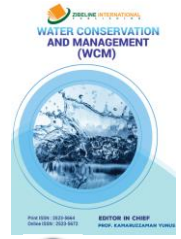


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RESEARCH ARTICLE

WATER SUPPLY AND SANITATION FACILITIES OF SOME SELECTED SCHOOLS IN KHAGRACHHARI

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ARTICLE DETAILS

ABSTRACT

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Water supply and sanitation facilities in Bangladesh is lower than the international standard. According to World Bank, Bangladesh loses 4 - 6% of its Gross Domestic Product (GDP) due to inadequate sanitation. In this study twenty schools at Khagrachhari district were selected. Field visits and questionnaire surveys were conducted to collect data of water supply and sanitation facilities. Ratio of male and female teachers of the schools were almost equal. In seven schools the percentage of boys' students was higher while that of girls' students were higher in six schools. Only two schools have water supply from Public Health and others have tube wells or pumps for water supply, but one school has no water supply facility. Most of the schools don't have sufficient toilets. Only five schools have sufficient toilets for boys and two schools have sufficient toilet for girls. Only two schools have no separate toilet for boys and girls and one school has only one toilet. The sanitation facilities of the selected schools did not satisfy the standard recommended by world health organization (WHO). Anyway, by means of Governmental and non-Governmental initiatives safe water related activities, sanitary latrines and hand washing practices are increasing day by day.

KEYWORDS

WASH, World Health Organization (WHO), Sanitary latrines, UNICEF, Questionnaire survey.

1. INTRODUCTION

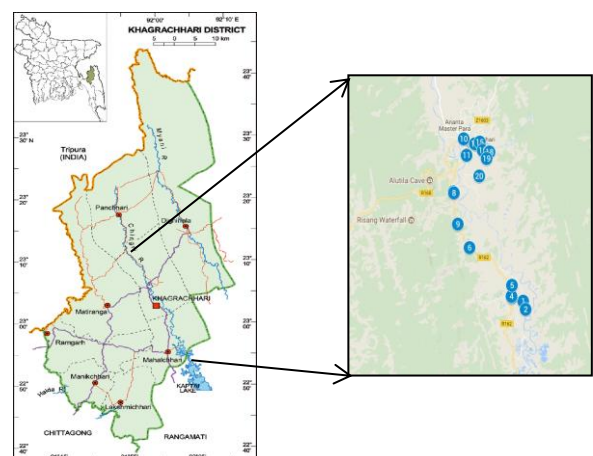
Access to water, sanitation and hygiene (WASH) in schools is important for human health and well-being. Although the link between WASH facilities in Schools and enrolment, attendance, retention and attention rates are widely known, access to adequate, functional, safe, sustainable and appropriate water, sanitation and hygiene facilities in schools is often poor or non-existent. Due to its geographical characteristics, vulnerability to seasonal flooding and population density, Bangladesh is prone to an array of diseases related to unsafe water, inadequate sanitation and poor hygienic practices. National figures for access to safe water and sanitation facilities are reported as 83% and 55% respectively [1, 2]. However, the effective use of the facilities is considered to be significantly lower. Field assessments show that teaching children the importance of hand washing and other good hygiene habits promotes increased knowledge and positive behavior change, especially when the schools are equipped with an adequate number of safe latrines and sufficient water for washing [3]. According to Assessment of Water, Sanitation and Hygiene (WASH) Condition in School preventing disease transmission in schools can have an impact on school attendance, school grades, and child cognitive development, with longer term consequences [4]. Schools and hospitals are two settings in some previous studies, in addition to households, where handwashing has been demonstrated to markedly reduce hand contamination and disease [5-9]. Siddique et. al. studied the WASH facilities in some schools at a rural area in Bangladesh [10]. So, the objectives of this research are to find out present water supply and sanitation facilities in the selected schools in Khagrachhari.

2. MATERIALS AND METHODS

2.1 Study Area

Khagrachhari is a district of south-eastern Bangladesh which is a part of the Chittagong Division and the Chittagong Hill Tracts. It is bounded on the north by India, on the south by Chittagong and Rangamati districts and on the west by India and Chittagong district. It lies between 22°38' and 23°44' north latitudes and between 91°44' and 92°11' east longitudes.

The hills of this region are composed of mainly folded sedimentary rocks such as Alu Tilla and Bhanga Mura hills (Figure 1). Total area of Khagrachhari district is 2699.55 sq. km with a density of population of 220/km² [11]. Here Muslim is 34.45%, Buddhist 48.51%, Hindu 16.69%, Christian 0.27% and others 0.08%. The literacy rate is 33.7% [11].



