

## Water supply and sanitation situation of Kalyanpur slum area in Dhaka

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### ABSTRACT

The study was conducted at Kalyanpur slum area, Dhaka, during October 2015 to March 2016 to investigate the present situation of water supply and sanitation. Information was collected from respondents through survey using prescribed questionnaire. Sixty households were randomly selected for the research purpose. From the study most of the people are illiterate and have no basic knowledge about water supply and sanitation. They are using direct WASA (Water Supply and Sewerage Authority) water for drinking purpose as a result they are suffering from different diseases, of them 56% affected by diarrhoea. About 93.33% respondents defecate openly as a result it creates unhygienic condition for the slum people. Most of the people (80%) are unsatisfied with their present toilet status but they have no financial ability to upgrade hygiene toilet. Many of them have no proper training about sanitation. It was recommended that stringent environmental monitoring of the sanitation system be put in place to minimize any potential environmental impacts.

### INTRODUCTION

Water supply and sanitation are among two of the most important sectors of development (Bendahmane, 1993). Development of community water supplies and sanitation results are improved social and economic conditions and improved health (Davis *et al.*, 1993). Despite huge investments in sanitation during the United Nations International Drinking Water Supply and Sanitation Decade (1981-90), an estimated 2.5 billion people, half of the developing world and more than 35% of the world's population lack access to adequate sanitation (WHO, 2000). Basic sanitation has been recognized as a human right (United Nations General Assembly, 2010), and universal access is being proposed as a global target for 2030 or there about (Water Aid, 2013).

In Bangladesh, every year almost 3 million children under five years of age die of diarrheal disease and every child suffers and average of three times diarrheal attacks in a year (UNICEF, 2000). It is recommended that diarrheal diseases can be prevented easily with the use of safe water

and hygienic sanitation (WHO, 2000). In many areas the sanitation coverage is much below the national coverage figure, only 13.5% in metropolitan slum (USAID, 1999).

In slum area of Dhaka, the situation is very worse than in rural areas. Only 18.9% households have access to sanitary latrine (Semi-Pucca) and 42 percent have access to pit or open pit latrine. Some organizations are trying to improve the condition of water supply and sanitation facilities for urban poor in Dhaka city with different approaches. But the crisis of water supply and sanitation facilities is a common feature in daily life of urban poor (Islam, 1996). The main objectives of the research work are to assessing the situation of water supply and sanitation of the Kallynpur slum of Dhaka.

### METHODOLOGY

The methodology of this survey consists of practical field observation and field based data collection of water supply and sanitation with the inhabitants of the slum. The study was conducted in Kallyanpur slum of Dhaka City which is on

govt. land. In line with the most existing literature, the variables used in analysis were the water supply and sanitation condition of Kallyanpur slum. Kallyanpur slum is situated Dhaka district, Bangladesh; the area of the slum is 15 acres, total population is about 40,000 and the family number is about 1600.

Primary data for the study was collected through structured household questionnaire survey, interview with groups and committee members of sanitation and related projects. Households were randomly selected and surveyed from the slums.

## RESULTS AND DISCUSSION

### Types of respondents

It was observed in the study that 40% respondents were male and 60% respondents were female (Figure 1). Female were involved in managing water supply and sanitation sector and they were also interested in interview.

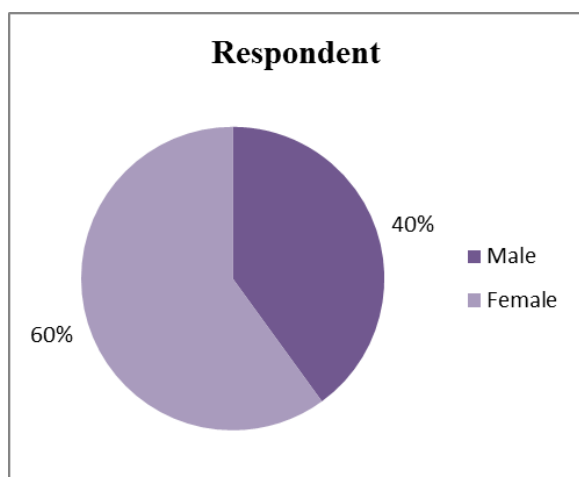


Figure 1  
Male and female of the respondents.

### Age distribution of the respondents

Respondents of this study were categorized into four (4) age groups. The data showed that maximum 60% of the total populations were found between 20-29 years. About 13.33% populations were found between 30-39 year's age and 20%

people were between 40-49 years. Other 6.67% of populations were above 50 years (Figure 2). Among the respondent groups it was found that between 20-29 year's aged people were most conscious about sanitation due to participating in different training programs.

