SAFE WATER, SANITATION AND HYGIENE PRACTICE AMONG THE STREET DWELLERS IN DHAKA CITY CORPORATION, BANGLADESH

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Last but not least, I also would like to express my thanks to my family, without their support and assistance I would have never reached this position.

Finally, I really appreciate all participants who participated in my study and contributed to fulfill my research.

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ABSTRACT

The broad objective of this study was to assess water, sanitation, and hygiene practice among the street dwellers in Dhaka City Corporation, Bangladesh. One third of the street dwellers in Dhaka City Corporation are children. Their major expenses are on foods and living places. Even though they are living on the street they still have to pay either to the policeman or local gangsters. Smoking prevalence among the street dwellers is almost three times higher than the national population. Coverage of safe drinking water is slightly higher than the national level with a fair access to all. But discrimination at the water collection point was also reported frequently. They do not know about safe storage of water, water treatment procedures to make it safer to drink and mostly they strain the water through clothes before drinking. Even though they have heard of water borne diseases, they do not have actual knowledge about them or their mode of transmission. Sanitary toilets are widely available in the study areas and majority of them were in use. But open-air defecation is still happening among the street dwellers. Additionally, poor management of the toilets was also observed. Literally there was no garbage management system in those areas and very poor drainage system was also noticed. Even though many of them wash their hands before taking meals and after using toilet, use of soap while hand washing is rare. Knowledge of the participants on WASH and related diseases is poor. Sanitation practices among the street dwellers are fairly acceptable, but practices on water use and personal hygiene are poor. Street dwellers also have a poor knowledge about common diseases and their prevention techniques. Since the total knowledge and current practice both scored very low or poor, the relationship between these two was insignificant. A specific WASH program focusing on improving the knowledge, awareness, and current practice should be formulated, and safe drinking water, sanitary toilets, and hand washing facilities should be ensured with the active participation of the street dwellers.

KEY WORDS: STREET DWELLERS/ DHAKA/ WATER/ SANITATION/ HYGIENE/ KNOWLEDGE & PRACTICE

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ADB	Asian Development Bank
CLTS	Community Led Total Sanitation
EPWAPDA	East Pakistan Water and Power Development Agency
FPCO	Flood Planning Coordination Organization
KAP	Knowledge, attitude and practice
MPO	Master Plan Organization
NWP	National Water Plan
NWRC	National Water Resources Council
UNDO	United Nations Development Fund
USAID	United States Agency for International Development
VERC	Village Education Resource Centre
WARPO	Water Resources Planning Organization
WASH	Water, Sanitation and Hygiene

CHAPTER I
INTRODUCTION

1.1 Background and Rationale:

Bangladesh; a South- Asian country, with its 149 million population (1), unstable political situation, regular natural disasters almost every year and thriving economy is an appropriate example of the developing nations. Though the country is showing tremendous commitment and efforts followed by gradual improvement of the human development indexes but it has to travel further to reach the standards. Dhaka the capital has become the economical, educational and political hub of this nation. Hundreds of thousand of natives are joining the mass here everyday to change their fortune. But unfortunately with rapid but unplanned urbanization, inadequate housing and inappropriate city services the capital itself is a bad example of development.

In Bangladesh urban population growth rate at above 6% in last three decades is one of the highest in comparison to the national growth rate at 1.5% per year (2). According to the National Institute of population Research and Training (3) " the numbers of the urban poor and street dwellers are likely to increase at least at the rate of the national population growth rate" (3). As a result millions of people have chosen to reside in its very infamous slums with no or a few basic resources. Additionally the discrimination between ages, sex and social classes made it more complex for the under privileged to go for the city services. Shockingly there is a fraction among these unfortunates, who cannot even afford the slums; the poorest among the poor. This relegated and excluded population; being desperate enough for the gable have to end up on pavements or streets although it was not the option for many of them but unfortunately become their destiny.

According to Islam et al (4) "street dwellers are the people who sleep on the streets, railway terminals and platforms, bus station, parks and open spaces, religious centers, construction sites, around graveyards and other public places" (4). Their life cycle continues in those miseries; children are being born and brought up,

events of delight and grief continues, even death can occur without being noticed by the majority of the society. This portion of urban population has been pushed to the edge of existence and faces all possible social discrimination and it is pretty tough for them to come out of this cycle of perception, poverty and melancholies. Even though they have never planned for this fate still they have to go through series of difficulties like harsh weather conditions, the threat of eviction from law enforcement agencies or local thugs even from the pavement!

Since there is no accurate comprehensive data available about the street dwellers, there total number is always estimation from different sources. According to a government estimate in 2004, there were 250,000 street children (age<18yrs) only in Dhaka City Corporation (5). If we add up almost the similar number of adults we can understand the magnitude of the street dwellers in Dhaka, the capital. Other big cities and towns also have almost similar number of street dwellers all around the country. The city authorities view street dwellers in terms of social and environmental nuisance resulting from their activities, such as blocking footpaths, public places and unhygienic conditions created by them. But the public health hazard that may arise from these large numbers of street dwellers living in unhygienic condition is never being taken care of. Moreover human right towards health services, safe drinking water and basic sanitation is a dream for these groups of out casters.

Geographically and historically Bangladesh is at a potential threat of water borne diseases. Diarrhoea and other water borne gastro-intestinal diseases comprises of 25% of total morbidity and 100,000 child mortality each year in this country (6). 88% of the diarrhoeal diseases are linked to the lack of access to safe water supply, inadequate sanitation and poor hygiene (7). Moreover intervention studies proved that intensive hand washing promotion as a part of personal hygiene reduces the incidences of childhood diarrhea and respiratory diseases (8) (9). But Zeitlyn and Islam stated (10) " People in Bangladesh commonly believe that soap is not necessary for hand washing, that water alone is effective in purifying hands, especially when hands appear clean" (10). Current safe drinking water coverage of 81% and improved sanitation coverage of 56% (11), which is far below than the expected coverage to reach the Millennium Development Goal 7C: reduction of the proportion of the population without sustainable access to safe drinking water and basic sanitation by the year 2015.

To combat this scenario the country is progressing in reduction of the percentage of population without safe water supply, basic sanitation services and promotion of hand washing at the critical times as a part of hygiene practice. Projects are being planned and implemented all around the country targeting both the urban and rural population. There are a few specific WASH programs targeting the urban slum dwellers but those exclude the huge numbers of the street dwellers from future planning. Solving the problems related to water, sanitation and personal without including these groups of unfortunates is neither practical nor achievable.

The purpose of this study is to explore the knowledge, attitude and practice of living condition related to safe water, sanitation and personal hygiene among the street dwellers in selected areas in Sadarghat, Kamolapur, Kawran Bazar and KeraniganjUpazila in Dhaka, Bangladesh; and find the relationship between their WASH practice and recent morbidity.

Since there is a very few research works and aiding project being implemented for this section of the society, I found it essential and feasible to conduct this study so that we can get a hint of miseries that they have to deal with and in future can plan some aid for these disadvantaged country fellow of mine.

1.2 Research questions:

- What is the coverage of safe drinking water among the street dwellers in Dhaka, Bangladesh?
- What is the source of water in the study area?
- What is the coverage of basic sanitation among the study population?
- What is the defecation practice among the study population?
- What types of toilets are available in the study area?
- What is the level of knowledge on water, sanitation and hygiene along the study population?
- What is the level of knowledge about the water borne diseases among the study population?

1.3 Research objectives:

1.3.1 General objective

The broad objective of this study was to assess water, sanitation, and hygiene practice among the study population at the selected areas.

1.3.2 Specific objectives

- To find out the percentage of people having access to safe water and basic sanitation
- To evaluate existing knowledge and practice of water, sanitation and hygiene among the study population

1.4 Variables of the study:

The variables of interest under this study includes:

Knowledge and practice of the population

General characteristics of street dwellers- Demographic (age, sex, occupation etc.), back ground/ origin details, social (family status, relationship with the family etc.), economical (income, expenditure, savings etc.), water and sanitation (source of drinking water, facilities for lavatories etc.), hygiene and health (personal hygiene practice, illness etc.

1.5 Operational definitions:

Street-dwellers are the people who sleep on the streets, railway terminals and platforms, bus stations, parks and open spaces, religious centers, construction sites, around graveyards and other public places around the study areas.

Knowledge of safe water refers to the facts and information the individual acquired about drinking water through information, experience or education

Knowledge of water borne diseases refers to the facts and information the individuals have acquired about the transmission of diseases through water

Knowledge of sanitation refers to the information the participants know about the disposal of garbage, feces and urine, drainage and garbage management.

Knowledge on hygiene refers to the information the participants know related to hygiene, good hygiene practice and it's importance

Practice of water refers to the current applications or use of the water by the participants in the study area.

Hygiene practice refers to the current ongoing practices related to hygiene activities by the participants of the study

Sanitation practice refers to the current activities of the participants in the study area related to the disposal of garbage, feces and garbage management.

Water borne diseases refer to the diseases caused by pathogenic microorganisms that most commonly are transmitted in contaminated fresh water. Infection commonly results during bathing, washing, drinking, in the preparation of food, or the consumption of food thus infected.

Recent morbidity refers to the ailments of the individuals in last 1 month.

1.6 Conceptual framework:

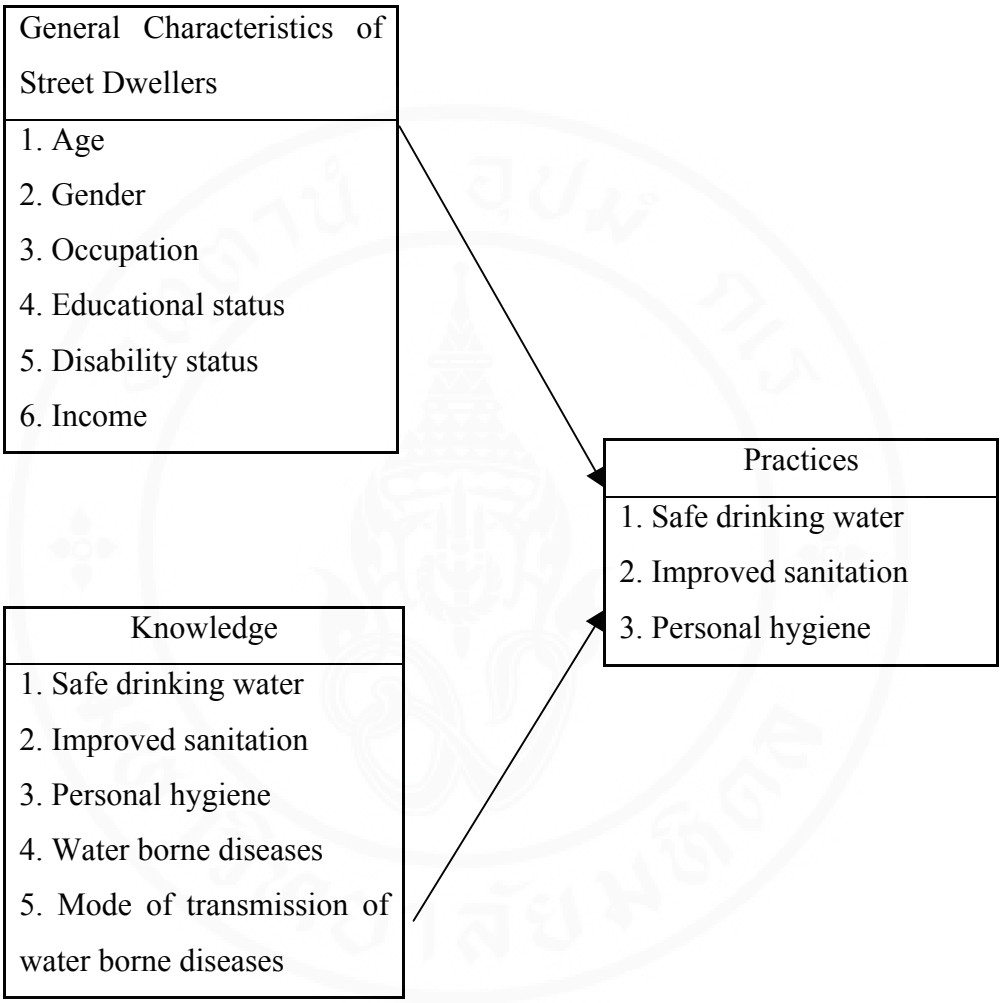

Figure 1.1: Conceptual Framework

CHAPTER II
LITERATURE REVIEW

2.1 Research and Background:

Water supply and sanitation in Bangladesh is characterized by a number of achievements and challenges. The share of the population with access to an improved water source was estimated at 98% in 2004, (15) a very high level for a low-income country. This has been achieved to a large extent through the construction of hand pumps with the support of external donors. However, in 1993 it was discovered that groundwater, the source of drinking water for 97% of the rural population and a significant share of the urban population, is in many cases naturally contaminated with arsenic. On the other hand, surface water is usually polluted and requires treatment (16). Taking arsenic contamination into account, it was estimated that in 2004 still 74% of the population had access to arsenic-free drinking water. Another challenge is the low level of cost recovery due to low tariffs and poor economic efficiency, especially in urban areas where revenues from water sales do not even cover operating costs. In rural areas, users contribute 34% of investment costs, (17) and at least in piped water schemes supported by the Rural Development Academy recover operating costs.

Sanitation faces its own set of challenges, with only 56% of the population estimated to have had access to adequate sanitation facilities in 2010 (18). A new approach to improve sanitation coverage in rural areas, the community-led total sanitation concept that has been first introduced in Bangladesh, is credited for having contributed significantly to the increase in sanitation coverage since 2000 (19).

The government has adopted a number of policies to remedy the challenges in the sector, including National Policies for Safe Water Supply and Sanitation, both of 1998, a National Water Policy of 1999, a National Water Management Plan, and a National Policy for Arsenic Mitigation, both of 2004, as well as a National Sanitation Strategy of 2005. Among others, these policies emphasize

decentralization, user participation, the role of women, and "appropriate pricing rules". The Arsenic Mitigation Policy gives "preference to surface water over groundwater" (20). At the operational level, there has also been a conceptual shift from single-use of water - such as through hand pumps for drinking water and motorized deep tube wells for irrigation - to multiple use of water from deep tube wells since the 1990s.

The first central institution in the water sector in what is now Bangladesh was the East Pakistan Water and Power Development Agency (EPWAPDA), created in 1959 to plan, construct and operate all water development schemes. In 1964, EPWAPDA, with the assistance of the United States development agency USAID, prepared a 20-year Water Master Plan, including flood control. Although infrastructure was constructed, the lack of operation and maintenance, among other things, soon led to its deterioration.

After the independence from Pakistan in 1971, EPWAPDA was restructured and renamed the Bangladesh Water Development Board. The new republic soon gained support from several agencies. The World Bank published the Land and Water Sector Study in 1972, advocating small-scale flood control and irrigation projects. As a result, small-scale irrigation spread quickly during the 1970s and 1980s, partly financed by the private sector (21).