Source-maps.thebangladesh.net, 2011.

Figure 1: Map of the study area (Khagrachhari District) with selected location of schools

2.2 Study Design, School Selection and Data Collection

In this study field visits and questionnaire surveys were conducted to collect data of water supply and sanitation in the selected schools. A field visit was conducted prior to the questionnaire survey to collect actual data about WASH situation in the selected schools.

3. RESULTS AND DISCUSSION

3.1 General Characteristics

Surveys were conducted in 20 selected schools situated in Khagrachhari District. Among them, 13 were Government Primary School (GPS), 5 were Registered High School (RHS) and 2 were Government High School (GHS). It was found that out of 20 selected schools, 18 schools have electricity facilities and other 2 schools (Magistrate Para GPS and Maischari Bazar GPS) have no electricity facility. In the school's electricity is supplied from Power Development Board (PDB) and none of the selected schools have solar power system for electricity.

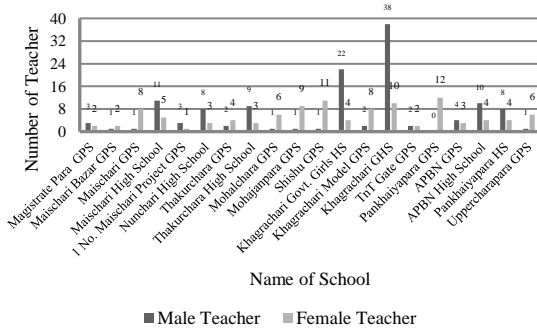


Figure 2: Number of teacher of selected schools

The number and gender of the teachers in the selected schools in Khagrachhari are shown in Figure 2. The number of male teacher is higher than that of female teacher in 10 schools, whereas in 9 schools female teachers are higher than male teachers and rest of 1 school has the equal number of male and female teachers. Total number of students in selected schools is shown in Figure 3 which revealed that among the 13 primary schools, Khagrachhari Model Govt. Primary School has the highest number of students (564) and lowest number of students is in Magistrate Para Govt. Primary School (49). Among the 7 high schools Khagrachhari Govt. High School has the highest number of students (1132) and Thakurchhara High School have the lowest number (223) of students.

Table 1: Water supply and sanitation facilities of the schools in the study area.

Name of school	Number of existing usable toilets for			Number of existing unusable toilets		Sources of water facilities		Number of unusable water source
	Boys	Girls	Teachers	Boys	Girls	Hand tubewell	Pump	
1. Magistrate Para GPS	1	1	0	0	0	2	0	0
2. Maischari Bazar GPS	1	1	1	0	0	1	0	0
3. Maischari GPS	1	1	2	0	0	0	1	0
4. Maischari High School	3	3	3	0	0	0	1	0
5. 1 No. Maischari Project GPS	0	0	0	0	0	1	0	0
6. Nunchari High School	1	1	2	0	0	1	0	0
7. Thakurchara GPS	1	1	1	0	0	1	0	0
8. Thakurchara High School	6	3	4	2	2	3	1	1
9. Mohalchara GPS	1	1	1	1	1	1	1	0
10. Mohajanpara GPS	2	2	1	2	2	1	0	0
11. Shishu GPS	1	1	1	0	0	1	1	0
12. Khagrachari Govt. Girls HS	0	5	3	0	0	0	1	0
13. Khagrachari Model GPS	2	2	1	0	0	1	1	1
14. Khagrachari GHS	7	5	6	0	0	2	0	1
15. TnT Gate GPS	1	1	1	0	0	1	1	1
16. Pankhaiyapara GPS	1	1	1	0	0	1	1	0
17. APBN GPS	0	0	0	0	0	0	1	0
18. APBN High School	3	2	3	0	0	1	2	0
19. Pankhaiyapara HS	3	3	2	0	0	0	1	1
20. Uppercharapara GPS	1	1	1	0	0	1	0	1

Table 1 also showed that among the schools 4 schools namely Maischari Bazar GPS, Shishu GPS, TnT Gate GPS and Pankhaiyapara GPS) have 3 separate toilets for boys, girls and teachers and all are in usable condition. Magistrate Para GPS has 2 separate toilets for boys and girls but not for

teachers while Masichari GPS has 4 separate toilets for boys, girls and teachers. Maischari High School has 9 separate toilets for boys, girls and teachers while 1 No. Maischari Project GPS has no separate toilet for boys, girls and teachers. Nunchari High School has 4 separate toilets for boys,