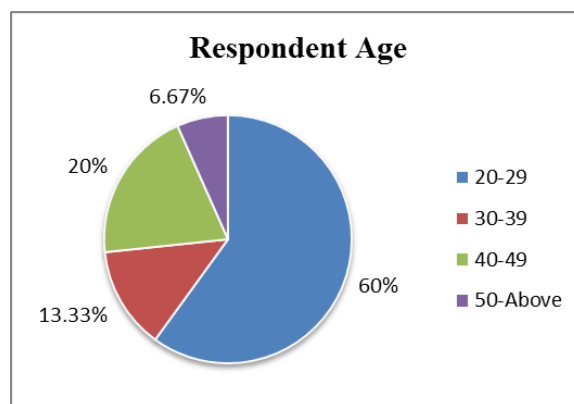


Figure 2  
Age distribution of the respondents.

### Educational status of the respondents

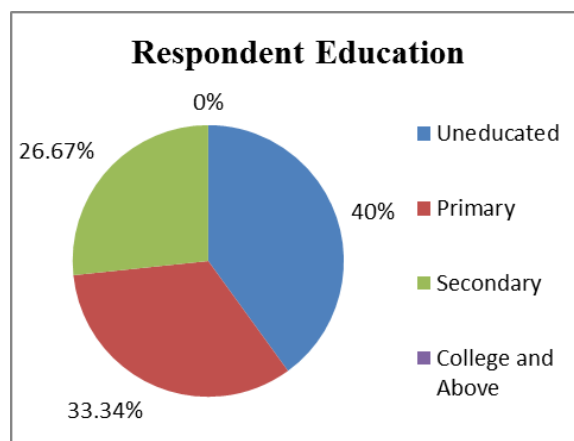


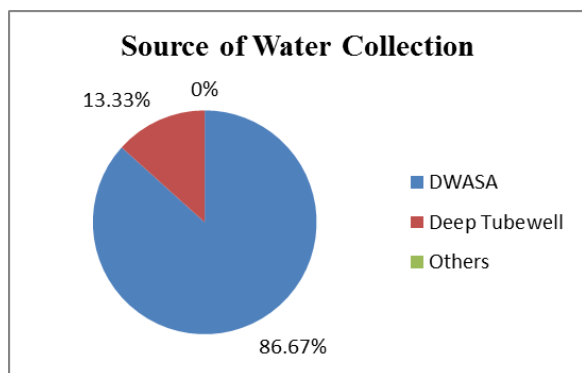
Figure 3  
Educational status of the respondents.

From the survey it was found that 40% respondents were uneducated. Although 33.34% respondents have primary education and 26.67% respondents have secondary education but there was no college and above educated person (Figure 3). According to Hossain et al. (2010), the level of education in both cities is very low, ranges from primary to higher secondary levels. In Khulna city overall illiteracy rate is about 60% whereas in

Rajshahi this rate reaches 90%. Only 1.4% of respondents had a graduate-level education in Rajshahi while in Khulna the figure was nil. These result are in agreement with the results of this study. In Rajshahi city slum and Khulna city slum areas maximum people were illiterate.

**Sources of water collection**

The available source of water in the study area were grouped in DWASA and Deep tube well. DWASA covers 86.67% water supply and deep tube well covers only 13.33% (Figure 4). The findings indicated that DWASA water source was most available source for household purposes in the study area. According to Hossain et al. (2010) in Rajshahi, 61.21% of households depend on the community tube-well, which is installed by the city authority. About 34% rely on individual tube wells; while a small minority of people (3.3%) has a water connection. Whereas 94% of slum dwellers in Khulna collect drinking water from the community tube-well and 3% depend on a neighboring tube-well.

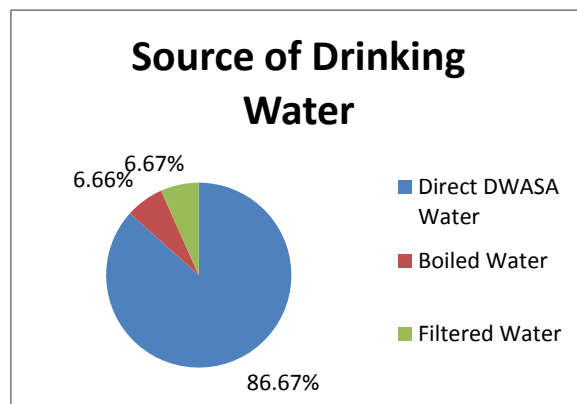


**Figure 4**  
Sources of water collection.

**Sources of water for drinking purpose**

In drinking purposes, The data showed that 86.67% respondents use direct DWASA water for drinking purpose and 6.67% respondents use boiled water and filtered water that is very low in percentage (Figure 5). According to Rana et al. (2016), most of the people use the deep tube-well. Among the respondents the deep tube-well water users were 98% and supply water 2%. Deep tube-well water indicated the Arsenic free tube-well water which was funded by the government and a

