance, haor-based upazilas like Austagram and Nikli each have only 10 schools—the lowest in the district. In contrast, Pakundia, a non-Haor upazila, has the highest number of schools, with 41.

In terms of geographic coverage, Austagram has just one secondary school per 35.5 square kilometers, and Itna has one per 30.9 square kilometres—facing the most severe shortages. This becomes more evident when comparing Austagram, with an area of 355 squares⁹ and the population density of 425 per sq. km,¹⁰ which has only 10 schools, whereas Pakundia, despite being nearly half its size (180 squares),¹¹ which accommodates 41 schools. Due to geographical variation, Haor areas have lower educational institutions than non-Haor areas, which significantly affects

⁸ <https://deo.kishoreganj.gov.bd>, (accessed on 16 September 2023)

⁹ <https://austagram.kishoreganj.gov.bd> (accessed on 16 September 2023).

¹⁰ Bangladesh Bureau of Statistics, *Population and Housing Census 2022: Community Report: Kishoreganj* (Dhaka: Ministry of Planning, 2024), p. 35.

¹¹ <https://pakundia.kishoreganj.gov.bd> (accessed on 16 September 2023).

educational facilities.¹² This stark contrast underscores the severe inadequacy of educational infrastructure in the Haor regions, both in terms of quantity and spatial distribution.

Long Travel Distances

The geographic dispersion and insufficient number of secondary schools in Haor regions severely affect dropout rates. The students have to face long travel distances which lead to high dropout rates, absenteeism, and physical risk. They have to often travel 5 to 10 kilometres daily to attend school, which is evident from the respondent's opinion.

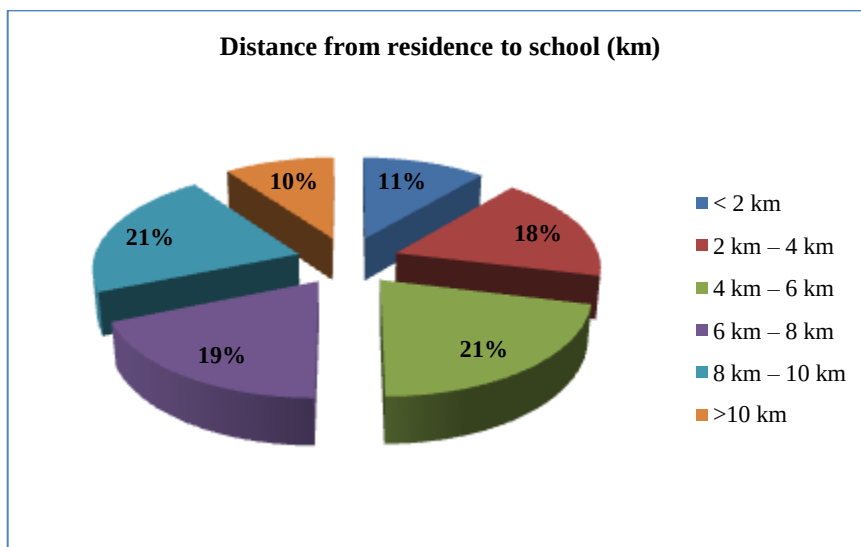


Figure 1: Distance of Dropout Students' Residence to School (Kilometres).

The figure shows how school distances contribute to dropout from secondary-level school in the Haor region. The above data indicates that the highest percentage of dropout students lived either 4-6 km or 8-10 km away from school. A significant portion (61%) of dropouts lived within 4–10 km, suggesting that moderate distances may be a consistent barrier to school attendance. Surprisingly, 11% of dropouts lived less than 2 km from school, which indicates that factors beyond distance (e.g., poverty, family issues, lack of motivation, or school environment) might

12 Najmun Nahar, Neegar Sultana and Johni Miah, "Seasonal land cover changes and its effects on essential services of haor and non-haor areas of Kishoreganj district, Bangladesh", *Asia-Pacific Journal of Regional Science*, Vol. 2, No. 2, 2018, pp. 399-429

also contribute. Those living more than 10 km away made up 10% of the total but still pose a serious obstacle. It is observed that distant students are less likely to enrol, and are more likely to drop out. The few who initially enrol often drop out within two years.