In light of the growing population and the expanding agricultural and industrial sectors, in 1983 the National Water Resources Council (NWRC) was founded and the newly created Master Plan Organization (MPO) started to draw up a comprehensive National Water Plan (NWP). The first phase of the NWP was completed in 1986 and included an assessment of available water resources and future demand. According to the Asian Development Bank (ADB), a lack of attention to inter sectoral and environmental issues led the national government to reject the plan (22). Consequently, the second phase of the NWP was drawn up from 1987 to 1991, including an estimate of the available groundwater and surface water as well as a draft water law. The draft also took into account environmental needs. In 1991, the MPO was restructured and renamed the Water Resources Planning Organization (WARPO) (23).

Two destructive floods in 1987 and 1988 were followed by increased international attention and assistance. In 1989, the United Nations Development Fund

(UNDO) and national agencies prepared several studies from France, the United States, Japan, and others. The World Bank coordinated the donor activities. At the end of the year, the Flood Action Plan (FAP) was approved by the national government of Bangladesh. However, according to Chadwick; some donors and civil society criticized the plan. The planned participation of civil society was hampered by the military dictatorship that governed the country at that time. Later, the national government approved the FAP's final report, called the Bangladesh Water and Flood Management Strategy (BWFMS), in 1995 with the support of donor agencies. Among other things, the strategy proposed the formulation of a comprehensive national water management plan, increased user participation and environmental impact assessment as integral parts of planning. Consequently, the Flood Planning Coordination Organization (FPCO), which had been established in 1992 to coordinate the studies, was merged with WARPO in 1996 (24).

In 2000 a new approach to increasing sanitation coverage, called community-led total sanitation (CLTS), was first introduced in Bangladesh in a small village in the Rajshahi District by Dr. Kamal Kar in cooperation with WaterAid Bangladesh and the Village Education Resource Centre (VERC) (25).

Until then, most traditional sanitation programs relied on the provision of subsidies for the construction of latrines and hygiene education. Under this framework, the subsidized facilities were expensive and often did not reach all members of a community. In addition, the subsidies may have reduced the feeling of personal responsibility for the toilets.

These perceived shortcomings led to the development of the CLTS approach in Bangladesh, shifting the focus on personal responsibility and low-cost solutions. CLTS aims to totally stop open defecation within a community rather than facilitating improved sanitation only to selected households. Awareness of local sanitation issues is raised through a walk to open defecation areas and water points (walk of shame) and a calculation of the amount of excreta caused by open defecation. Combined with hygiene education, the approach aims to make the entire community realize the severe health impacts of open defecation. Since individual carelessness may affect the entire community, pressure on each person becomes stronger to follow sanitation principles such as using sanitary toilets, washing hands, and practicing good

hygiene. To introduce sanitation even in the poorest households, low-cost toilets are promoted, constructed with local materials. The purchase of the facility is not subsidized, so that every household must finance its own toilets (26)(27).

In 2006, the number of villages with total sanitation was estimated at more than 5,000 throughout the country. At the same time, CLTS had spread in at least six countries in Asia and three in Africa (28). In 2009, the UN Special Rapporteur for the human right to water and sanitation noted, "The experience of Bangladesh (with CLTS) has positively influenced countries in other regions of the world and has instilled confidence in the belief that low-cost sanitation is possible. It has also had a powerful effect in breaking the taboo that often surrounds the issue of sanitation. The independent expert observed that most people with whom she met, including the Prime Minister, were pleased, and even proud, to discuss sanitation and the achievements of Bangladesh in this domain." However, she also noted "concerns about a lack of monitoring of continued latrine usage, maintenance of latrines and over reporting of sanitation coverage" (29).

2.2 WASH Related Variables and relation:

There are a very few research works available for the street dwellers but a number of researches were done for the rural, urban poor, slum dwellers in Bangladesh and some other developing countries. In many studies the researchers were able to establish the relationship between inappropriate knowledge and attitude towards improper practice on water, sanitation and hygiene. Moreover association between improper water, sanitation and hygiene practice and the morbidity was also established in a study. Since the general characteristics of those study population are quite similar to the street dwellers; those literatures were taken into consideration for review.

According to Angeles G et. al Bangladesh has a 2005 population of 153 million; 39 million of whom, or 25%, are living in urban areas. The urban population of Bangladesh is projected to nearly double over the next 20 years; in contrast, the rural population will grow by less than 15 percent. Dhaka, with an estimated 2005 population of 9.1 million, is one of the largest and fastest growing cities of the world.

The greater Dhaka urban agglomeration is projected to grow at an annual average rate of 2.72 during the period 2007–2025, making it the fastest growing "mega-city" in the world.” (12)

In other studies in Bangladesh urban population growth rate at >6% in last three decades is one of the highest in comparison to the national growth rate at 1.5% per year (2). According to the National Institute of population Research and Training (3) “ the numbers of the urban poor and street dwellers are likely to increase at least at the rate of the national population growth rate” (3).

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The knowledge, attitude and practices (KAP) of learners on issues related to water, sanitation and hygiene in selected schools were studied in Vhembe District, South Africa. The methodology relied on a questionnaire and inspection of sanitary facilities and discussion with the school authorities. The study revealed that the level of knowledge about waterborne diseases was relatively high (76.7 ± 1.75%), but knowledge on transmission routes was inadequate. The majority of the respondents had no knowledge when it comes to water-based diseases and their prevention (78.4 ± 1.71%)(14).

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Geographically and historically Bangladesh is at a potential threat of water borne diseases. Diarrhoea and other water borne gastro-intestinal diseases comprises of 25% of total morbidity and 100,000 child mortality each year in this country (6). 88% of the diarrhoeal diseases are linked to the lack of access to safe water supply, inadequate sanitation and poor hygiene (7).

Current safe drinking water coverage of 81% and improved sanitation coverage of 56% (11). Zeitlyn and Islam stated (10) “ People in Bangladesh commonly believe that soap is not necessary for hand washing, that water alone is effective in purifying hands, especially when hands appear clean” (10). A minority of rural Bangladeshi residents washed both hands with soap at key hand washing times, though rinsing hands with only water was more common. To realize the health benefits of hand washing, efforts to improve hand washing in these communities should target adding soap to current hand rinsing practices. (13)

The knowledge, attitude and practices (KAP) of learners on issues related to water, sanitation and hygiene in selected schools were studied in Vhembe District, South Africa. The methodology relied on a questionnaire and inspection of sanitary facilities and discussion with the school authorities. The study revealed that the level of knowledge about waterborne diseases was relatively high (76.7 ± 1.75%), but knowledge on transmission routes was inadequate. The majority of the respondents had no knowledge when it comes to water-based diseases and their prevention (78.4 ± 1.71%)(14).

CHAPTER III
MATERIALS AND METHODS

3.1 Research Design:

The approach this study employed includes review and analysis of secondary data gathered from an updated and maintained database by a Non Government Organization, who has recently completed the baseline survey on this population group. While establishing the database, the organization used questionnaire and structured observational checklist to cross check the practice among the study population. Descriptive Analysis and Inferential Analysis were done.

3.2 Study Site and population:

Secondary data was used for the research, so the reasearcher did not have any control over sample size calculation and sampling technique. But information regarding sample size calculation and sampling techniques were obtained from the organization prior to this study. A simple random survey technique was employed to collect quantitative data and information from target beneficiary. A semi-structured questionnaire and observational checklist were developed with close consultation with project staff and experts.

Simplified formula by Yamane (REF) was used to calculate sample sizes. The formula for determining sample size was:

$$n = \frac{N}{1 + N\,(e^2)}$$

A systematic random sampling technique was applied where every 15^{th} person were chosen for the interview.

The study was conducted among the street dwellers who had been living in that specific area for more than 1 month in the selected areas in Sadarghat, Kamolapur, Kawran Bazar, Lalbagh and Keraniganj Upazila in Dhaka, Bangladesh as shown in table 3.1.

Table 3.1: Study site, population and sample size

Sl No	Location	Registered No.	Sample Size
1	Kamolapur	1860	126
2	Kawran Bazar	1808	122
3	Sadarghat	850	57
4	Lalbagh	500	55
5	Keranigonj	500	55
Total		5518	415

3.3 Research Instrument:

The structured questionnaire was used as an instrument for data collection that was designed based on extensive review of literature and geo-social condition of the study sites; which fit into the study conceptual framework. Experts on WASH programs designed the structured questionnaire. They were developed originally in English then were translated into Bengali version for easy understanding of the participants. Structured observational checklist was also formulated to cross check the water, sanitation and hygiene practice among the study population

Table 3.2: Source of data

Type of data		**Source of information**
Knowledge	Safe drinking water	Secondary data (Questionnaire)
	Water treatment procedure	
	Water borne diseases	
	Basic sanitation	
	Personal hygiene	
	Importance of personal hygiene	
Practice	Drinking water	Secondary data (Questionnaire and observation checklist)
	Sanitation practice	
	Personal hygiene	
Recent morbidity in last 1 month		Secondary data (Questionnaire)

3.4 Data Analysis:

Data satisfying the study objectives were retrieved from the original database and were analyzed using statistical tools

Following techniques were applied:

1. Mathematical summary statistics (frequency distribution, multiple responses, mean, median, mode, standard deviation, quartile deviation, coefficient of variation etc.)

2. Graphical representation (single and interactive bar-chart, pie chart)

3.5 Ethical Consideration:

Ethical clearance was taken by the organization that has established the database on the street dwellers and written approval was obtained from the organization to use the database. The protocol of the study has already been reviewed and approved by the ethical committee of Mahidol University.

CHAPTER IV
RESULTS

Data related to the study objectives were retrieved from the original database and were analyzed using SPSS version 20.0. Descriptive Analysis was done as per the requirements of the study. Findings of the analysis are presented in this chapter as mathematical summary statistics (frequency distribution, multiple responses, mean, median, mode, standard deviation), graphical representation (single and interactive bar-chart, pie chart).

4.1 General Characteristics of respondents:

The Table 4.1 shows the number and percentage of relationship of the respondents with the head of the household. At a glance we can see that most of the respondents are the household owners 90.6%.

The second largest group of the respondents is the spouse of the household head 5.8%. While a few of them are offspring 1.2% and the rests are siblings, grandchildren, and non-relatives or having some other relationship with the head of the household.

Table 4.1: Relationship to the head of the household of the street dwellers

General characteristics:	**Number**	**Percent**
Relationship with House Hold Head		
Household owner	376	90.6
Husband/wife	24	5.8
Son/daughter	5	1.2
Brother/sister/brother in law/sister in law	1	0.2
Grand son/grand daughter	1	0.2
Non relatives	2	0.5
Others	6	1.4

Table 4.2 displays the frequency and percentage of age, gender and marital status of the respondents in this study. The maximum percentage of participants is from 10-14 years age group 19.3%, while the minimum is from 5-9 years 1.0%. The mean age of the respondents is 29.7 years with a standard deviation of ±15.77 years. The youngest participant was 8 years of age, where as the eldest was 75 years in this study. The majority of the study subjects were female 58.8% and married 46.5%.

As observed in this table, the percentage of respondents gradually decreases from 10-14 years age group as the age increases until 40-44 years, where there is a slight rise of the percentage. But afterwards the trend again follows further gradual decline until it ends at 70-75 years. The percentage of children (less than 18 years of age) among the study population is 36.0% and the dependency ratio is 30.9%.

Table 4.2: Age, gender and marital status of the street dwellers

General		Number	Percent
Age in years	5-9	4	1.0
	10-14	80	19.3
	15-19	65	15.7
	20-24	49	11.8
	25-29	38	9.2
	30-34	27	6.5
	35-39	22	5.3
	40-44	36	8.7
	45-49	33	8.0
	50-54	26	6.3
	55-59	11	2.7
	60-64	10	2.4
	65-69	7	1.7
	70-75	7	1.7
	Mean ± S.D	29.7 ± 15.77	
	Min, Max	8, 75	
Gender	Male	171	41.2
	Female	244	58.8
Marital Status			
	Married	193	46.5
	Unmarried	149	35.9
	Divorced	5	1.2
	Widowed	25	6.0
	Separated	43	10.4

The table 4.3 indicates the frequency and percentage of disability, education and present occupation status of the participants. At a glance we can see that 97.1% of them do not have any disability, 70.8% have primary education and 82.2% are currently self-employed.

Considering disability 2.9% was disabled (blind, deaf, dumb, physical disability). Majority of the study population have primary education 70.8% but approximately one tenth of them are illiterate 10.1% and almost similar percentage of people can only signature 14.5%.

Mainstream of the study subjects are self-employed (shop keeper, hawker, scrape collector) 82.2%, where as 7.2% are employed by others (factory worker, night guard). But 6.5% mentioned of unconventional means of earning (begging, prostitution).

Table 4.3: Disability, education and present occupation status of the street dwellers

General characteristics		Number	Percent
Disability status			
Normal		403	97.1
Disabled	*Blind*	2	0.5
	Deaf	3	0.7
	Dumb	1	0.2
	Physical disability	6	1.4
Education			
Illiterate		42	10.1
Only signature		60	14.5
Primary		294	70.8
Secondary		8	1.9
More than secondary		1	0.2
Others		10	2.4
Present occupation			
Unemployed		17	4.1
Employed by others (factory		30	7.2
Self employed (shop keeper,		341	82.2
Others (Begging, prostitution)		27	6.5

The most common reason of staying in the street is due to poverty; 74.0%. Majority of them, 84.6% are staying in the street pavements at night and staying alone 81.9%. Surprisingly most of their family members, 43.1% are staying in some other slums or pavements followed by 34.5% living in the village.

Table 4.4: Reasons of staying at the street, locations of staying at night, living partners and location of the rest of the family members of the street dwellers

General		Number	Percent
Reason of living in the street			
	Unwanted at home	57	13.7
	Poverty	307	74.0
	Self choice	19	4.6
	Occupation	9	2.2
	No answer	2	0.5
	Others	21	5.1
Place of staying at			
	On the street	351	84.6
	Under the flyover	22	5.3
	Park	15	3.6
	Rail station	14	3.4
	Launch terminal	1	0.2
	Others	12	2.9
With whom staying at night			
	Alone	340	81.9
	Parents	55	13.3
	Relatives	11	2.7
	Others	9	2.2
Location of the rest of the family members			
	Village	143	34.5
	Some other slums/	179	43.1
	Don't know	22	5.3
	Others	71	17.1

4.2 Length of stay in the street:

Table 4.5 depicts the number and percent of the living duration in the streets. Two thirds lived in the street not more than two years and only 1.2% is living for more than four years. Mean duration of staying in the street is 16.5 months with the standard deviation of 12.78 months. Minimum duration of staying in the street is 1 month, which was also an inclusion criterion for the study and the maximum duration is 60 months.