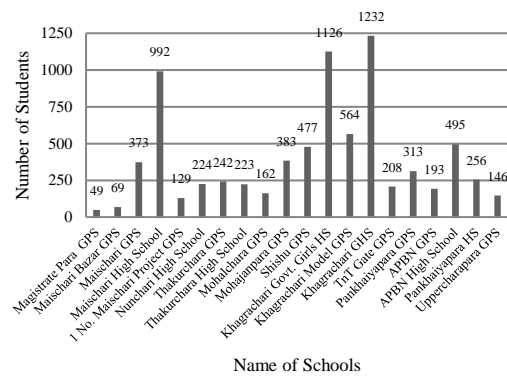


Figure 3: Total number of students

The higher percentages of girls' students are in Maischari High School and the percentages was 51 for girls' and 49 for boys' respectively. The higher percentages of boys' student's at high schools are at APBN High School, Pankhaiyapara HS, Thakurchara High School, Khagrachari GHS, Nunchari High School and Maischari High School and the percentages were 69, 54, 54, 53, 52 for boys' respectively and 31, 46, 46, 47, 48 for girls' respectively.

3.2 Water and sanitation facilities in selected Schools

A detailed information of water and sanitation facilities of the selected schools are presented in Table 1. Among the 20 selected schools in Khagrachhari District only 2 schools (Khagrachhari Government GHS and Khagrachhari GHS) were found to have water supply facilities from Public Health department. All other schools are using Hand Tubewell or Pump for water supply. Only Thakurchara High School has 3 hand tube wells and 1 pump. Magistrate Para GPS and Khagrachhari GHS has 2 hand tube wells and 1 pump. Among the schools of the study area 12 schools have only one hand tube well and five schools have only one pump. Unfortunately, some of the water sources of the schools were not in usable condition. Uppercharapara GPS has only one water sources and it is not in usable condition. The data of water supply facilities revealed that water supply facilities were found insufficient in the study area.

girls and teachers and all of them are in usable condition, Thakurchara GPS has 3 toilets of them 1 is not in use condition, 1 is for teachers and another one is for boys and girls. Thakurchara High School has total 13 toilets of which some are not in good conditions and there are separate toilets for boys, girls and teachers. Mohalchara GPS has 3 toilets of which 2 are not in usable condition and 1 is for teachers. Mohajanpara GPS has 5 toilets of them 4 are not in usable condition and 1 is for teachers. Khagrachari Govt. Girls HS has 8 toilets and all of them are in usable condition. Khagrachari Model GPS has 5 toilets separately used by boys, girls and teachers. Khagrachari GHS has total 18 toilets separately for boys, girls and teachers, APBN GPS has only 1 toilet for teachers, boys and girls students, APBN High School and Pankhaiyapara HS has 8 toilets for boys, girls and teachers. Analyses of the data showed that only 2 schools (Khagrachari Govt. Girls HS and Khagrachari GHS) have water supply from public health.

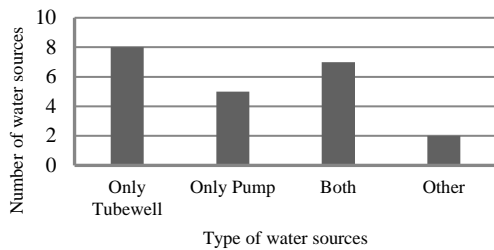


Figure 4: Status of water sources

Status of water sources of selected schools is shown in Figure 4. According to the figure 8 schools have only hand tubewell, 5 schools have only pump, and 7 schools have both of hand tubewell and pump for water supply. Only 2 schools have water supply line from public health. Figure 5 shows a comparison between the WHO standard and present situation of sanitation facilities of the selected schools in Khagrachari. According to WHO standard the ratio of toilet and boys students is 1:50. The figure showed that only 5 schools (Magistrate Para GPS, Maischari Bazar GPS, Thakurchara High School, Pankhaiyapara HS and Uppercharapara GPS) have sufficient toilets for boys students. It is also found that 4 schools (Nunchari High School, Thakurchara GPS, Mohalchara GPS, TnT Gate GPS) need more one toilet to meet up WHO standard. According to the Figure 4 schools need more than 2 new toilets (Maischari Project GPS, Mohajanpara GPS, Pankhaiyapara GPS and APBN GPS but it has no toilet for boys students) Masichari GPS required 4 toilet and they have 1, Maischari High School required 10 and they have 3, Shishu GPS required 5 and they have 1, Khagrachari Model GPS required 5 and they have 2, Khagrachari GHS required 13 and they have 7 and APBN High School required 7 toilet for boys but they have only 3 toilets for boys students.