These long travel distances impose significant economic costs on households, which create a poverty trap where families withdraw from school to save money, as this is directly related to transport expenses. School travel time also affects learning outcomes.¹³

In the Haor area, the villages are isolated from each other due to geographical settings as well as the location of each school being far apart. Because of this distance to schools, distant students are less likely to enrol, and are more likely to drop out. The district education officer's statement highlighted how distance to schools accelerates dropouts.

Many parents hesitate to send their children to school due to the long distance from home. Even those who are enrolled often struggle to attend regularly because of poor transportation and underdeveloped communication systems. As a result, a portion of these students eventually drop out. Among them, the number of girls is notably higher. Many parents are reluctant to send their daughters to distant schools out of concern for their safety, which often leads to girls' education being interrupted or discontinued altogether.¹⁴

These distances may worsen during the monsoon (May to October) by reducing travel willingness during floods. In that time, parents prioritise boys' education due to transport costs and safety concerns. This situation stops many girls' education midway and smoothen the route of early marriage.¹⁵

Transportation and Accessibility Issues

The Haor basins of northeastern Bangladesh face severe transportation and accessibility challenges, making it extremely difficult for secondary-level students to attend school regularly. The children from remote villages are affected disproportionately by these barriers, which contribute to high dropout rates, especially among girls. During the monsoon, most of the roads become submerged, cutting off villages from school. In this situation, boat travels are mandatory. These underdeveloped communication infrastructures with poor socioeconomic conditions

13 Clifford Afoakwah, and Isaac Koomson. "How does school travel time impact children's learning outcomes in a developing country?", *Review of Economics of the Household*, 2021, pp. 1-21

14 KII, No 2, interviewed on 2 May 2023.

15 Khandaker Jafor Ahmed, Shah Md Atiqul Haq and Francoise Bartiaux, "The Nexus between Extreme Weather Events, Sexual Violence, and Early Marriage: A Study of Vulnerable Populations in Bangladesh," *Population and Environment*, Vol. 40, No.3, 2019, pp. 303-24.

exacerbate Haor households' vulnerable situation.¹⁶ It can be clearly understood from the following figure regarding the mode of transportation of students to school in the present study.

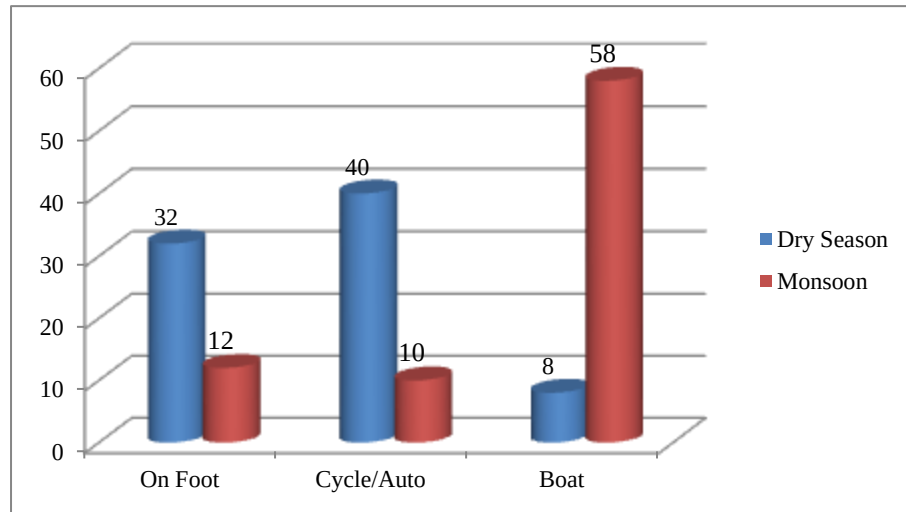


Figure 2: Means of Transportation for Students in Haor Regions.