Table 4.5: Number and percentage of living duration of the street dwellers

Living duration in months	Number	Percent
Less than 6	96	
6-12	104	25.1
13-24	99	23.9
25-35	73	17.6
36-47	38	9.2
48-60	5	1.2
Mean ± S.D.	16.5 ± 12.78	
Min, Max	1,60	

4.3 Incomes and Expense:

The results of the study shown in table 4.6 demonstrate the number and percentage of information about the period of time spent for paid labor, income and wealth of the participants. The findings indicate the percentage of average working hours of the respondents are almost equal; more than 8 hours but less than 12 hours 50.5% and more than 12 hours 49.5%. But most of the respondents 94.0%, work six to seven days a week.

4.3.1 Income:

Majority of the participants 66.7% earn less than two hundred taka per day. The percentage gradually drops as per day earning increases and only 4.8% earn more than four hundred taka per day. Additionally almost all of them 98.3% do not have any debt, while 63.1% were able to save something. Furthermore two third of the study population usually take more than three meals per day.

Table 4.6: Income of the street dwellers

		Number	Percent
Average daily working hours [1]			
More than 8 hours but less than 12 hours		209	50.5
12 hours and above		205	49.5
Average weekly working days			
1-5		25	6.0
6-7		390	94.0
Average daily income			
Up to 200 TK		277	66.7
201 to 400 TK		118	28.4
401 to 600 TK		20	4.8
Loan	Yes	7	1.7
	No	408	98.3
Savings			
Yes		262	63.1
No		153	36.9
Average daily number of meals			
	1-2 meals	3	0.7
	3 meals	121	29.2
	More than 3 meals	291	70.1

[1] 414 Valid cases

4.3.2 Expenses:

Social commodities:

Table 4.7, 4.8 illustrates the pattern of expenditure of the participants for the social commodities. Common portion of the population have spent less than six hundred taka last week for food and living place, which is 65.3% and 91.5% accordingly.

Whereas majority, 81.6% of the respondents have spent less than fifty taka last week for water and almost all of them, 97.6% have spent less than twenty five taka for toilet use. The majority of respondents were found not expensing for police and muscle man but with an average of ten Taka only.

Table 4.7: Expenditures for the social commodities of the street dwellers

Social commodities (in Taka)		Number	Percent
Food	No payment	0	0.0
	1-199	33	8.0
	200-399	86	20.7
	400-599	152	36.6
	600-999	107	25.8
	1000-3000	37	8.9
	Mean ± SD	532.7±336.07	
	Median	450	
	Min, Max	30,3000	
Living place	No payment	0	0.0
	1-199	74	17.8
	200-399	151	36.4
	400-599	155	37.3
	600-999	29	7.0
	1000-2500	6	1.4
	Mean ± SD	340.2±259.47	
	Median	300.0	
	Min, Max	14,2500	

Table 4.8: Expenses on social commodities of the street dwellers

Social commodities (in Taka)		Number	Percent
Water	No payment	238	57.3
	1-49	101	24.3
	50-99	72	17.3
	100-149	3	0.7
	150-200	1	0.2
	Mean ± SD	20.4±27.74	
	Median	0	
	Min, Max	0,170	
Toilet use			
	No payment	381	91.8
	1-25	24	5.8
	25-49	7	1.7
	50-75	3	0.7
	Mean ± SD	1.9±7.51	
	Median	0.0	
	Min, Max	0,70	

Table 4.9: Expenditure on social commodities of the street dwellers

Social commodity (in Taka)		Number	Percent
Police	No payment	396	95.4
	1-99	4	1.0
	100-249	12	2.9
	250-499	1	0.2
	500-749	1	0.2
	750-1000	1	0.2
	Mean ± SD	8.1±60.21	
	Median	0.0	
	Min, Max	0,1000	

Table 4.9 (Cont.): Expenditure on social commodities of the street dwellers

Social commodities (in Taka)		Number	Percent
Muscle man	No payment	387	93.3
	1-99	13	3.1
	100-199	9	2.2
	200-399	3	0.7
	400-599	2	0.5
	600-800	1	0.2
	Mean ± S.D	9.9±55.21	
	Median	0.0	
	Min, Max	0,700	

Medical expense:

Findings of the study are tabulated in table 4.10, which expresses the frequency and percent of expenditure for medical expenses. As it shows around two third of the population 66.5% have spent less than five hundred taka last week for treatment expenses, while similar portion 64.1% have spent less than two hundred taka for drugs last week.

Table 4.10: Medical expenses of the street dwellers

Medical expense (in Taka)		Number	Percent
Treatment	No payment	0	0.0
	Less than 100	44	10.6
	100-249	144	34.7
	250-499	88	21.2
	500-999	138	33.3
	1000-5000	1	0.2
	Mean ± SD	324.7±324.31	
	Median	250	
	Min, Max	50,5000	
Drugs			
	No payment	0	0.0
	1-99	52	12.5
	100-199	214	51.6
	200-399	34	8.2
	400-599	85	20.5
	600-800	30	7.2
	Mean ± SD	228.9±209.57	
	Median	100.0	
	Min, Max	30,700	

Recreation:

In findings from the respondents very few have expense on mobile, with expense around 50 -100 taka. Likewise respondent's expense was found very few for clothes and other family member expenses and others. In contrast major portion of the participants has spent around five hundred taka last week for cinema and entertainment purposes.

Table 4.11: Expenditure on recreation of the street dwellers

Recreation (in Taka)		Number	Percent
Mobile	No payment	0	0.0
	1-49	50	12.0
	50-99	313	75.4
	100-500	52	12.5
	Mean ± S.D	58.8±28.86	
	Median	50.0	
	Min, Max	30,500	
Clothes/ cosmetics	No payment	389	93.7
	1-249	16	3.9
	250-499	7	1.7
	500-999	2	0.5
	1000-2000	1	0.2
	Mean ± S.D	449.4±177.06	
	Median	0.0	
	Min, Max	0, 2000	
Cinema/	No payment	0	0.0
	1-99	0	8.0
	100-199	33	8.0
	200-399	33	8.0
	400-599	209	50.4
	600-900	140	33.7
	Mean ± S.D	18.1±119.11	
	Median	400.0	
	Min, Max	100,900	
For other family	0	395	95.2
	1-249	2	0.5
	250-999	8	1.9
	1000-1999	51.2	1.7
	2000-4000	51.2	
	Mean ± S.D	59.4±339.16	
	Median	0.0	
	Min, Max	0,4000	
Others	No payment	376	90.6
	1-99	12	2.9
	100-249	24	5.8
	250-500	3	0.7
	Mean ± S.D	10.4±42.72	
	Median	0.0	
	Min, Max	0,500	

4.4 Unhealthy habit:

The table 4.12 depicts the personal history of the study population, which comprises of history of smoking, alcoholism, drug addiction and beetle nut chewing. Alarmingly almost two third of the study population, 74.5% are smokers. Whereas, frequency of alcoholism and drug addiction is nominal, and as low as 3.7%, 3.1% accordingly. But beetle nut chewing is very common among them, which comprises 91.1% of the subjects.

Table 4.12: Unhealthy habits of the street dwellers

Type of habit	Percent			
	Never	Ever	Occasional	Regular
Smoking	14.9	1.9	8.7	74.5
Alcohol drinking	96.1	0.2	2.7	1.0
Beetle nut chewing	0.5	1.0	7.5	91.1
Drug addiction	95.7	1.2	1.2	1.9

4.5 Availability and accessibility of water for drinking and domestic use

The findings of the study on drinking, cooking and household water sources are depicted in figure 4.1. It shows that similar percentage 94.0% of participants use tube well for drinking and cooking water source. Alike pattern is seen aimed at the use of supply water and mobile water supply for drinking and cooking water source. But the majority 64.6% of the study subjects use supply water for household use, which is followed by tube well water 34.7%. Neither of the respondents have mentioned of ground water collection for these activities.

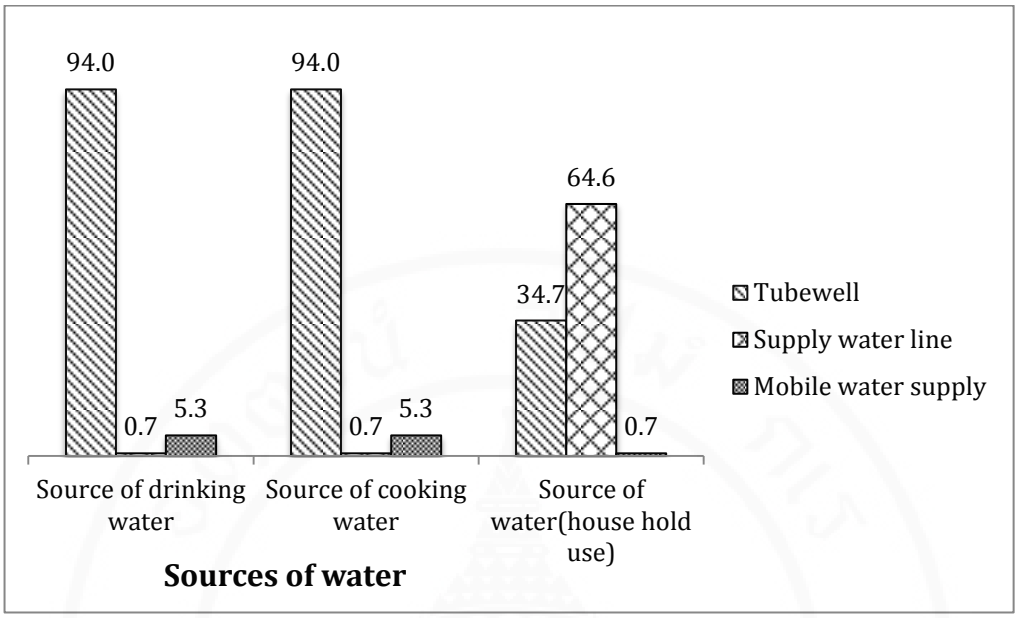

Figure 4.1: Sources of water among the participants (in percent)

The figures 4.2, 4.3 and table 4.13 represent the water collection time and queuing time at the water collection point. As seen, majority of the participants 92.8% travel less than thirty minutes in each trip for water collection and only 5.5% have a queuing time more than thirty minutes at the water collection points.

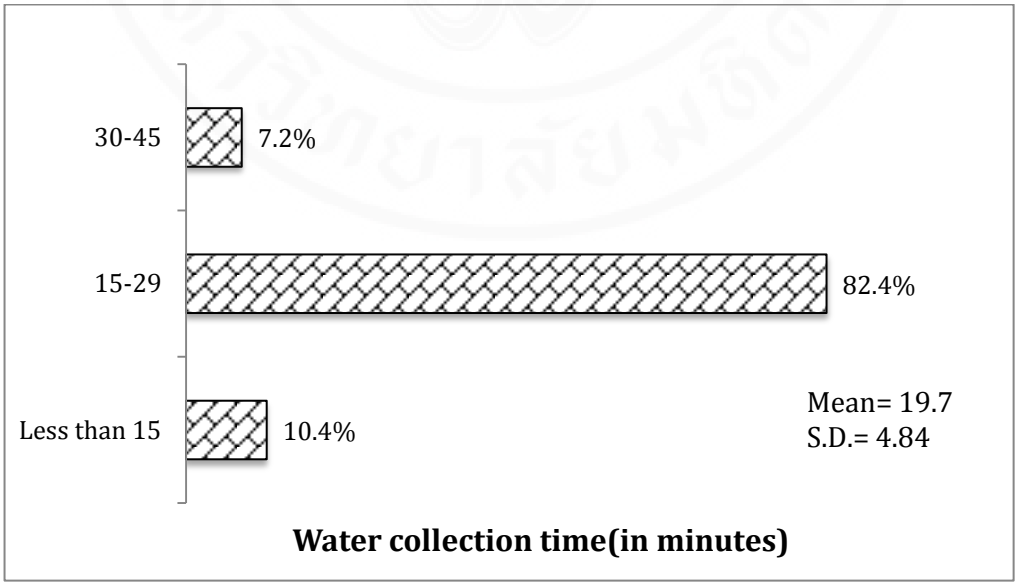

Figure 4.2: Approximate time taken per trip for water collection

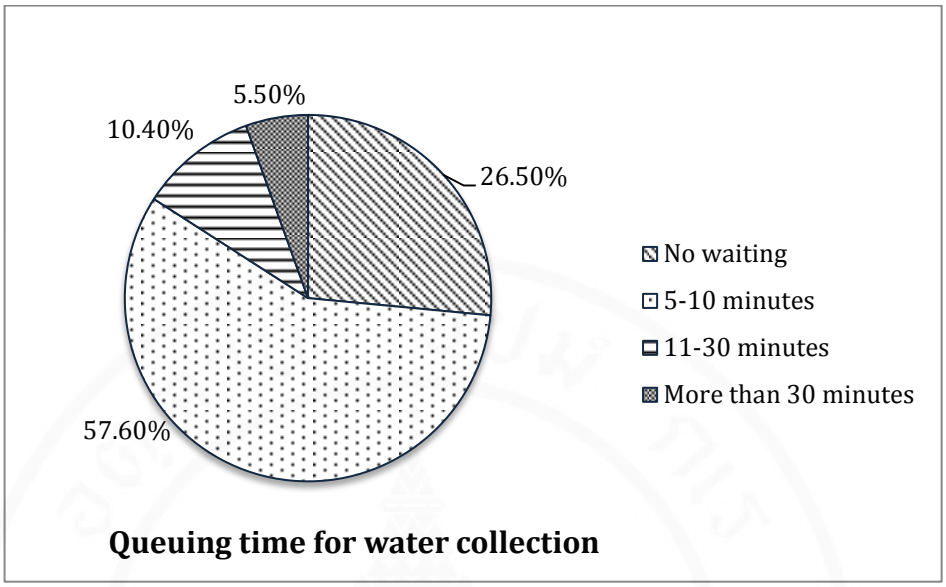

Figure 4.3: Queuing time at the water collection point

Table 4.13: Sphere standard of access to water of the street dwellers

Sphere standard of access to water	Percent	
	Water collection time	Queuing time at the collection point
Meets the standard (Less than 30 minutes)	92.8	94.5
Does not meet standard (More than 30 minutes)	7.2	5.5

The table 4.14 summarizes the findings of the study on daily requirement, payment and discrimination for water. Majority of the respondents 81.9% do not face any discrimination at water collection point but 18.1% are subjects of discrimination regularly or sometimes.

Most of the participants require 20 liters (10x2 liters water bottle) of water per day. The percentage of the participants fluctuates as the daily requirement of water increases. The average necessity of water is 22.2 liters daily with the standard deviation of 5.52 liters.

Maximum percentage of participants 84.3% do not have to pay for water, whereas most of them 94.7% pay less than twenty five taka per day. Figure 4.4 shows that adult male 44.30% mostly collect the water followed by both adult male and female. The children are collecting only around one tenth of the water.