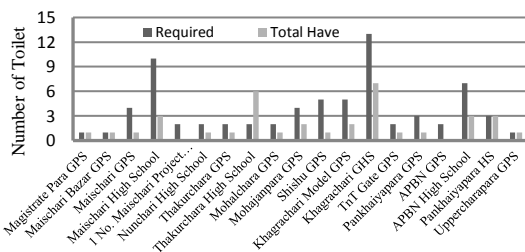


Figure 5: Toilet facilities for boys

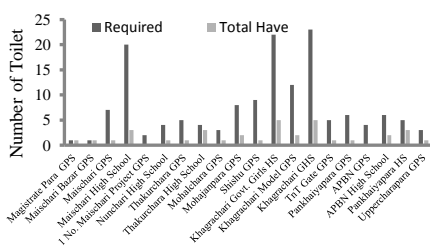


Figure 6: Toilet facilities for girls

According to WHO standard the ratio of toilet and girls' students is 1:25. Figure 6 shows that only 2 schools (Magistrate Para GPS, Maischari Bazar

GPS) have sufficient toilets for girls students. The Figure also revealed that Masichari GPS required 7 toilets while they have only 1, Maischari High School required 20 toilets and they have 3 only, Maischari Project GPS required 2 but they don't have any toilet. Nunchari High School required 4 and they have 1, Thakurchara GPS required 5 and they have 1, Thakurchara High School required 4 and they have 3, Mohalchara GPS required 3 and they have 1, Mohajanpara GPS required 8 and they have 2, Shishu GPS required 9 while it has 1, Khagrachari Govt. Girls HS required 22 and they have 5, Khagrachari Model GPS required 12 and they have 2, Khagrachari GHS required 23 and they have 5, TnT Gate GPS requires 5 and they have 1, Pankhaiyapara GPS requires 6 and they have 1. APBN GPS required 4 toilets and they have no separate toilet for girls' students while APBN High School required 6 toilets and have 2 toilets, Pankhaiyapara HS required 5 and they have 3 and Uppercharapara GPS required 3 toilets for girls and they have 1 toilet only. Field study showed that 3 schools have no separate toilet for teachers, these schools are Magistrate Para GPS, 1 No. Maischari Project GPS and APBN GPS. Finally, it is found that in most of the schools water supply was not sufficient and only 5 schools have sufficient toilets for boys and 2 for girls according to WHO standard.

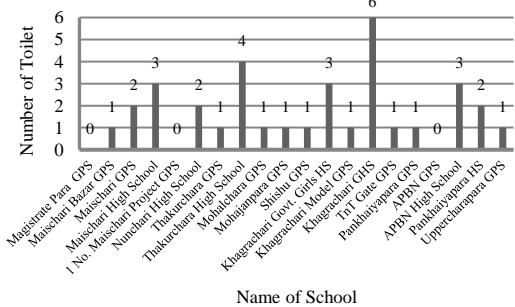


Figure 7: Toilet facilities for teacher

Figure 7 shows the toilet facilities for teachers of the selected schools in Khagrachari. The Figure reveals that 3 schools have no separate toilet for teachers, these schools are Magistrate Para GPS, 1 No. Maischari Project GPS and APBN GPS. Finally, it is found that water supply was not sufficient and only 5 schools have sufficient toilet for boys and 2 for boys according to WHO standard.

4. CONCLUSION

School children need adequate and safe WASH facilities in schools to maximize health and educational outcomes. It was found that water supply was not sufficient in most of the schools and only 5 schools have sufficient toilets for boys and 2 schools have sufficient toilets for girls. The government of our country, donors, international and national NGOs and others should prioritize investment in water supply and sanitation resources for schools, particularly for the most marginalized populations. Survey results also gives information regarding priorities for monitoring, practice, and improvements in WASH. The sanitation facilities of the selected schools did not satisfy the standard recommended by WHO. Anyway, because of Governmental and non-Governmental initiatives safe water related activities, sanitary latrines and hand washing practice are increasing day by day.

RECOMMENDATIONS

Based on the outcomes of the study it is recommended to develop WASH programs in schools more widely. In this regard some specific recommendations are –

- To develop school based monitoring systems of WASH in Upa-Zilla and District levels
- To ensure proper structure to promote the effectiveness of hygiene strategies in present programs and strengthen them in future
- To provide the need based support- running water and hand washing facilities
- To advocate menstrual hygiene management interventions to the DPE and DSHE

It is also recommended that UNICEF documents successes and achievements of WASH in School program in the form of short films and case studies for advocacy and training purposes for various audiences in the sector. Suggested areas of such documentations include - school brigades work in schools and communities, effective hygiene promotion activities conducted by teachers and brigades in schools, cleaning and

maintenance of facilities by SMCs, lessons learned and overall process of WASH in Schools implementation.

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