The above figure illustrates means of transportation to school in the Haor regions, revealing the significant impact of seasonal changes on mobility. During the dry season, the majority of the respondents either walked (32) or used a bicycle/autorickshaw (40) as their primary mode of transportation. Only a small number (8) of respondents relied on boats. However, the pattern shifts dramatically in the monsoon season. In that time, boats are the only means of transportation, as 58 respondents depend on boats for going to school. In contrast, a few respondents went to school on foot (12) or used a bicycle/autorickshaw (10) those who lived near the school. This situation indicates a profound impact of seasonal floods and waterlogging on communication patterns and a strong dependence on water-based transport during the monsoon, but these incurs costs and are time-consuming.¹⁷ As a result, access to education in these areas is highly dependent on the availability and adaptability of transportation methods across seasons. This system negatively affects the continuing student's learning, as a parent stated-

16 S. M. K. Sarif, M. H. Kabir, S. Sultana, M. Showkat Mahmud and S. Mahjabun, "Socioeconomic conditions, agricultural practices and communication status of the vulnerable Haor people in Bangladesh", *American Journal of Rural Development*, Vol. 4, No. 5 2016, pp. 100-104

17 Ibid.

We live about five kilometres from the nearest school. My daughter used to go to school regularly with a classmate next door. She used to travel to school by auto rickshaw in the dry season and by boat in the rainy season. However, this year my girl became alone as her classmate got married to an expatriate boy. She continued to travel alone by auto-rickshaw during the dry season, but I was hesitant to let her go alone during the monsoon. The Haor region experiences frequent and severe storms during the rainy season. In these circumstances, travelling by boat is both dangerous and unpredictable. Even many girls do not dare to go to school in such inclement weather. As a result, my girl stopped going to school.¹⁸

The underdeveloped communication system and transport crisis in the Haor areas have greatly hampered the overall education environment of the region. The matter has clearly come up in the speech of the Headmaster of a school.

Due to the seasonal monsoon, frequent natural disasters and poor transport facilities, pupils of the Haor areas encounter many difficulties getting to school. They depend on boats in the monsoon and must travel on foot during the dry season. As a result, many students—especially those living far away—struggle to reach school on time. The same difficulties also affect teachers, many of whom are often unable to arrive timely. Consequently, classroom teaching is frequently disrupted. Moreover, upazila education officer and other supervisory officials rarely visit these schools because of poor accessibility. All these factors that disrupted the overall learning environment contribute to dropouts.¹⁹

There is no doubt that the lack of communication and poor transportation system necessitate walking to school during the dry season and by boat during the rainy season. However, the worst situation occurs during the rainy season. During this period, the typical movement by boats in the powerful waves of Haor becomes extremely risky and may even result in fatalities. In this panic situation, many parents are unwilling to send their children to school in this anxious state because it will be so risky and difficult. A study revealed that due to poor transport and communication systems, students in Haor areas have to struggle to attend school timely. As a result, the attendance rate of Haor students is lower than that of non-Haor students in both seasons.²⁰ Consequently, many pupils lose interest in going to school and eventually dropout.

Natural Disasters

The Haor regions of Bangladesh are highly vulnerable to natural disasters because of their distinct geographic characteristics. The lives and livelihoods of their inhabitants are constantly in danger from monsoons, intense rains, flash floods and frequent lightning. Flash floods frequently affect Haor regions, rendering households vulnerable by causing significant damage to agricultural products.²¹ Another hazard

18 Case Study, no 2, interviewed on 28/03/2023.

19 KII, No 4, interviewed on 30/03/2023.

20 Najmun Nahar, Neegar Sultana and Johni Miah, "Seasonal land cover changes and its effects on essential services of haor and non-haor areas of Kishoreganj district, Bangladesh", pp. 399-429