Table 4.14: Frequency and percentage of amount and payment of water, discrimination status at the water collection point of the street dwellers

Source of water		Number	Percent
Discrimination at water collection point[1]			
	Always	57	13.8
	Sometimes	18	4.3
	Never	339	81.9
Amount of water is needed for daily use for			
	5 Bottles	8	1.9
	10 Bottles	314	75.7
	12 Bottles	15	3.6
	15 Bottles	60	14.5
	20 Bottles	17	4.1
	25 Bottles	1	0.2
	Mean± S.D.	11.1±2.76	
Payment of water			
	Always	64	15.4
	Sometimes	1	0.2
	Never	350	84.3
Payment of water per day			
	Less than 25 TK	393	94.7
	25-50 TK	22	5.3

[1] 414 Valid cases

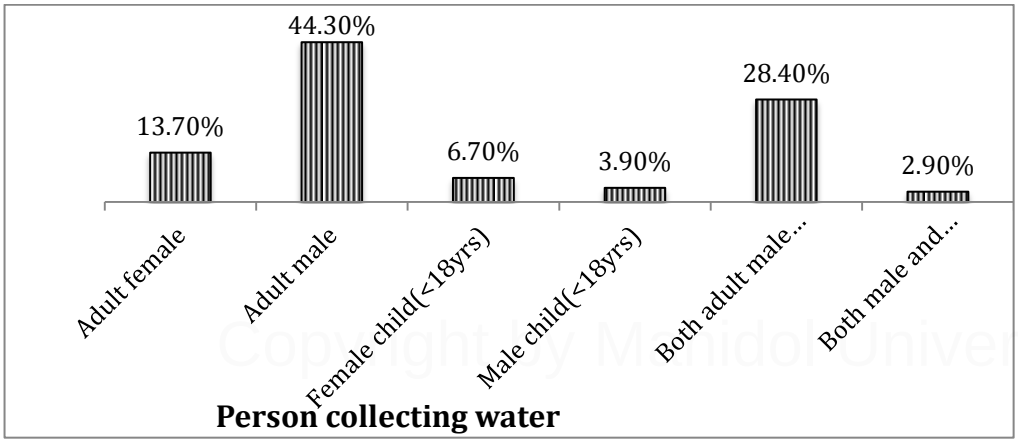

Figure 4.4: Person usually collecting the water

4.6 Quality of drinking water

Table 4.15 shows the assumption of the participants of the quality of drinking water. Almost all of them reported the absence of any bad smell, different colors or bad taste in their drinking water. However one fourth of the participants reported the presence of visible particles or dirts.

Table 4.15: Quality of the drinking water as assumed by the street dwellers

	Yes		No		Sometimes	
	Numbe	**Percent**	**Numbe**	**Percent**	**Numbe**	**Percent**
Presence of any visible particles/ dirts in drinking water	94	22.7	316	76.1	5	1.2
Presence of any bad smell in drinking water	14	3.4	392	94.5	9	2.2
Presence of any different colour in drinking water	24	5.8	385	92.8	6	1.4
Presence of any bad taste in drinking water	16	3.9	394	94.9	5	1.2

Majority of the respondents, 82.4% do not know about water treatment processes and almost similar proportion, 80.5% do not treat water before drinking as shown in table 4.16.

Table 4.16: Responses of the street dwellers on water treatment

	Number	Percent
Knowledge about water treatment to make it safer to drink	415	100.0
Yes	73	17.6
No	342	82.4
Practice about water treatment	415	100.0
Yes	48	11.6
No	334	80.5
Sometimes	33	8.0

4.7 Knowledge of water borne diseases

Majority of the participants, 85.1% have ever heard of water borne diseases but almost three-fourths of them could not mention even a single water borne diseases name. Diarrhea was the top, 21.4% response followed by dysentery among those who could mention water borne disease name. Only one tenth of the study population could mention a disease while the mainstream of them 88.7% could not mention even a single disease that can spread through contaminated water. Diarrhea, along with cholera was the top response from the participants who could mention diseases that spread through contaminated water but responses on typhoid fever, respiratory diseases and common cold were nil.

Table 4.17: Knowledge of the street dwellers on water borne diseases

Knowledge about water borne diseases	Number	Percent
Whether the respondent has ever heard of water related disease		
Yes	353	85.1
No	43	10.4
Cannot remember	19	4.6
Participants response in mentioning some disease that spread through water (Multiple answers possible)		
Diarrhea	89	21.4
Dysentery	53	12.8
Typhoid	25	6.0
Cholera	35	8.4
Worms	25	6.0
None	298	71.8
Participants response in mentioning diseases that can occur from contaminated water (Multiple answers possible)		
Diarrhea	44	10.6
Cholera	43	10.4
Other intestinal diseases	12	2.9
Hepatitis/jaundice	13	3.1
Typhoid	0	0.0
Respiratory diseases	0	0.0
Skin diseases	6	1.4
Common cold	0	0.0
Do not know	368	88.7

4.8 Knowledge on sanitation and personal hygiene

According to table 4.18 most of the participants, 88.2% use toilet for privacy while other logical purposes of toilet use was almost nil. Similar pattern was observed for purposes of hand washing and taking bath; where almost all of them do it to remove visible dirts and only negligible proportion of them do it to stay healthy. While mentioning the measures to maintain good hygiene, majority 81.4% responded some thing else that is not acceptable according to the standard. Alarmingly the sum of

all respondents who could mention even one single acceptable method was less than one tenth of the total respondents.

Table 4.18: Knowledge of the street dwellers on sanitation and hygiene

Respondents knowledge about sanitation	Number	Percentage
Respondents knowledge about the importance of toilet use (Multiple answers possible)		
Privacy	366	88.2
Hygiene purpose	26	6.3
Keep environment clean	13	3.1
Control and prevention of disease	5	1.2
Do not know	5	1.2
Reasons of hand washing by the participant (Multiple answers possible)		
To remove dirt	364	87.7
To stay healthy	15	3.6
Do not know	30	7.2
Others	6	1.4
Participants knowledge about the purpose of hand-washing		
To remove dirt	369	88.9
To stay healthy	13	3.1
Do not know	25	6.0
Others	8	1.9
Participants knowledge about the purpose of taking bath (Multiple answers possible)		
To stay fresh	360	86.7
To stay healthy	19	4.6
Do not know	24	5.8
Others	12	2.9
Participants response on the important measures to maintain good hygiene (Multiple		
Washing hands when necessary	24	5.8
Taking regular bath	15	3.6
Covering foods	9	2.2
Keeping the compound clean	10	2.4
Do not know	61	14.7
Others	338	81.4

4.9 Knowledge on diseases related to improper sanitation and hygiene

According to table 4.19 almost all of the participants do not know that diseases can occur from improper sanitation and hygiene. Knowledge about the transmission of diseases was also very limited. Only one fourth of the participants know that diseases can spread either by contaminated foods or by flies and mosquitoes. Where as, almost minion has mentioned of contaminated water or personal contacts. Terrifyingly, almost the whole population does not know any method of prevention from common diseases.

Table 4.19: Knowledge of the street dwellers on the diseases that can occur from improper sanitation and hygiene

Knowledge about diseases that can occur from improper sanitation and hygiene	**Number**	**Percent**
Participants response in mentioning diseases that can occur from improper sanitation and personal hygiene (Multiple answers possible)		
Diarrhea	6	1.4
Cholera	1	0.2
Other intestinal diseases	0	0.0
Hepatitis/jaundice	0	0.0
Typhoid	0	0.0
Respiratory diseases	0	0.0
Skin diseases	0	0.0
Common cold	0	0.0
Do not know	409	98.6

Table 4.20: Knowledge of the street dwellers on the common diseases and their prevention

Participants knowledge about common diseases	**Number**	**Percentage**
Participants answer about diseases transmission (Multiple answers possible)		
Drinking dirty water	34	8.2
Contaminated food	143	34.5
Personal contact	12	2.9
Flies and mosquitoes	113	27.2
Others	26	6.3
Participants knowledge about prevention from common diseases (Multiple answers possible)		
Drinking safe water	6	1.4
Maintaining personal hygiene	5	1.2
Keeping surroundings clean	0	0.0
Maintaining food safety	0	0.0
Do not know	408	98.3

4.10 Health seeking behavior and expenses

Table 4.21 explains the usual practices and expenses when the participants become sick. Majority of them, 85.8% prefer over the counter medicine while only a negligible proportion, 9.4% visit the government health facilities. Their medical expenses is limited to 500 Taka per episodes; while the majority, 94.5% spend less than 100 Taka.

Table 4.21: Usual practices of the street dwellers after getting sick

Practices of the respondents after getting sick	Number	Percent
Practice of the respondent after getting sick		
Visit government hospital	39	9.4
Over the counter medicine	356	85.8
Traditional medicine	15	3.6
Do nothing	5	1.2
Average expenditure of the respondent after getting sick		
Less than 100 taka	392	94.5
100-500 taka	11	2.7
More than 500 taka	3	0.7
Others	9	2.2

4.11 Water related practices

Practices related to water is illustrated in table, which shows almost all of them store water in bottles 88.4% and with a lid 90.8%. Roughly the whole population cleans the water container frequently, at least twice in a week. But the entire respondents, 93.5% clean the container with water only, which is not acceptable by any standard. Regarding the practice of water treatment before drinking, the finding is also very distressing. As it shows majority of them, 82.9% strain the water through clothes before drinking which can remove only the visible large particles but not the micro-particles or the organisms. Only a minimum portion of them practice boiling, which is recommended for drinking water.

Table 4.22: Usual practices of the street dwellers related to water

Participants practice related to water	Number	Percent
Mode of storage of drinking water		
Drum	10	2.4
Pitcher	11	2.7
Jar	10	2.4
Bottle	367	88.4
Others	17	4.1
Use of a lid in water container		
Yes	377	90.8
No	25	6.0
Sometimes	13	3.1
Frequency of cleaning of water container		
Regularly	235	56.6
Twice in a week	160	38.6
Once in a week	13	3.1
Once in a month	2	0.5

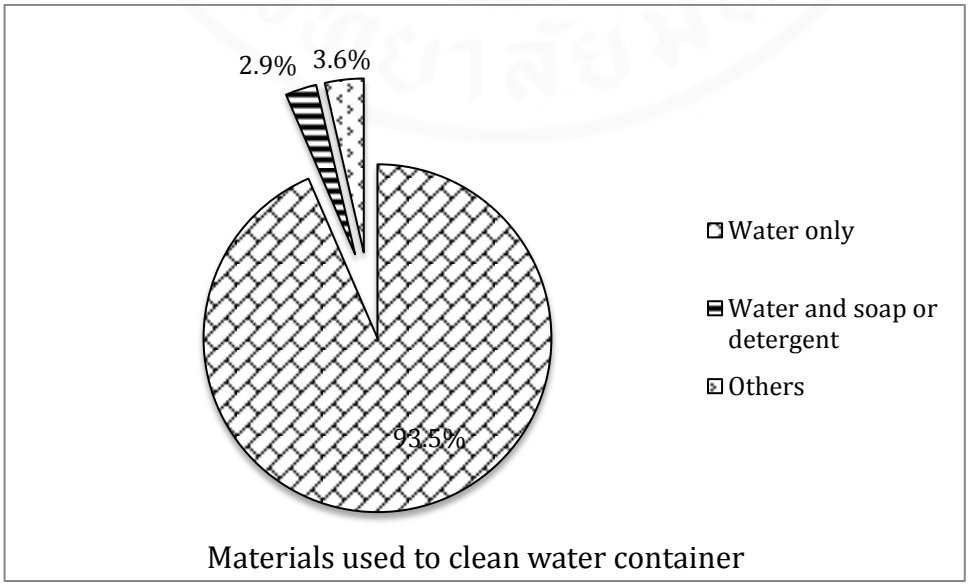

Figure 4.5: Usual practices of the participants related to water (Cleaning materials for water containers)

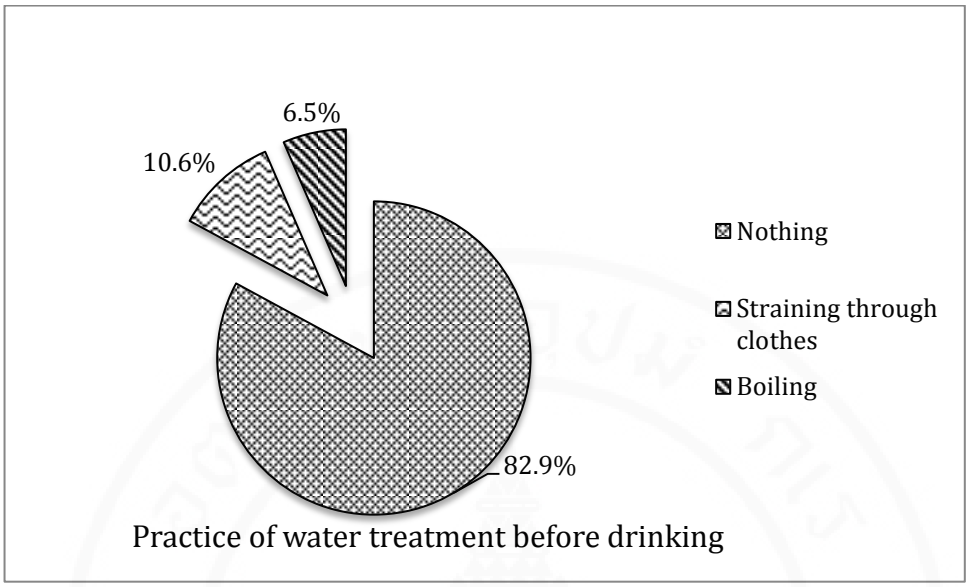

Figure 4.6: Usual practices of the participants related to water (Water treatment before drinking)

4.12 Sanitation and hygiene practices

Current practices related to toilet use are illustrated in Table 4.23, which shows majority of them, 92.0% use ring slab toilet. Though a negligible proportion using other unconventional toilets, 5.1% are still practicing open-air defecation. Almost all of them, 92.8% use sandals during toilet use.

Table 4.23: Usual practices of the street dwellers related to toilet use

Participants practices related to toilet use	Number	Percent
Types of toilet used by the respondent		
Ring slab	382	92.0
Offset	8	1.9
Hanging latrine	4	1.0
Open	21	5.1
Wearing sandals during toilet use		
Yes	385	92.8
No	29	7.0
Do not know	1	0.2

Usual practices related to sanitation and hygiene is illustrated in the figures 4.7, 4.8, 4.9, 4.10, which show almost all of them, 93.5% dispose their garbage in open air. Regarding the occasions of hand-washing, similar proportions of respondent washes their hands before taking meals or after using toilets, which is also the highest response in this figure. But only a minimum fraction washes their hands before preparing foods, feeding the child or cleaning the children's faeces.

Majority, 88.7% washes their hands with water only, while washing hands with soap and water is negligible and is only 7.2%. Almost all of the respondents take a bath once daily.