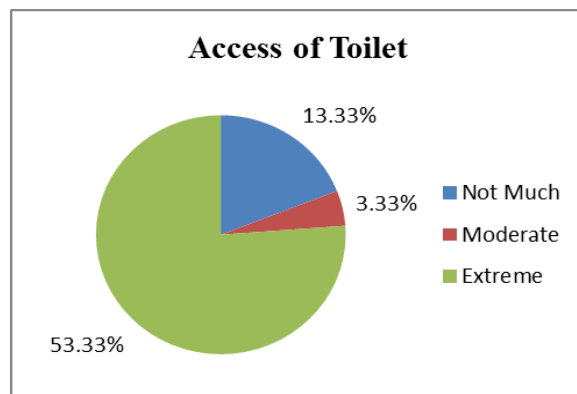
few was funded by individual. The usages of supply water were negligible in drinking purpose.



**Figure 5**  
Sources of water for drinking purpose.

**Access to toilet**

Only 3.33% respondents have moderate toilet access but 53.33% of the total populations of this area have faced it very tough to access the toilet and 13.33% of the populations don't find it very easily (Figure 6).



**Figure 6**  
Percent respondent having access to toilet.

**Toilet sharing**

According to the study 40% respondents said that 15-20 households share one toilet. About 33.33% respondents said 20-25 households share only one toilet and 26.67% respondents said 10-15 households share only one toilet. Biplop et al. (2011) reported that latrine facilities were common for 86% and single for 14% household in the slum

areas. The types of latrine in the slum areas are in unhygienic condition that may cause frequent occurrence of different diseases in those areas.

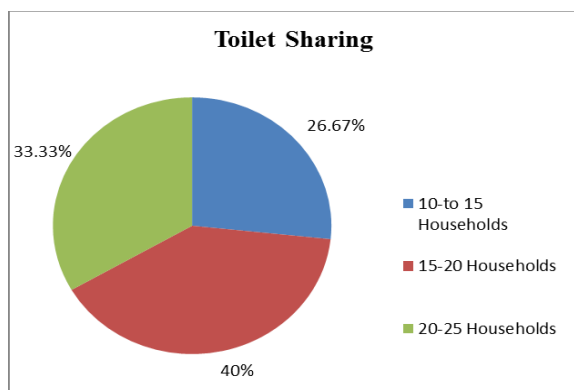


Figure 7  
Population sharing toilet.

**Mode of defecation**

The data showed that 93.33% of the population sometime defecate openly and 6.67% respondents frequently defecate openly (Figure 8).

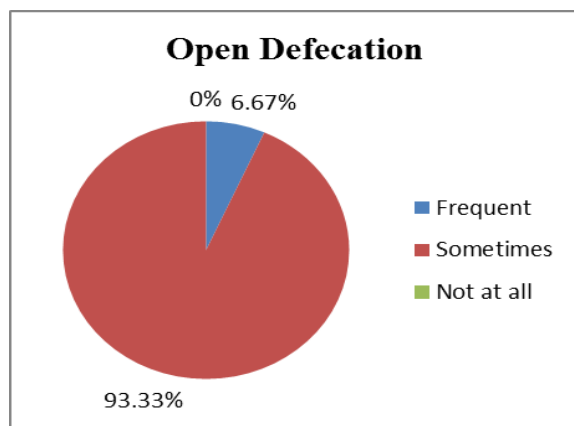


Figure 8  
Population doing open defecation.

Biplob et al. (2011) reported that mode of defecation for Bucket latrine and water seal latrine are 17% and 0% respectively in the Korail slum area. Moreover, pit latrine of 29% and water hanging latrine of 54% in the slum areas. In Korail slum area has almost 80000 populations but the numbers of water seal latrines are 359, bucket latrines are 250, hanging latrines are 520 and all the latrines are not hygienic and environmental friendly.

**Access to hygienic latrine**

From the survey, 80% respondents have no access to hygienic latrine and 20% respondents moderately have access to hygienic latrine (Figure 9). Similar observation was recorded in the study of Biplob et al. (2011).