21 Mohammad Shamsul Hoq, Shankar Kumar Raha and Mohammad Ismail Hossain, "Livelihood vulnerability to flood hazard: understanding from the flood-prone haor ecosystem of Bangladesh", *Environmental management*, Vol. 67, No. 3, 2021, pp. 532-552

is lightning that poses a major risk to human life. According to the Directorate of Information, Bangladesh has the highest number of deaths due to lightning in the world, with one-fourth of global lightning deaths occurring in the country. On average, more than 250 people die each year from lightning in Bangladesh.²² Studies indicate that the highest incidence of lightning occurs in the northeastern region—particularly in the Haor areas—peaking during the rainy season, with the highest frequency in May, followed by June and September.²³ Daily labourers, farmers, and children and adolescents are the most vulnerable groups affected by lightning in this region.²⁴ Such natural disasters greatly hamper the overall learning environment.

Highlighting the disruption of students' education in the Haor region due to natural disasters, a teacher remarked: *"During the monsoon, frequent storms and lightning make travel extremely hazardous—especially for students who rely on boats to reach school from distant areas. Consequently, the continuation of learning hinders greatly."*²⁵ As a result, significantly increases the risk of school dropout among students, with girls being particularly vulnerable. A study revealed that floods unswervingly impact the academic calendar and health status of school-going children. *"About 66.2% of children dropped out of school, and 17.5% of students did not attend their classes at all after the flood."*²⁶ Another study claimed that natural disasters negatively affect income and employment, leading to economic volatility forcing households to reduce expenditure on health and education.²⁷ As a result, low-income families are often compelled to withdraw their children from school.

Teacher Shortages

Teacher shortage is a regular feature in the schools of the Haor region in Bangladesh. In almost every school, the teacher's posts of various subjects remain vacant for a long time. Due to the remoteness of the area, distant teachers are often reluctant to accept posting here. As a result, many schools rely on part-time or temporary teachers to continue academic activities. The current state of teacher shortages in three selected schools from the study area is presented below.

22 <https://pressinform.portal.gov.bd> (accessed on 22 September 2023)

23 Tanjina Akram *et al.*, "Recent Climatology of Thunderstorm Days over Bangladesh", *The Atmosphere*, Vol. 9, 2022, p. 116

24 <https://www.risingbd.com/sylhet/512150>, accessed on July 15, 2023

25 FGD, No 3, conducted on 20/03/2023

26 Habiba, Umme, Fatema TuzZohora Jui, TaheraMahnaz Meem and Farhad Kabir, "Disaster and education: Impact of flood on school going children at Keshabpur Upazilla in Bangladesh", *Journal of Disaster and Emergency Research*, 2021

27 Mottaleb, Khondoker Abdul, Samarendu Mohanty, Hoa Thi Khanh Hoang and Roderick M. Rejesus, "The effects of natural disasters on farm household income and expenditures: A study on rice farmers in Bangladesh", *Agricultural Systems*, Vol. 121, 2013, pp. 43-52

Table 3: Teacher Shortage Scenario of Three Selected Schools.

School Name	No. of Students	Teacher's Post (Approved)	working teacher (current)	Vacancy	Teacher-students ratio
Mohantala High School	869	21	6	15	1:145
Adampur Dewan Ali High School	1071	21	11	10	1:97
Austagram Govt. Pilot High School	680	27	23	4	1:30

Source: Fieldwork, 2023.

The above table shows a critical teacher shortage, particularly in Mohantala High School and Adampur Dewan Ali High School. Mohantala High School is running with only 6 out of 21 approved teaching posts and has a student-teacher ratio of 145:1 which is much higher than the acceptable ratio. Adampur Dewan Ali High School has 11 teachers for 1071 students; the resulting student-teacher ratio is 97:1, which is above the acceptable ratio. These figures indicate a severe lack of teaching staff, which can negatively impact student engagement, weak academic performance and learning outcomes. In contrast, Austagram Government Pilot High School presents a more favourable scenario in terms of teaching staff, with 23 out of 27 posts filled and an acceptable student-teacher ratio of 30:1.