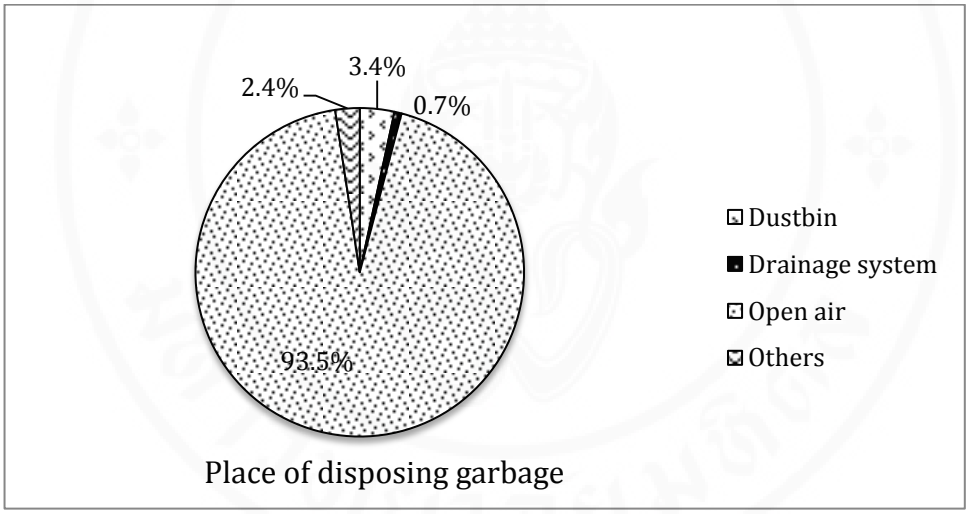

Figure 4.7: Usual practices of the participants related to the garbage disposal

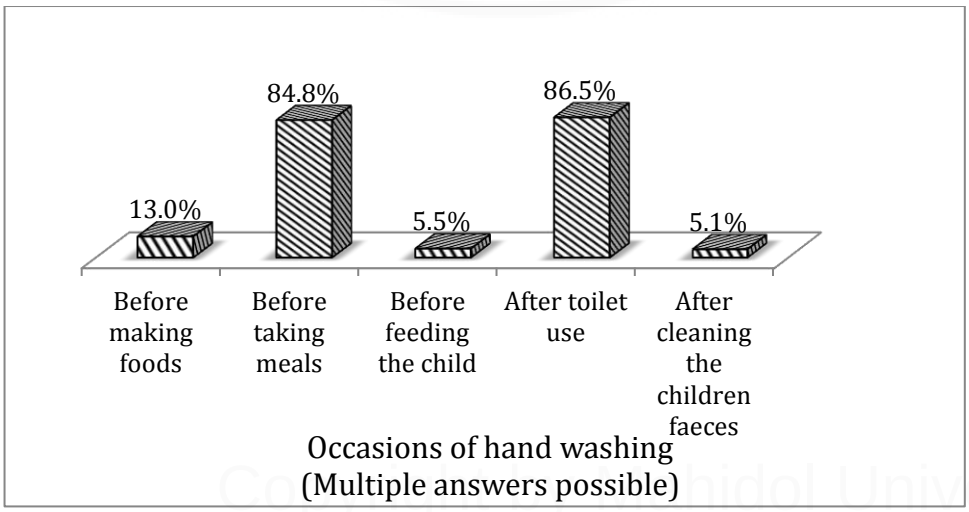

Figure 4.8: Usual practices of the participants related to the occasions of hand washing

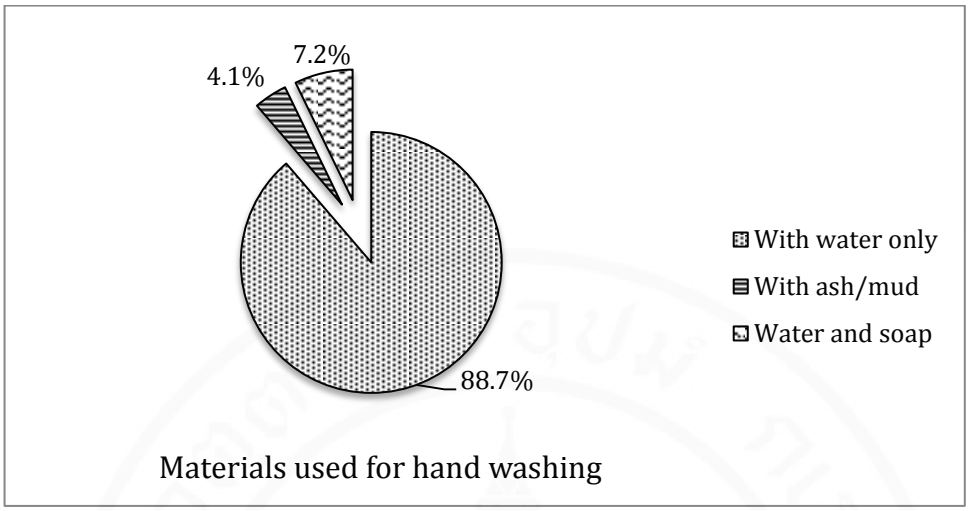

Figure 4.9: Usual practices of the participants related to hygiene (Materials used for hand washing)

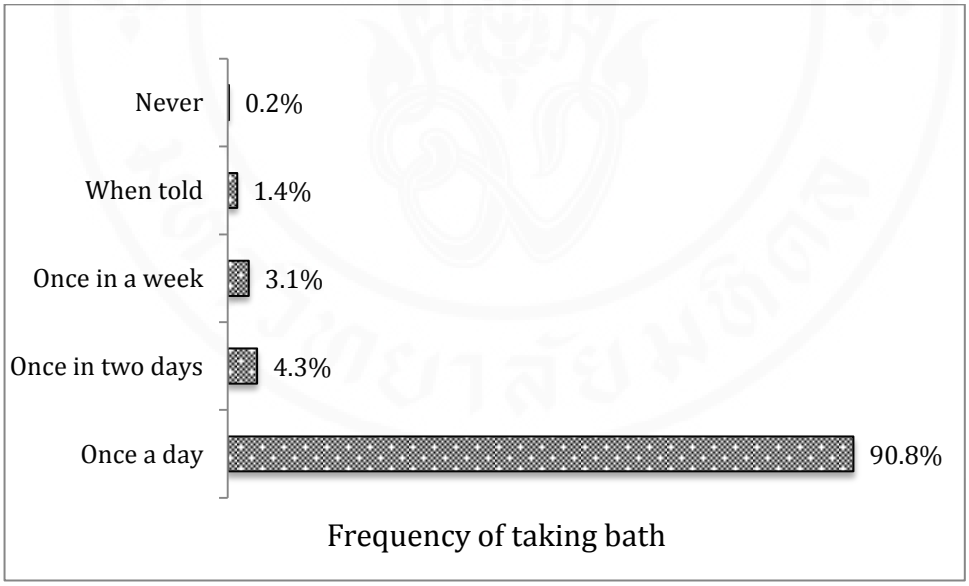

Figure 4.10: Usual practices of the participants related to personal hygiene (Frequency of taking bath)

4.13 Recent morbidities

Table 4.24, 4.25 depicts the information on recent morbidities among the study population, along with the morbidity patterns according to different locations. As it shows, majority, 80.0% of them did not have any reported illness in last one

month. Diarrhea, 9.6% was the highest among those who reported any morbidity in that specific period followed by other intestinal diseases. But in Keraniganj area the incidences of morbidity were the highest and roughly half of the population has suffered from a disease in the given period of time. The participants of Keraniganj area mostly suffered from common cold, 21.8%. The proportion of diarrhea cases was also two times higher in Keraniganj than the other locations, but the only case of Cholera was reported in the Sodorghat area.

Table 4.24: Recent morbidities among the street dwellers

Recent morbidity among the study population	**Number**	**Percent**
Recent morbidity among the participants in last 1 month (n=415)		
No disease	332	80.0
Diarrhea	40	9.6
Cholera	1	0.2
Other intestinal disease	6	1.4
Hepatitis/jaundice	4	1.0
Typhoid fever	1	0.2
Common cold	29	7.0
Don't know	2	0.5

Table 4.25: Recent morbidities among the street dwellers in different locations

	Sodorghat		Kamolapur		Kawranbazar		Lalbagh		Keraniganj	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
No disease	44	77.2	108	85.7	103	84.4	46	83.6	31	56.4
Diarrhea	5	8.8	10	7.9	10	8.2	5	9.1	10	18.2
Cholera	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0
Other intestinal disease	1	1.8	1	0.8	2	1.6	1	1.8	1	1.8
Hepatitis/jaundice	1	1.8	2	1.6	0	0.0	0	0.0	1	1.8
Typhoid fever	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0
Common cold	4	0.7	4	3.2	6	4.9	3	5.5	12	21.8
Do not know	1	1.8	1	0.8	0	0.0	0	0.0	0	0.0

4.14 Findings of direct observation

Findings of direct observation is listed in Table 4.26, which shows only a small portion, 11.3% of the tube wells or taps have cemented base but they are not located near to the drainage or sewerage area. Almost all of the water from these sources does not have any visible particle or dirts, bad smell or different colour in it but roughly one fourth of the respondents have lid in their water storage containers. Even though the toilet doors and separate lavatory for male and female were present in almost everywhere but availability of water, hand washing facilities and light sources were scanty. Additionally, foul smell and visible stain in the toilet bowl was observed in all occasions. Positively, nearly all of the respondents, 95.9% of the respondents use sandals in the toilet.

Table 4.26: Frequency and percentage of findings of direct observation

Findings of direct observation:	Number	Percent
Cemented base of the tube well or tap	47	11.3
Visible drainage or sewerage adjacent to the water	15	3.6
Visible particle/dirt in the water	5	1.2
Bad smell in the water	3	0.7
Different colour in the water	1	0.2
Lid in the storage container	87	21.0
Door in the toilet present	412	99.3
Availability of water in toilet	80	19.3
Light source in the toilet present	52	12.5
Foul smell in the toilet	409	98.6
Visible stain in the pan of the toilet	410	98.8
Separate toilet for male and female	412	99.3
Use of sandal in the toilet	398	95.9
Hand washing facility in the toilet	15	3.6

According to Figure 4.11, majority 76.6% of them collects their water from tube wells, with a small portion from the supply water line but a few cases were observed collecting water from the open water sources; river or ponds. Almost in all cases, 97.3% water dispensing points was higher than the ground. Majority of the

participants were observed to collect water in plastic jars (5-10 liters) 85.3% but their appearance were discolored and dirty as shown in Table 4.27.

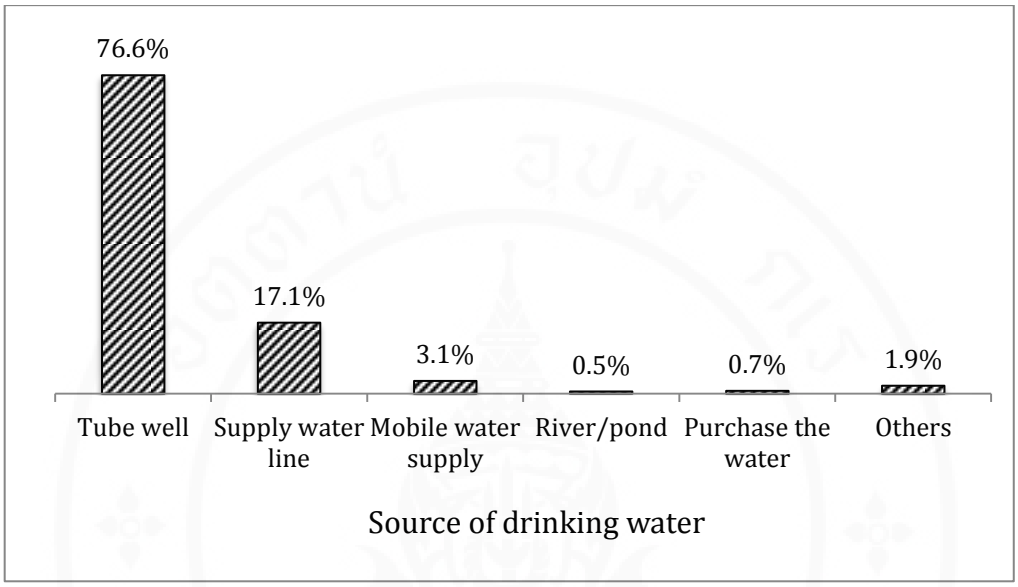

Figure 4.11: Findings of direct observation on sources of drinking water

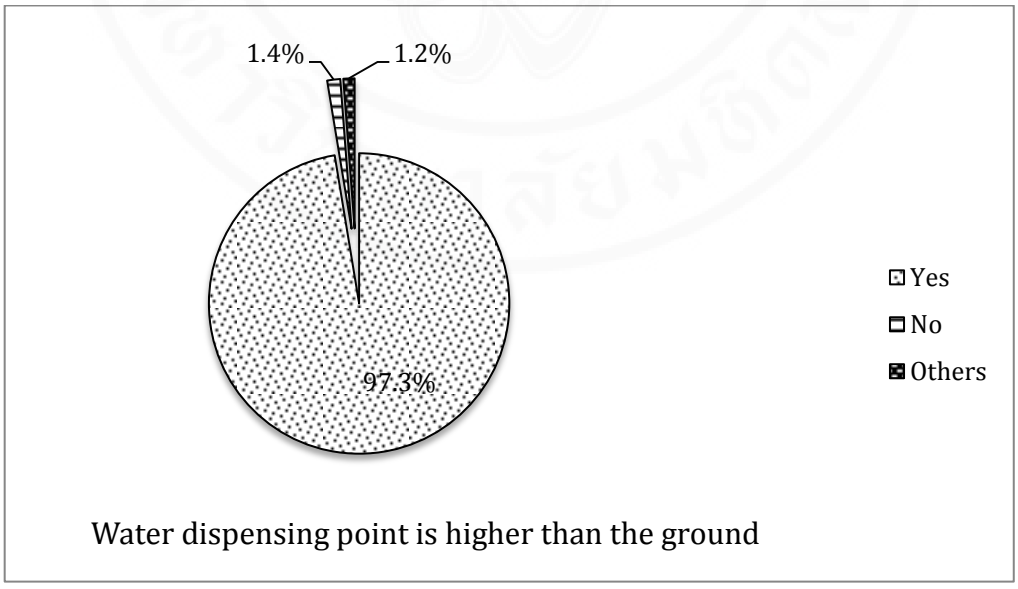

Figure 4.12: Findings of direct observation on the situation of the water dispensing point

Table 4.27: Findings of direct observation on water collection container

Direct observation of water collection container	Number	Percent
Container used to collect water		
Plastic bottles (1-2 liters)	49	11.8
Plastic jar (5-10 liters)	354	85.3
Drum	2	0.5
Others	10	2.4
Appearance of storage container		
Clean	47	11.3
Discolored and dirty	354	85.3
Others	14	3.4

Figure 4.13, 4.14 and table 4.28 illustrates the findings of direct observation related to personal hygiene and environmental sanitation status of the participants. Roughly three fourth of them washes hand with water only after toilet use and the use of soap for hand washing is negligible, 3.1%. Practically visible dirt's were noticed either in their clothes, body and palms or face in almost all the cases.