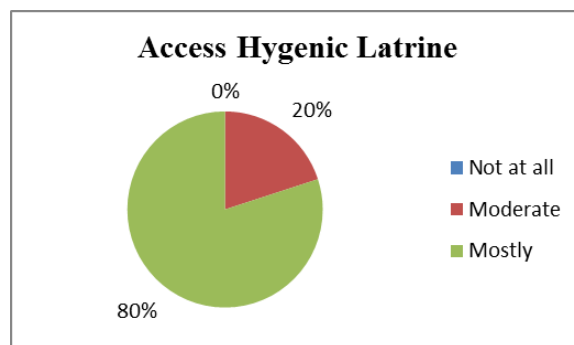


Figure 9  
Population having access to hygienic latrine.

**Modes of waste disposal**

The study revealed that about 93.33% respondents dispose their waste nearby waste and 6.67% respondents dispose their waste other places (Figure 10). Biplob et al. (2011) reported that almost 99% respondents are not satisfied for the solid waste management in Korail slum area while only 1% people is satisfied for the solid waste management in that area. However, people are not satisfied with the existing solid waste disposal system.

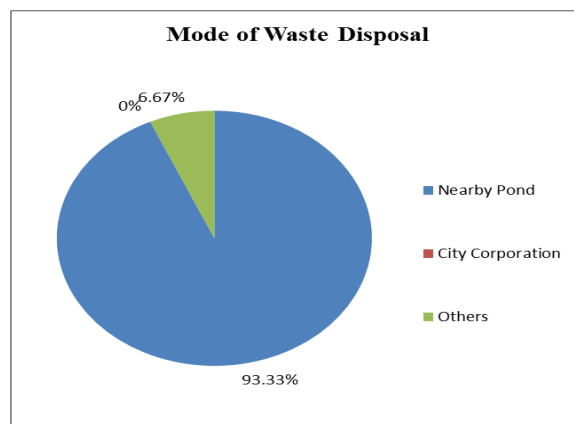


Figure 10  
Modes of waste disposal.

### Common waterborne disease

It has observed that 56% people are affected by diarrhoea, 34% people affected by dysentery and only 10% people are affected by cholera (Figure 11). Poor water quality can be a major threat to human health. Biplop et al. (2011) reported that diseases of diarrhea, dysentery and cholera were 50%, 24% and 26% respectively. They have also observed that major people are affected diarrhea but suffering by cholera. The respondents seem to have fair knowledge on the mode of transmitting germs from human excreta.

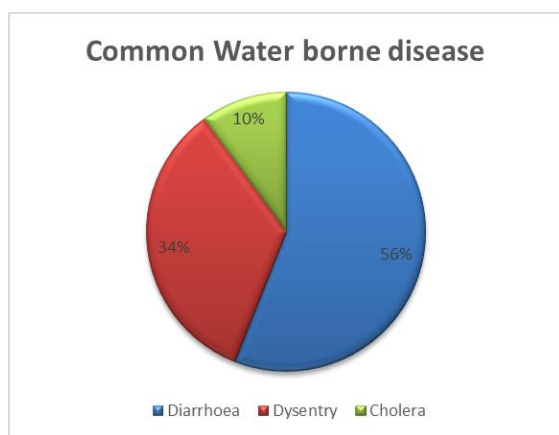


Figure 11  
Common water borne diseases.

### Water borne diseases frequency

About 86.67% respondent's sometimes affected water borne disease and 13.33% respondents frequently affected by water borne diseases (Figure 12).

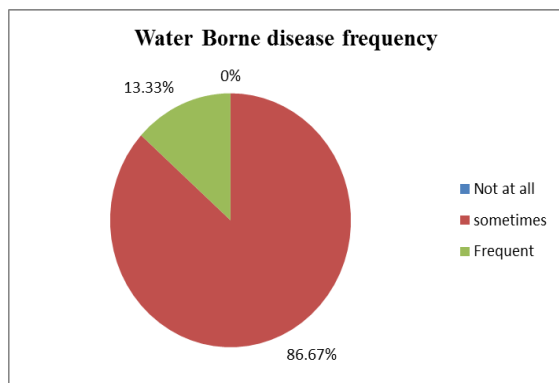


Figure 12  
Water borne diseases frequency.

### Satisfactory level of toilet sanitation

It is found that about 80% respondents toilets were very much unsatisfactory level, 13.33% respondents' toilets were moderate and only 6.67% respondents' toilets were not satisfactory (Figure 13).