Regarding teacher shortages, The Headmaster of the Mohantala High School stated-

The shortage of teachers in our school has persisted for a long time. Teachers who are appointed through NTRC are often unwilling to choose this school because of the remoteness of the Haor area. Until 2016, we had 16 approved teaching posts. In that year 5 additional posts were created, but no teachers were appointed to fill up these posts. Due to teacher shortages, we have to face extreme challenges to continue academic activities. Teachers are often forced to teach subjects outside of their expertise. Additionally, co-curricular activities like sports and cultural programmes were severely disrupted. Though we have appointed six part-time teachers to keep classes going on, ensuring quality education under such circumstances remains significantly challenging.²⁸

In this circumstances, Many solvent and conscious families are inclined to enroll their students in famous schools of town.

A study found that teacher shortages have negative effects on educational performance, especially for those living in rural areas.²⁹ Another study found an acute shortage of teachers in both primary and secondary schools in the Haor area. And due to this teacher crisis, students are suffering directly and indirectly. The teacher shortage is a major obstacle in ensuring equal access to education for all.

²⁸ KII, No 5, interviewed on 22/03/2023.

²⁹ Pholphirul, Piriya, Pungpond Rukumnuaykit, and Siwat Teimta, "Teacher shortages and educational outcomes in developing countries: Empirical evidence from PISA-Thailand", *Cogent Education*, Vol. 10, No. 2, 2023, pp. 2243126

Inaccessibility and lack of communication are two of the major reasons for the teacher shortage.³⁰

Teacher shortage is not incidental, rather it is geographical. Due to teacher shortages, sometimes one teacher has to manage two or more classes in one room simultaneously. Students experience learning gaps, weak academic performance and reduce motivation to attend school. Students and parents lose faith in the school's ability to provide a consistent education. This academic frustration act as a powerful push factor, directly leading to dropout decision.

Inadequate Infrastructure

Poor infrastructure of schools in the Haor area is a significant cause of dropout. The infrastructure of most of the schools in the Haor region is very weak. Many schools do not have enough classrooms, a boundary wall, or a residential facility for distant students, or even a separate wash block for girls, which hinders the regular academic activities. Observation of three schools in the study area revealed many signs of infrastructural weakness, as can be seen in the table below.

Table 4: Infrastructural Status of Selected Schools. (✓= Available, ×= Not Available)

School Name	boundary wall	Hostel	playground	Separate toilet
Mohantala High School	×	×	✓	×
Adampur Dewan Ali High School	×	×	×	✓
Austagram Govt. Pilot High School	✓	×	✓	✓

Source: Fieldwork, 2023

The above figure presents infrastructural conditions of three selected schools in the Haor area, focusing on four basic facilities: boundary wall, hostel, playground and separate toilet. These facilities are essential for ensuring a safe and supportive learning environment. However, the figure illustrates that there is no boundary wall or hostel facilities, not even a separate washroom for female students, except a playground in Mohantala High School. This playground also remains submerged in water during monsoons. The features of Adampur Dewan Ali High School are almost the same. It lacks a boundary wall, hostel and playground but has a separate wash block. Though there is a playground, it is almost two kilometres away from school, where cattle are grazing all year round—not suitable to use regularly but for annual

30 Maruf Mia, "Equal Access to Primary Education in Environmentally Challenged Area of Bangladesh: A Study into the Tanguar Haor of Sunamganj District", *Social Science Review*, Vol. 38, No. 1, 2021, pp. 175-202

sports competitions. In contrast, infrastructure conditions of Austagram Govt. Pilot High School are relatively better than those of the other two schools. There is a boundary wall, an adjacent playground and also a separate wash block. However, the school has no residential facilities for distant students. In addition, these three schools lack well-equipped science laboratories and libraries.