Alike proportion was observed in the drainage system for stagnant water, overflowed grey water, bad smell, flies and mosquitoes. Similarly, ill kept garbage management was observed in the vicinity, where three fourth of the garbage were found either in the drain or in the open air.

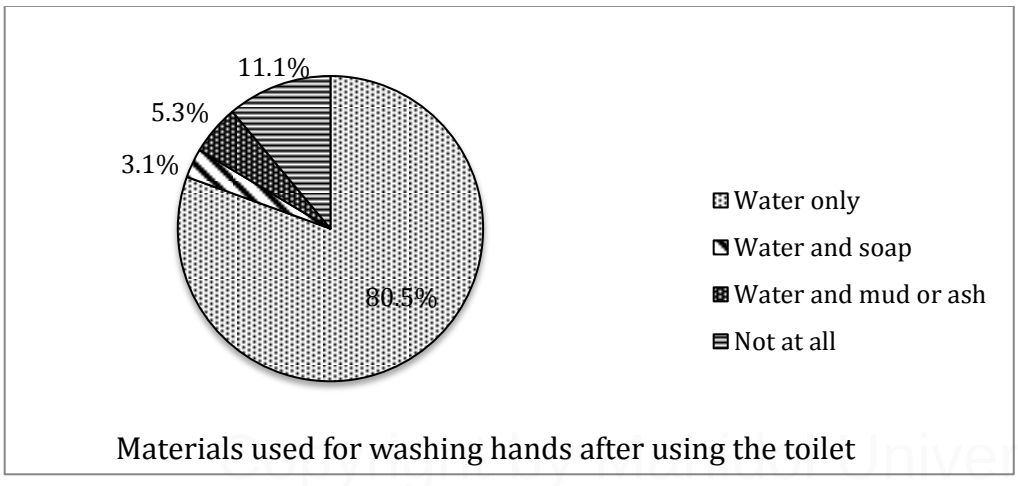

Figure 4.13: Finding of direct observation on hand washing materials used after toilet use

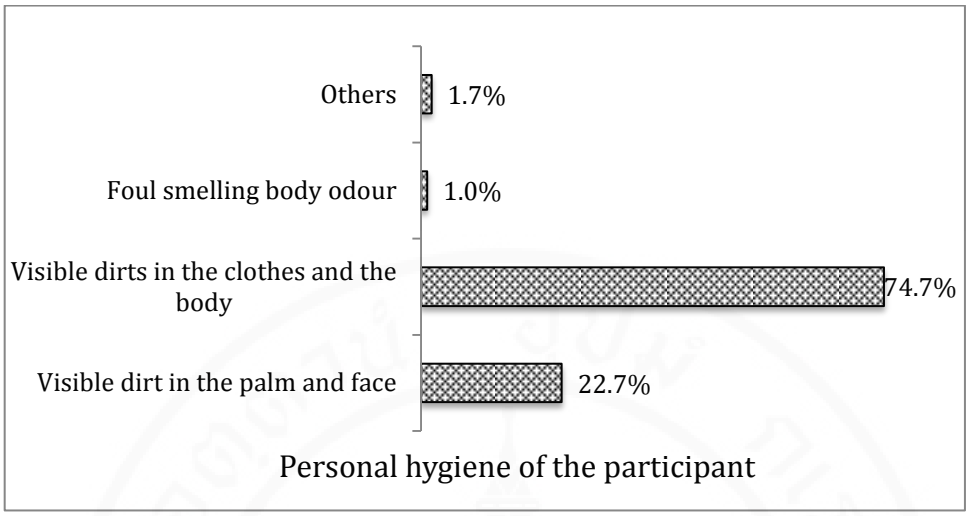

Figure 4.14: Finding of the direct observation on the general appearance of the participants

Table 4.28: Findings of direct observation on the environmental sanitation status of living place of the street dwellers

Sanitation status of the living area of the	**Number**	**Percent**
Drainage around the area [1]		
Stagnant water	84	20.3
Overflowed with grey water	79	19.1
Bad smell	127	30.8
Flies and mosquitoes	123	29.8
Garbage management in the vicinity (n=415)		
Well maintained dustbin	47	11.3
Garbage in the drainage system	47	11.3
Garbage all around	273	65.8
Others	48	11.6

[1] 413 Valid cases

Figure 4.15, 4.16 shows the cumulative scores in knowledge and practice of water, sanitation, hygiene and diseases. As it shows, approximately the all participants have a poor knowledge on WASH and diseases with a few exceptions that have fair knowledge only on personal hygiene.

Similarly almost the entire study population has a poor practice on water and personal hygiene but a major proportion fairly practices sanitation measures, 84.1%.

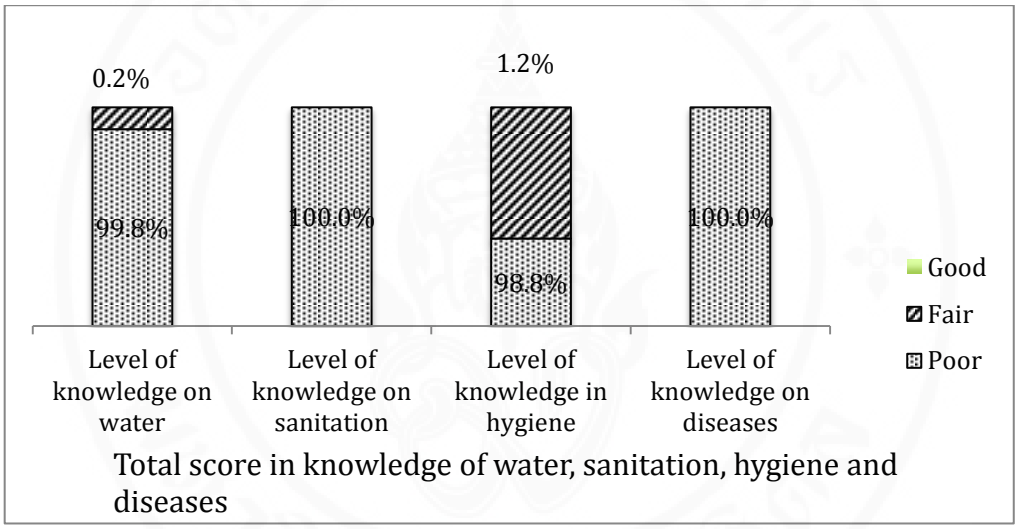

Figure 4.15: Cumulative score in knowledge of water, sanitation, hygiene and diseases among the participants

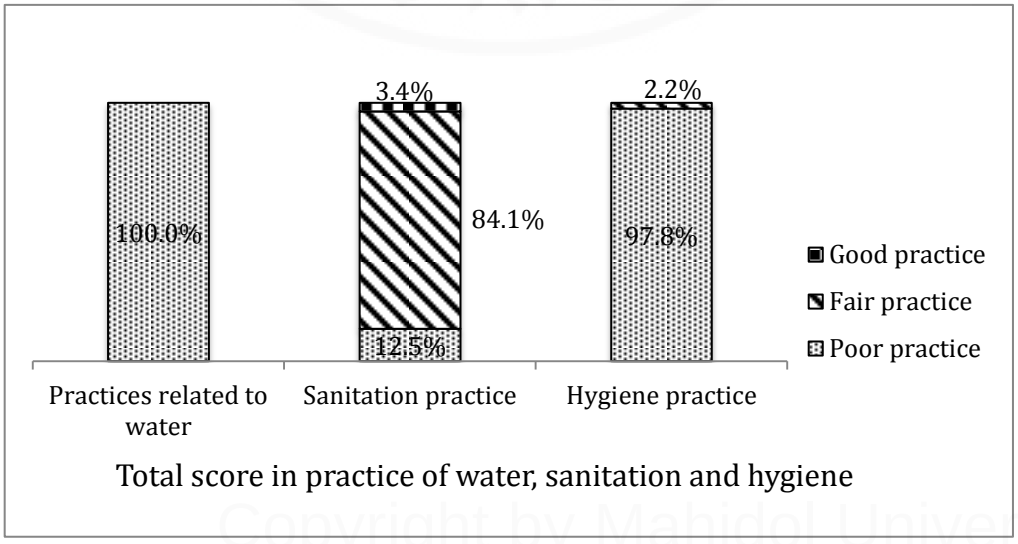

Figure 4.16: Cumulative score in practice of water, sanitation and hygiene among the participants

CHAPTER V
DISCUSSION

5.1 General characteristics:

There is no specific number of street dwellers in Bangladesh by any organization, only the rough number of children living in the street was assessed by previous studies, which was approximately 250,000. The children living as street dwellers in this study was roughly 36.0%, which included respondents aging from 8 years to less than 18 years. Since the children aging less than 8 years were not included in this study, we can assume that if they are included the magnitude of children living in the streets will reflect the previous studies on street children in Bangladesh (5).

Primary literacy rate among the study population was found to be 70.8%, which is two times higher than the national primary literacy rate. Interestingly the proportion of illiterates was 10.1%, which is three times lower than the national illiteracy rate. But above primary level literacy is as low as 2.1% that is far away than the national level according to the Bangladesh literacy survey, 2010. All this high level of literacy can be attributed to the special education projects designed for the working children and street children in last couple of years (30-32).

The study also indicates the disability (blind, deaf, dumb, physical disability) rate among the street dwellers is 2.9%, which is almost half of the national disability rate 5.6% (33).

Unemployment rate among the respondents is surprisingly quite low 4.1%, which correspondents the national unemployment rate of 5% as of data from 2012 (34). Majority of the participants 66.7% earn less than two hundred taka per day, which is almost similar to the per capita income of the country 848 USD (35). Almost the entire study population can afford at least three meals per day, which meets requirements of the BMN. Even though the working age group is about 69.1% but major portion of the dependent age group has to engage themselves into works for

their livelihood, as there is no social security scheme in the country and child labor is as high as 12.8% in the national level (36-38).

Even though 74.0% of the study population is living in the street due to poverty; a significant proportion, 13.7% are not wanted at home. That can indicates the trends of loosening social and family bondage and cohesion in both urban and rural life. Moreover poverty, age and gender discrimination can play an important role to create this unwanted status of the study subjects.

Alarmingly almost two third of the study population, 74.5% are smokers which is almost three times higher than the national smoking prevalence rate as of 2011 (39).

5.2 Coverage of safe drinking water among the street dwellers:

Majority of the study subjects collect drinking, cooking and household water from the tube wells. The coverage of safe drinking water source among the street dwellers is roughly 96.8% (as found during direct observation), which is slightly higher than the national safe drinking water coverage 81% (11). Point to be noted that, analyses to assess the quality of water by biological and biochemical standards were not conducted in this study. Tube well water, supply water line and mobile water supply are considered to be the safe water source for the city context of Bangladesh. Even though neither of the participants reported of surface water collection, but during direct observation a few cases were identified collecting water from surface water sources (rivers, ponds).

5.3 Sources, access and practices of water among the street dwellers:

Majority of the participants 92.8% travel less than thirty minutes in each trip for water collection and only 5.5% have a queuing time more than thirty minutes at the water collection point, which meets the Sphere standard of access to water. Excessive traveling time for water collection and queuing time at the water collection point indicates inadequate availability of water, which negatively effects the per capita water consumption and increases consumption from unsafe sources (40).

As observed a considerable proportion, 18.1% of respondents face some sort of discrimination while collecting the water, which can negatively influence the water collection and consumption from the safe water sources. Most of them collects and consumes 20 liters of water each day, which meets the Sphere standard for water. Since majority of the population do not have to pay for water, which relates to the commitment of the government and non-government organizations for free access to safe water sources. Positively, adult male and female are mostly collecting the water.

However 22.7% reported of the presence of visible particles or dirts in the water, absence of bad taste, bad smell or different color indicates a better acceptability of available water by the study population.

5.4 Knowledge on water, water treatment and practice:

Majority of the respondents, 82.4% do not know about water treatment processes and almost similar proportion, 80.5% do not treat water before drinking. Roughly the whole population cleans the water container frequently, at least twice in a week. But the entire respondents, 93.5% clean the container with water only, which is not acceptable by any standard. Regarding the practice of water treatment before drinking, the finding is also very distressing. As it shows majority of them, 82.9% strain the water through clothes before drinking which can remove only the visible large particles but not the micro-particles or the organisms and cannot ensure safe drinking water.

5.5 Knowledge on water borne diseases:

Majority of the participants, 85.1% have ever heard of water borne diseases but almost three-fourths of them could not mention even a single water borne diseases name. Only one tenth of the study population could mention a disease while the mainstream of them 88.7% could not mention even a single disease that can spread through contaminated water. Previous study reported that 80% slum dwellers in Chittagong district of Bangladesh were consuming contaminated water even though it

was collected from a tested safe water source. Finding of this study correlate to the previous study that households are unaware of water contamination at any stage and can cause a disease (41).

5.6 Knowledge on sanitation and hygiene:

Majority of the participants use toilet for only for privacy, while other logical reasons of sanitation is absent. Similarly, hand washing and taking bath is also focused to remove visible dirts. Participants mostly hand wash before taking a meal or after using toilets but they use water only for hand wash. Which ultimately indicates the attitude of the Bangladeshis that water only is adequate for hand washing as long as hands appear clean (10). So the practice of using soap among them is very low. They do not know the health benefits of hand washing and bathing, which ultimately indicates the poor knowledge on sanitation and hygiene among the street dwellers.

5.7 Relationship between current WASH practices and recent morbidities:

Since the time frame to report any morbidity was only one month, the morbidity incidence was quite low than apprehended before. But who ever have reported an illness in the given period of time has reported diarrhea mostly. Even a single case of cholera was reported in one Sodorghat area, which is just beside the largest river in Dhaka district. Other reported diseases can also be linked to improper WASH practices. Moreover several studies have already established the relationship between improper hygiene, hand-washing practices to respiratory diseases also. But to have a more visible relationship between the WASH practices and morbidities more number of cases were needed to do further analysis.

5.8 WASH practices during direct observation

5.8.1 Water:

During the direct observation of the study site and participants, their condition and practices were closely observed to gather more information for this study. Majority of them collect water from safe water sources but the base of the tube wells or taps are not cemented. Even though the water sources are not near the drainage or sewerage system, contamination can occur during flooding or heavy rainfall due to lack of cemented base. Moreover stagnant water around the area creates muddy, unhygienic environment. A few cases were found to collect water from surface water sources, which is considered as unsafe if consumed, untreated.

The water from these sources were free of visible particles, smell or color but qualitative assessment of water was not done in this study. Using lids in the water collection containers is very promising since it can prevent secondary contamination but the appearance of them were discolored or dirty, which ultimately reflects their attitude and lack of knowledge towards the safety of water containers.

5.8.2 Sanitation:

Different toilet facilities for man and woman were found but presence of foul smell, stains in the toilet pan, lack of light source, water, soap and hand washing facilities can negatively effects the proper toilet use. The appearance of the toilets also shows the lack of maintenance of the facilities both by the city corporation or by the users. Positively using sandals in the toilet facilities was generally observed in all the locations.