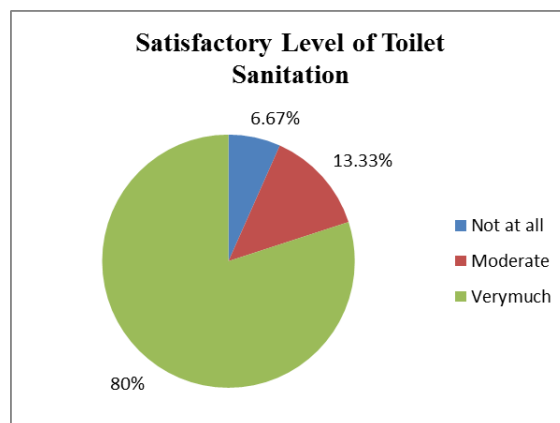


Figure 13  
Satisfactory level of toilet sanitation.

### Financial difficulty to upgrade toilet

Among the respondent 14, 40% have much financial difficulty to upgrade toilet and 26.67% have moderate financial difficulty to upgrade toilet. As most of the people are poor and most of the people have no ability to upgrade toilet.

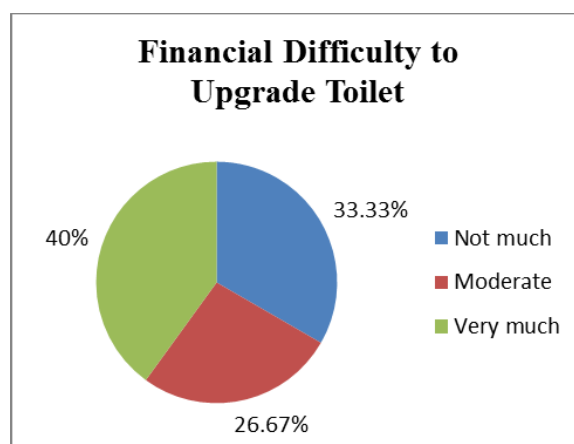


Figure 14  
Financial difficulty to upgrade toilet.

According to the local people of the study area, they have adequate access of water and they have no objection about the quantity of water but they have raised objection about the quality of water especially about the odor and color problem. In Bangladesh sanitation still remain as major challenge. Low sanitation coverage poses a serious public health concern and outbreak of water borne diseases. Lack of access to the basic sanitation facilities is also a restrained for standard hygiene practices. But their sanitation practice is not up to the standard. Their living condition is so congested and suffocated. They are used to accept the environment and their main issue is on solid waste disposal management. The study suggest to creating awareness about education, health, accommodation, medicine, food and nutrition among the dwellers to provide sufficient water supply for drinking and household chores, ensure proper and sustainable use of water and sanitation and solid and liquid waste management in environmental friendly way.

## REFERENCES

- Bendahmane DB (1993). *Lessons Learned in Water, Sanitation and Health: Thirteen Years of Experience in Developing Countries*. Arlington, Virginia: Water and Sanitation for Health (WASH) Project.
- Biplob P, Sarker DC and Sarker RC (2011). *Assessment of Water Supply and Sanitation Facilities for Korail Slum in Dhaka City*. International Journal of Civil and Environmental Engineering IJCEE-IJENS, 11(5): 100-106.
- Davis J, Garvey G and Wood M (1993). *Developing and Managing Community Water Supplies*. (Oxfam Development Guidelines No. 8). Oxford: Oxfam.
- Hossain MA, Moniruzzaman M and Islam MA (2010). *Urban Environmental Health in Bangladesh Slum: A Comparative Study of Two Metropolitan Cities*. Journal of Scientific Foundation, 8(1&2): 67-76.
- Islam N (1996). *Dhaka: From City to Megacity, Perspectives on People, Places, Planning and Development Issues*. Dhaka: USP, University of Dhaka.
- Rana, S, Ghosh HK, Sattar MA and Ali MA (2016). *Water Supply and Sanitation Status of Haryzon Polly Dwellers at Natunbazar Area in Mymensingh District*. Journal of Environmental Science and Natural Resources, 9(1): 143-146.
- United Nations General Assembly (2000). *United Nations millennium declaration*. New York: United Nations.
- United Nations General Assembly (2010). *Resolution adopted by the General Assembly 64/292. The human right to water and sanitation*. New York: United Nations.
- United States Agency for International Development (USAID) (1999). *Environmental Mapping and Workbook for Khulna City*, USAID, Dhaka, Bangladesh.
- Water Aid (2013). *Everyone, everywhere: A vision for water, sanitation and hygiene post-2015*. London: Water Aid.
- World Health Organization (2000). *Guidelines for Drinking-Water Quality, 1, Recommendations*, 3rd edition, Geneva. ISBN 9251546387.