These inadequate infrastructure causes exacerbate educational inequalities and reduce enrolment and attendance rates, which negatively impacts learning outcomes.

Addressing this issue, the upazila secondary education officer said-

Due to the lack of a boundary wall, the safety of the teachers and students is disturbed, and cows and goats often enter the schoolyard. It causes students to lose attention along with environmental pollution. Additionally, the unavailability of hostels significantly limits access to education for distant students. Many students have to stay with relatives or lodging near the school during monsoons. Those who do not have this opportunity face irregular attendance or are unable to attend school altogether during this period. Furthermore, lack of other essential facilities such as playgrounds, separate toilets for girls, adequate classrooms, well-equipped science laboratories and enriched libraries deprives students of a quality educational experience.³¹

According to a study, overall learning outcomes are significantly affected by school infrastructure. Students attending schools with better infrastructural facilities tend to perform better. For instance, having access to an enriched library encourages self-directed learning and makes it easier to acquire knowledge outside of the classrooms. In this context, urban students are generally ahead of rural students.³² The inadequate infrastructure of the schools in the Haor region poses a significant barrier to maintaining a healthy learning environment. These persistent infrastructural challenges often lead to low attendances and increased dropout risk.

Local Production Cycles

The Haor areas have distinctive local production cycles because of their unique ecological features. The monsoon and the dry seasons are the two main seasons that mostly determine these regions' production cycle. The dry season is divided into two key phases— planting phase (typically during the Bengali months of Paus and Magh) and harvesting phase (around Boishakh). During these peak agricultural periods, all family members, including school-aged children, are engaged to contribute agricultural labour. Consequently, many students cannot go to school regularly—often leading to disengagement from formal education. This extended absence from school contributes to the high dropout rate.

31 KII, No 3, interviewed on 15/03/2023.

32 Minhajul Meje, "Educational infrastructural development in Bangladesh: a comparative rural and urban community context study of government primary schools in Bangladesh", Masters Theses, Paper 4, Fordham University, 2012, <https://www.fordham.edu> (accessed September 25, 2023)

A sociologist stated in this regard-

In our Haor area, Paush month and Baisakh month are busy for every family. At this time, school-going boys and girls have to be involved in work with the family. Many parents request to declare a school holiday at this time. In such a situation, the attendance of students in the school is very low, so many times it becomes difficult to conduct classes due to lack of students. But when classes resume in full swing at the end of the working season, many students are absent, especially those who have not come to school for the last one and a half months. Thus, once they drop out of studies.³³

Thus, it can be seen that students stay away from school for 2/3 months in a year due to the local production system of the Haor area. And this distance widens the path of their fall.

Discussion

The findings of the study reveal that students dropout in the Haor regions is closely associated with geographic, environmental and infrastructural factors. While national policies aim for equal access to education for all, the realities of Haor life tell a different story. In this areas, geography, weather and school-level challenges limit student's ability to retain school. The findings can be explained from three lenses, each of which examines a different facet of geographical influences on dropouts in the Haor region: Spatial Inequality Theory, Bronfenbrenner's Ecological Systems Theory, and Environmental Constraints Theory.

A primary factor emerged that students have to struggle of school distance and seasonal inaccessibility. Many students live far from school and they must walk a long path or travel across water to reach it. Parents become worried of sending children especially for girls on such a long and risky journeys. During dry season, students can walk or use bicycle or other small vehicles; but in the monsoon, boats become the only means of transportation. The shift in transportation pattern clearly reflects how submerge roads, strong waves and frequent storms restrict students' willingness and ability to attend school. This findings align with existing literature that suggest poor transportation access is a major obstacle to school continuation in geographically vulnerable areas like Haor. In this circumstances, safety concerns of girls' students increase dropout rates. These patterns align closely with Spatial Inequality Theory, which predicts that geographically peripheral communities have less access to education and that this is largely due to distance, inadequate communication networks, and infrastructural limitations.