5.8.3 Hygiene:

Their practices related to personal hygiene and environmental sanitation is horrific. Visible dirt's were noticed in the clothes, face or body in almost all cases. Hand washing was limited to the use of water only, as found in the previous findings also. Uses of soap for hand washing were rare and this can be linked to the

unavailability of soaps in the facilities or general attitudes towards hand washing by Bangladeshis.

5.8.4 Environmental sanitation:

Literally no sign of garbage management was observed as trashes were found almost everywhere. Lack of trashcans, their knowledge and awareness for environmental sanitation can be blamed for this situation. Drainage systems were found overflowing with grey water, rubbish or stagnant water. Potential breeding sites for vectors were also noted in the vicinities.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

The purpose of this study is to assess the knowledge and current practice on water, sanitation, hygiene and water related diseases of the street dwellers living in Dhaka City Corporation. Additionally the current health seeking behavior and practices are also under scrutiny and correlation between their current WASH practices and recent morbidity is one of the major objectives. Since a very few development project have been launched for street dwellers and almost none in WASH sector, the findings of this study can be used in planning and formulating new projects. Moreover results of the findings can also be used as baseline information for the street dwellers in other parts of the country.

6.1 Conclusion:

6.1.1 General characteristics of the street dwellers:

Roughly one third of the street dwellers are children. Literacy up to the primary level among the street dwellers is higher than the national level. Unemployment rate and daily per capita income is almost similar to the national rate.

Their major expenses is on foods and living places. Even though they are living at the street still they have to pay for to either the policeman or local gangsters. Almost the entire study population does not have any debt and were able to save some portion from their earnings. Smoking prevalence among the street dwellers is almost three times higher than the national population but alcoholism and drug addiction is negligible.

6.1.2 Water:

Coverage of safe drinking water is a bit higher than national level with a fair access to all. But discrimination at the water collection point was also reported frequently. Maximum street dwellers do not have to pay for water, but if they have to pay it is negligible. They do not know about safe storage of water, water treatment procedures to make it safer to drink and mostly they strain the water through clothes before drinking. Even though they have heard of water borne diseases but they do not have actual knowledge on them and their mode of transmission.

6.1.3 Sanitation and hygiene:

Sanitary toilets are widely available in the study areas and majority of them were on use. But open-air defecation is still happening among the street dwellers. Additionally, poor management of the toilets was also observed. Literally there was no garbage management system in those areas and very poor drainage system was also noticed. Even though many of them wash hand before taking meals and after using toilet, use of soap while hand washing is rare.

6.1.4 Knowledge on WASH and related diseases:

Knowledge of the participants on WASH and related diseases is poor. Sanitation practices among the street dwellers are fairly acceptable but practices on water and personal hygiene is poor. Street dwellers also have a poor knowledge on common diseases and their prevention techniques.

6.2 Recommendations:

Further studies are necessary to establish the relationship between WASH related practices and morbidities among the street dwellers, moreover quality assessment of available water sources should also be done.

There is need to increase the awareness of the street dwellers on the dangers of drinking water from unsafe sources, moreover education

sessions should be arranged focusing on the safe transportation and storage, water treatment procedures and prevention of contamination.

Intensive campaign on sanitation and hygiene practices should be organized to prevent open-air defecation, improper garbage management and to ensure proper sanitation and personal hygiene practices.

Hand washing practices during the critical times should be popularized and hand-washing facilities including the availability of soap should be ensured in all toilet facilities and other public places.

Community hygiene volunteer groups can be formed from the street dwellers and training them on WASH and related diseases can ensure better dissemination of information.

Ensure proper management of the water sources, toilets, drainage system and garbage bin. If possible the management team should involve participation from the street dwellers. Incentives can also be provided for remarkable achievements in different areas.

Motivational and group activities such as meetings, campaigns, neighborhood cleaning day can also be organized regularly to strengthen and ensure participation of the street dwellers and increase their knowledge and motivation further.

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APPENDICES

APPENDIX A

To Whom It May Concern:

This is to certify that Dr. Md. Shajib Hossain, a bonafide volunteer for our organization since last couple of years is allowed to use the database collected from the street dwellers in Dhaka city corporation to measure their demographic, economical and water, sanitation and hygiene status. His use of the dataset will be for academic purpose only. Any modification, reprint or reuse must be authorised beforehand from the organization.

We wish him the best in his academic and professional career.

With best regards,

Md. Raihanul Islam
Coordinator
GPAD

GEO-PLANNING FOR ADVANCED DEVELOPMENT (GPAD) ★ ESTD-2010

Geo-Planning for Advanced Development, Bangladesh
House No # Ja 61 (Ground Floor), Mohakhali, Gulshan, Dhaka 1212
Cell: 01717-087089, 01192-143643 E-mail: info@gpadbd.com Web: www.gpadbd.com

APPENDIX B

Documentary Proof of Exemption
Ethical Review Committee for Human Research
Faculty of Public Health, Mahidol University

Protocol Title :	SAFE WATER, SANITATION AND HYGIENE PRACTICE AMONG THE DWELLERS IN DHAKA CITY CORPORATION, BANGLADESH
Protocol No. :	174/2556
Principal Investigator :	Dr. Md. Shajib Hossain
Affiliation :	Master of Public Health (International Program) Faculty of Public Health, Mahidol University

This protocol complies with a "Research with Exemption" category

Date of Issue : 11 December 2013

The aforementioned project have been reviewed and approved according to the Standard Operating Procedures of Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University.

S. Nanthamongkolchai

(Assoc. Prof. Dr. Sutham Nanthamongkolchai)
Chairman of Ethical Review Committee for Human Research

420/1 Rajvithi Road, Bangkok, Thailand 10400
Tel. (662) 3548543-9 ext. 1127, 7404 Fax. (662) 6409854

APPENDIX C

Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by GPAD (Geo Planning for Advanced Development). I understand that the project is designed to gather information about the water, sanitation and hygiene practice among the street dwellers in Dhaka city corporation, Dhaka.

My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, no one on my vicinity will be told.

I understand that most interviewees in will find the current knowledge, attitude and practice on water, sanitation and hygiene. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

Participation involves being interviewed by the interviewers from GPAD. The interview will last approximately 30-45 minutes. Notes will be written during the interview.

I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies, which protect the anonymity of individuals and institutions.

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

I have been given a copy of this consent form.

_____ _____

Signature of the participant Date

_____ _____

Signature of the Interviewer Date

Safe water, sanitation and hygiene practice among the street dwellers in Dhaka City Corporation, Bangladesh

Serial No: ☐☐☐☐

Section – 1: General Information

Ques. No	Question	Answer	Skip
101	Location of the Interviewee	Sadarghat 1 Kamlapur 2 Kawranbazar 3 Lalbagh 4 Keranigonj 5	
102	Beneficiary Information		

Name	Relation with the House owner (Code)	Age (Total Age/ if the age of houseold members is below 5 years, then used the months)	Sex 1.Male 2.Female	Marital Status	Education	Occupation	Disabilities
1	2	3	4	5	6	7	8

Code

Relation Code: (Collumn 2)	Code	Marital Status Code: (Collumn 5)	Code	Education Code: (Collumn 6)	Code	Occupation Code: (Collumn 7)	Code	Disabilities (Collumn 8)	Code
Household Owner	1	Married	1	Illiterate	1	Unemployed	1	No disability	1
Husband/ Wife	2	Unmarried	2	Only Signature	2	Employed by others (factory worker, night guard)	2	Blind	2
Son/Daughter	3	Divorced	3	Primary	3	Self employed (shop keeper, hawker, scrape collector)	3	Deaf	3
Brother/Sister/Brother in law/Sister in law	4	Widowed	4	Secondary	4	Others (begging, prostitution)	4	Dumb	4
Gran son/Grand daughter	5	Stay Separately-Not Divorce	5	More than secondary	5			Physical	5
Non relatives	6	Others	55	Others	55			Mental	6
Others	55							Multiple	7
								Others	55

Ques. No	Question	Answer		Skip
103	How long you are living in Dhaka?			
104	Why are you living in Street?	Unwanted at home Poverty Occupation Self choice No answer Others	1 2 3 4 5 55	
105	Where do you sleep at night?	On the street Under a flyover Park Rail station Launch Terminal Others	1 2 3 4 5 55	
106	With whom you are living?	Alone Parents Relatives Others	1 2 3 55	
107	If you living alone, where are your family members living?	Village Some other slums/ pavements Don't know Others	1 2 3 55	

Section – 2: Income, Expenditure, Savings and Loan

Ques. No	Question	Answer		Skip
201	How much time do you work in a day?	Up to 4 hours More than 4 but less than 8 hr Full 8 hours More than 8 but less than 12 hr 12 hr and above	1 2 3 4 5	
202	How many days do you works in last week?		Day	
203	What is your daily average income?	Up to 200 Tk 201 to 400 Tk 401 to 600 Tk 601 to 800 Tk 801 to 1000 Tk	1 2 3 4 5	
204	What is your expenditure in last weekly?			
	Food:			
	Recreation/ Entertainment:			
	Slum/ House Rent:			
	Mobile:			
	Treatment:			
	Drugs:			
	Leader/ Muscleman:			
	Water:			
	Toilet:			
	Police:			
	Purchase of cloths:			
	Send to village/home:			
	Others:			
	Total:			
205	Do you have any loan?	Yes No	1 2	
206	From which source do you borrowed money during past 12 months?			
207	Have you saved money?	Yes No	1 2	
208	How much money have you saved?	.....	Taka	
209	Where do you keep your savings?	Mud Bank Bank Cooperative Other Person Post office Others (Define):	1 2 3 4 5 55	
210	How many meals do you take everyday?	1-2 meals 3 meals More than 3 meals	1 2 3	

Section – 3: Water and Sanitation

Ques. No	Question	Answer	Skip
301	What is your water source? (Multiple answers possible) Drinking Water ☐ Cooking Purpose ☐ House Hold Uses ☐	Tubewell Water 1 Supply Water Line 2 Mobile Water Supply 3 River 4 Purchase the Water 5 Others 55	
302	How long does it take to bring water from the water source (approximate time taken per trip)?	Drinking Water: Time:..... ....Minutes Cooking Water: Time:..... ....Minutes	
304	What is the queing time at the water collection point?	No waiting 1 5-10 minutes 2 11-30 minutes 3 More than 30 minutes 4	
305	Is there any discrimination at the water collection point?	Yes 1 No 2 Sometimes 3	
306	How much water is needed for your daily family use? (Measure by the unit of 2 liter water bottles)	..... Bottles	
307	Payment for water/ day	Yes 1 No 2 Don't know 3	
308	What is your cost for the water per day?	..... Taka/Day	
309	Who usually collects the water?	Adult Women 1 Adult Male 2 Female Child (<18 yrs) 3 Male Child (<18 yrs) 4 Both Adult Male & Female 5 Both Male & Female Child 6	
310	Is there any visible particles/ dirt in your drinking water?	Yes 1 No 2 Sometimes 3	
311	Is there any bad smell in your drinking water?	Yes 1 No 2 Sometimes 3	
312	Is there any different color in your drinking water?	Yes 1 No 2 Sometimes 3	
313	Is there any bad taste in your drinking water?	Yes 1 No 2 Sometimes 3	
314	How do you store your drinking water?	Drum 1 Pitcher 2 Jar 3 Bottle 4 Others 55	
315	Do you use a lid in the water container?	Yes 1 No 2 Sometimes 3	

Ques. No	Question	Answer	Skip
316	How often do you clean your water container?	Regularly 1 Twice in a week 2 Once in a week 3 Once in a month 4 Never 5	
317	What do you use to clean your water container?	Water only 1 Water and soap or detergent 2 Others 55	
318	What kind of toilet do you use?	Ring Slab 1 Offset 2 Hanging Latrine 3 Open 4	
319	Where do you dispose your garbage?	Dustbin 1 Drainage System 2 Open Air 3 Others 4	

Section – 4: Health and Hygiene

Ques. No	Question	Answer	Skip
401	Do you know about water treatment to make it safer to drink?	Yes 1 No 2 Don't know 3	
402	Do you treat your water to make it safer to drink?	Yes 1 No 2 Sometimes 3	
403	What do you usually do to treat water before drinking?	Nothing 1 Straining through a cloth 2 Boiling 3 Adding medicine 4 Others 5	
404	Do you wear sandals during toilet use?	Yes 1 No 2 Don't know 3	
405	When you wash your hands?	Before making foods 1 Before taking meals 2 Before feeding the child 3 After toilet use 4 After cleaning the children's faeces 5 Don't know 6	
406	How do you wash hands?	With water only 1 With ash/mud 2 With water and soap 3 Don't know 4	
407	How frequently do you take bath?	Once a day 1 Once in two days 2 Once in a week 3 When told 4 Never 5	
408	Do you Smoke?	Yes 1 Occasional 2 Past smoker 3 Never 4	
409	Do you take Alcohol?	Yes 1 Occasional 2 Past drinker 3 Never 4	
410	Do you take beetle nut?	Yes 1 Occasional 2 Past chewer 3 Never 4	

Ques. No	Question	Answer		Skip
411	Do you have drug addiction?	Yes	1	
		Occasional	2	
		Past addict	3	
		Never	4	
412	Have you ever heard of water related diseases?	Yes	1	
		No	2	
		Cannot remember	3	
413	Can you name some diseases that can spread through water?	Diarrhea	1	
		Dysentery	2	
		Typhoid fever	3	
		Cholera	4	
		Others (Worms)	5	
		None	99	
414	How these diseases transmit?	Drinking dirty water	1	
		By contaminated food	2	
		By personal contacts	3	
		Flies and mosquitoes	4	
		Others	55	
415	What is the recent morbidity you had in last 1 month?	No disease	1	
		Diarrhea	2	
		Cholera	3	
		Other intestinal disease	4	
		Hepatitis/jaundice	5	
		Typhoid fever	6	
		Respiratory diseases	7	
		Skin disease	8	
		Common cold	9	
		Don't know	99	
416	What disease from below can occur from contaminated water?	Diarrhoea	1	
		Cholera	2	
		Other intestinal disease	3	
		Hepatitis/jaundice	4	
		Typhoid fever	5	
		Respiratory diseases	6	
		Skin disease	7	
		Common cold	8	
		Don't know	99	
417	What disease can occur from improper sanitation and personal hygiene	Diarrhoea	1	
		Cholera	2	
		Other intestinal disease	3	
		Hepatitis/jaundice	4	
		Typhoid fever	5	
		Respiratory diseases	6	
		Skin disease	7	
		Common cold	8	
		Don't know	99	
418	How can you prevent yourself from common diseases	Drinking safe water	1	
		Maintaining personal hygiene	2	
		Keeping surroundings clean	3	
		Maintaining food safety	4	
		Do not know	99	
419	What do you do when get sick	Visit government hospital	1	
		Over the counter medicine	2	
		Traditional medicine	3	
		Do nothing	4	
420	How much you usually spend when get sick for treatment	Less than 100 Taka	1	
		100-500 Taka	2	
		More than 500 Taka	3	
		Others	55	