Natural disasters like floods, heavy rain falls and frequent lightening are part of daily life in Haor communities. Teachers and students both indicated that these calamities directly impact on their regular attendance. Floods disrupt school calendar, damage

³³ KII, No 1, interviewed on 30/04/2023

livelihoods and contribute to economic insecurity. In this situation, households often withdraw their children especially boys to join agricultural or income generating works and girls to being kept closer to home for safety. Sometimes resulting in early marriage. This is further evidence that Environmental Constraints Theory predicts that seasonal isolation and recurrent flooding in the Haor ecosystem will affect students' mobility and continuity of learning, thereby making schooling a permanent constraint.

The study also highlights how teacher shortage creates a fragile learning environment. The study found extreme disparities in students-teacher ratio across the schools. Due to teacher shortage, schools have to rely on part-time instructor or teachers teaching outside their subject expertise. Moreover, teachers often manage multiple classes at once. These conditions significantly decrease the quality of teaching, reduce academic performance and weaken students' engagements in schooling. Financially solvent families often bypass local schools and enrol their children in better-resourced institutions in town. These factors collectively contribute to higher dropout rates particularly among girls and children from poor household who are already vulnerable to socioeconomic pressures. This demonstrates how the school, as a geographically remote, weak mesosystem institution, affects decisions at the household level of Bronfenbrenner's Ecological Systems Theory.

In addition, inadequate infrastructure including boundary walls, separate toilets for girls, hostels for distant students, playgrounds, science laboratories and library facilities play a significant role in shaping dropout patterns. These infrastructural gaps undermine the learning environment and discourage both attendance and retention. This is aligned with earlier studies showing that poor infrastructures negatively influence students' interest in school, academic performance and long-term participation. This again reflects Bronfenbrenner's Ecological Systems Theory: gaps at the institutional (mesosystem) level compound the distance-related disadvantages identified by Spatial Inequality Theory, jointly discouraging attendance and retention.

Finally, the influence of local production cycles is deeply rooted in the culture and livelihoods of the Haor region. During planting and harvesting seasons, agricultural work becomes a family responsibility. In that time, school-aged children are heavily involved in agricultural activities. During these busy months, classrooms often remain half empty. Once children drop out for one or two months, they lose their connection to school. By this process, once students are detached from school, they rarely return. Again, Bronfenbrenner's Ecological Systems Theory provides an explanation for the mechanism: livelihood decisions at the family (microsystem) level are influenced by broader geographic and economic conditions of the Haor

region, which sometimes take children out of the formal education system and eventually break the link with formal education.

Overall, the study revealed that dropout in the Haor regions is not driven by a single cause. Instead, it emerges from a combination of geographic isolation, environmental risk, institutional weakness and deep-rooted local practices. Addressing these interconnected challenges is essential to ensure sustained educational participation and reduce dropout problems in Haor regions. These findings support the value of the study's three theory-based constructs. Spatial Inequality Theory explained distance and infrastructure barriers. Environmental Constraints Theory showed how flooding and seasonal isolation can disrupt schooling. Bronfenbrenner's Ecological Systems Theory linked geographic and environmental factors to the family, school, and institution systems that influence whether a student stays in school.

Conclusion

The study indicates that geographical factors have a significant influence on high dropout rates at the secondary level in the Haor regions of Bangladesh. The distinctive geographical features of the Haor regions continue to keep them educationally marginalised despite the country's educational advancement. Inadequate schools, long and risky journeys, transportation crises—especially during monsoon—chronic teacher shortages, poor infrastructures, and local production cycles combine to create formidable barriers to access and continued secondary education. These issues disproportionately affect girls and students from low-income families by pushing them to drop out of the study. The study suggests taking immediate targeted policy interventions that properly address these challenges. These challenges require collaborative efforts from the governments, NGOs and local communities to reduce dropout rates and ensure inclusive quality secondary education for all students in these vulnerable areas.