421	Why it is important for people to use toilet?	Privacy	1	
		Hygiene purpose	2	
		Keep environment clean	3	
		Control and prevention of disease	4	
		Don't know	5	
		Others	55	

422	Why do you wash hands?	To remove dirt 1 To stay healthy (control and prevention of disease) 2 Don't know 5 Others 55	
423	Why it is important to wash hands?	To remove dirt 1 To stay healthy (control and prevention of disease) 2 Don't know 5 Others 55	

424	Why it is important to take a bath?	To stay fresh 1 To stay healthy 2 Don't know 3 Others 55	
425	What are the important measures to maintain good hygiene? (Multiple answers possible)	Washing hands when necessary 1 Taking regular bath 2 Covering foods 3 Keeping the compound clean 4 Do not know 5 Others 55	

Observation checklist for water, sanitation and hygiene practice

Observation checklist for water, sanitation and hygiene practice

Ques. no	Question	Answer	Skip
101	Source of drinking water	Tube well 1 Supply water line 2 Mobile water supply 3 River/pond 4 Purchase the water 5 Others 55	
102	Water dispensing point is higher than the ground	Yes 1 No 2 Others 55	
103	Cemented base of the tube well or tap	Yes 1 No 2	
104	Visible drainage or sewerage adjacent to the water source	Yes 1 No 2	
105	Is there any visible particles/dirt in the water	Yes 1 No 2	
106	Is there any bad smell in the water	Yes 1 No 2	
107	Is there any different colour in the water	Yes 1 No 2	

108	Containers used to collect water	Plastic bottles (1-2 litres) 1 Plastic jar (5-10 litres) 2 Drum 3 Others 55	
109	Lid in the storage container	Yes 1 No 2	
110	Appearance of the storage container	Clean 1 Discoloured and dirty 2 Others 55	
111	Door in the toilet	Yes 1 No 2	
112	Availability of water in the toilet	Yes 1 No 2	
113	Light source in the toilet	Yes 1 No 2	
114	Foul smell in the toilet	Yes 1 No 2	
115	Visible stain in the pan of the toilet	Yes 1 No 2	
116	Separate toilet for male and female	Yes 1 No 2	

117	Use of sandals in the toilet	Yes 1 No 2	
118	Hand washing facility in the toilet	Yes 1 No 2	
119	People washing hand after using the toilet	Water only 1 Water and soap 2 Water and mud or ash 3 Not at all 4	
120	Drainage around the area	Stagnant water 1 Overflowed with grey water 2 Bad smell 3 Flies and mosquitoes 4	
121	Garbage management in the vicinity	Well-maintained dustbin 1 Garbage in the drainage system 2 Garbage all around 3 Others 55	
122	Personal hygiene of the participant	Visible dirt in the palm and face 1 Visible dirt in the clothes and the body 2 Foul smelling body odour 3 Others 55	

গবেষণায় সাক্ষাৎকার অংশগ্রহণের জন্য সম্মতি

আমি GPAD) উন্নত উন্নয়ন জিও পরিকল্পনা (দ্বারা পরিচালিত একটি গবেষণা প্রকল্প অংশগ্রহণের স্বেচ্ছাকর্মী .আমি প্রকল্প ঢাকা সিটি করপোরেশন, ঢাকা রাস্তায় অধিষ্ঠাতা মধ্যে পানি, স্যানিটেশন ও স্বাস্থ্য অভ্যাস সম্পর্কে তথ্য সংগ্রহ করার জন্য ডিজাইন করা হয় বুঝতে.

এই প্রকল্পের আমার অংশগ্রহণ স্বেচ্ছাসেবী হয় .আমি আমার অংশগ্রহণ জন্য দেওয়া হবে না বুঝতে .আমি শান্তি যে কোনও সময়ে বিনা অংশগ্রহণ প্রত্যাহার এবং বিচ্ছিন্ন হতে পারে .আমি অংশগ্রহণের বা গবেষণা থেকে নিজেকে প্রত্যাহার করার কমে, তাহলে আমার সান্নিধ্যের কোন এক জানানো হবে.

আমি সবচেয়ে ইন্টারভিউ পানি, স্যানিটেশন ও স্বাস্থ্য বর্তমান জ্ঞান, মনোভাব এবং অনুশীলন এটি করবে . যাইহোক, আমি ইন্টারভিউ সময় কোন ভাবেই অস্বস্তি যদি মনে করেন, আমি কোনো প্রশ্নের উত্তর দিতে বা ইন্টারভিউ শেষ প্রত্যাখ্যান করার অধিকার আছে.

অংশগ্রহণে GPAD থেকে সাক্ষাতকারীরা সাক্ষাতকার নেয়া হচ্ছে জড়িত .ইন্টারভিউ প্রায় 45-30 মিনিট স্থায়ী হবে .নোট সাক্ষাতকারের সময় লিখিত হবে.

আমি গবেষক এই সাক্ষাতকার থেকে প্রাপ্ত তথ্য ব্যবহার করে যে কোনও রিপোর্টে নামের আমার সম্পর্কে সনাক্ত করা হবে না বুঝতে, এবং এই গবেষণায় একজন অংশগ্রহণকারী হিসেবে আমার গোপনীয়তাকে সুরক্ষিত থাকবে না .রেকর্ড এবং তথ্য পরবর্তী ব্যবহারসমূহ ব্যক্তি ও প্রতিষ্ঠানের গোপন রক্ষা যা প্রমিত ডেটা ব্যবহার নীতি, বিষয় হতে হবে.

আমি আমার দেওয়া ব্যাখ্যা পড়তে এবং বুঝতে আছে .আমি আমার সকল প্রশ্ন আমার সন্তুষ্টি উত্তর ছিল, এবং আমি স্বেচ্ছায় এই গবেষণায় অংশগ্রহণের সম্মত হন.

আমি এই অনুমতি দেওয়ার ফর্ম একটি অনুলিপি দেওয়া হয়েছে.

_____ _____

অংশগ্রহণকারী স্বাক্ষর তারিখ

_____

_____

সাক্ষাত্কার স্বাক্ষর তারিখ

ঢাকা সিটি কর্পোরেশন, বাংলাদেশে রাস্তায় অধিষ্ঠাতা মধ্যে নিরাপদ পানি, স্যানিটেশন ও স্বাস্থ্য অভ্যাস

সিরিয়াল নম্বর: ☐☐☐☐

অধ্যায় :1 –সাধারণ তথ্যাবলী

প্রশ্ন No	প্রশ্ন	উত্তর	কর
101	সাক্ষাত্কারী এর অবস্থান	Sadarghat 1 কমলাপুর 2 Kawranbazar 3 লালবাগ 4 Keranigonj 5	
102	উপকৃত তথ্য		

প্রশ্ন No	প্রশ্ন	উত্তর	কর

নাম	হাউস মালি কের সঙ্গে সম্পর্ক) কো ড (	বয়স পরিবার সদস্যদের বছরের নীচের 5 বছর যদি বয়স মোট /তারপর মাস ব্যবহৃত (	সেক্স .1Mal e .2Fem ale	বৈবা হিক স্থিতি	শিক্ষা	বৃত্তি	অক্ষম তা
1	2	3	4	5	6	7	8

কোড

সম্পর্ক কোড :) Collumn (2	কো ড:	বৈবাহিক স্থিতি কোড:) Collumn (5	কো ড:	শিক্ষা কোড:) Collumn (6	কো ড:	বৃত্তি কোড :) Collumn (7	কো ড:	প্রতিব ন্ধীদের (Collu mn 8)	কো ড:
হস্থালী মালিক	1	বিবাহিত	1	নিরক্ষর	1	বেকার	1	কোন অক্ষম তা	1
স্বামী / স্ত্রী	2	অবিবাহিত	2	শুধু স্বাক্ষর	2	অন্যান্য) কারখানা কর্মী, রাতে পাহারা (দ্বারা নিযুক্তি	2	অন্ধ	2
পুত্র / কন্যা	3	বিবাহ বিচ্ছিন্ন	3	প্রাথমিক	3	স্বয়ং নিযুক্ত) দোকানদার, hawker, scrape সংগ্রাহকের (	3	বধির	3
আইন আইন /ভগিনী মধ্যে ভাই / ভগিনী / ভাই	4	উইডোড্	4	সেকেন্ডারি	4	অন্যান্য) ভিক্ষা করে, পতিতাবৃত্তি (	4	মূক	4
ঠাকরুণদিদি পুত্র / কন্যা গ্র্যান্ড	5	বিবাহবিচ্ছেদ পৃথকভাবে না থাকুন	5	যাও আরো বেশী	5			শারীরিক	5
অ আত্মীয়	6	অন্যান্য	55	অন্যান্য	55			মানসিক	6
অন্যান্য	55							একাধিক	7

প্রশ্ন No	প্রশ্ন	উত্তর		কর
103	কতক্ষণ আপনি ঢাকায় বসবাস করছেন?			
104	আপনি কেন রাস্তার মধ্যে বাস করছেন?	বাড়ীতে অবাঞ্ছিত দারিদ্র্য বৃত্তি স্বয়ং পছন্দ কোন উত্তর নেই অন্যান্য	1 2 3 4 5 55	
105	আপনি কোথায় রাতে ঘুমের?	রাস্তায় একটি flyover অধীনে পার্ক রেল স্টেশন টার্মিনাল চালু করুন অন্যান্য	1 2 3 4 5 55	
106	কাদের সঙ্গে আপনি বাস করছেন?	একা মাতাপিতা আত্মীয় অন্যান্য	1 2 3 55	
107	আপনি একা বাস, তাহলে যেখানে আপনার পরিবারের সদস্যদের বাস করছেন?	গ্রাম অন্যান্য বেশ কয়েকটি বস্তি / pavements জানি না অন্যান্য	1 2 3 55	

অনুচ্ছেদ :2 – আয়, ব্যয়, সঞ্চয় ও ঋণ

Ques. No	প্রশ্ন	উত্তর		কর
201	আপনি দিনে কত সময় কাজ করে না?	পর্যন্ত 4ঘন্টা 4তুলনায় আরো কিন্তু কম 8 ঘন্টা সম্পূর্ণ 8 ঘন্টা 8তুলনায় আরো কিন্তু কম 12 ঘন্টা 12ঘন্টা এবং উপরে	1 2 3 4 5	
202	আপনি গত সপ্তাহে কত দিন কাজ করে না?		Day	
203	আপনার দৈনন্দিন গড় আয় কি?	আপ 200 টাকা থেকে 201থেকে 400টাকা 401থেকে 600 টাকা 601থেকে 800 টাকা 1000টাকা থেকে801	1 2 3 4 5	
204	গত সাপ্তাহিক আপনার ব্যয় কি?			
	খাদ্য:			
	পুনঃনির্মাণ / বিনোদন:			

Ques. No	প্রশ্ন	উত্তর	কর
	বস্তি / বাড়ী ভাড়া:		
	মোবাইল:		
	চিকিত্সা:		
	ড্রাগস:		
	নেতা / ষণ্ডামার্কা লোক:		
	জল:		
	টয়লেট:		
	পুলিশ:		
	কাপড় ক্রয়:		
	গ্রাম /বাড়ি প্রেরণ করুন:		
	অন্যান্য:		
	মোট:		
205	যদি আপনার কোনো ঋণ আছে?	হ্যাঁ 1 না 2 → 207	
206	যা উৎস থেকে আপনি গত 12মাসের মধ্যে টাকা ধার করতে পারি?		
207	আপনি টাকা সঞ্চয় করেছেন?	হ্যাঁ 1 না 2 → 301	
208	আপনি কত টাকা সঞ্চয় করেছেন?	..... টাকা	
209	যেখানে আপনি আপনার সঞ্চয় রাখা হয়?	কাদা ব্যাংক 1 ব্যাংক 2 সমবায় 3 অন্য ব্যক্তি 4 অফিস পোস্ট করুন 5 অন্যান্য) ব্যাখ্যা: (55	
210	আপনি কিভাবে অনেক খাবার দৈনন্দিন গ্রহণ করবেন?	2-1খাবার 1 3 খাবার 2 3খাবার অধিক 3	

অধ্যায় :3 -পানি ও স্যানিটেশন

Ques. No	প্রশ্ন	উত্তর	Skip
301	আপনার জল উৎস কি?) একাধিক উত্তর সম্ভব (পানীয় জল রন্ধন পারপাস হাউস স্থগিত ব্যবহারসমূহ	নলকূপ জল 1 পানি সরবরাহ লাইন 2 মোবাইল জল সরবরাহ 3 নদী 4 জল ক্রয় 5 অন্যান্য 55	

Ques. No	প্রশ্ন	উত্তর	Skip
302	কতক্ষণ জল উৎস)ট্রিপ প্রতি নেওয়া আনুমানিক সময় (থেকে জল আনতে সময় লাগবে?	পানীয় জল: সময় .... :মিনিট রন্ধন জল: সময় .... :মিনিট	
304	পানি সংগ্রহে সময়ে কিউয়িং সময় কি?	কোন অপেক্ষা 1 10-5মিনিট 2 30-11মিনিট 3 অধিক 30মিনিট 4	
305	পানি সংগ্রহে সময়ে কোন বৈষম্য আছে?	হ্যাঁ 1 কোন 2 কখন কখন 3	
306	কত জল আপনার দৈনন্দিন পরিবারের ব্যবহারের জন্য প্রয়োজন হয়? 2)লিটার জলের বোতল ইউনিট দ্বারা মেজার(	.....বোতল	
307	জল / দিনের জন্য লেনদেন	হ্যাঁ 1 না 2 জানি না 3	
308	প্রতিদিন জল জন্য আপনার খরচ কি?	.....টাকা / দিন	
309	যারা সাধারণত জল সংগ্রহ করা হয়?	বয়স্ক নারী 1 প্রাপ্তবয়স্ক পুরুষ 2 মহিলা শিশু) < 18yrs(3 পুরুষ শিশু) < 18yrs(4 পূর্ণবয়স্ক পুরুষ ও মহিলা উভয় 5 পুরুষ ও মহিলা উভয় শিশু 6	
310	আপনার পানীয় জলে কোনো দৃশ্যমান কণা / ময়লা আছে কি?	হ্যাঁ 1 কোন 2 কখন কখন 3	
311	আপনার পানীয় জলের কোন খারাপ গন্ধ আছে কি?	হ্যাঁ 1 কোন 2 কখন কখন 3	
312	আপনার পানীয় জলে কোন রং আছে?	হ্যাঁ 1 কোন 2 কখন কখন 3	
313	আপনার পানীয় জলের কোন খারাপ স্বাদ আছে কি?	হ্যাঁ 1 কোন 2 কখন কখন 3	

Ques. No	প্রশ্ন	উত্তর	Skip
314	পনি কিভাবে আপনার পানীয় জল সংরক্ষণ করব?	ড্রাম 1 জার 2 বয়াম 3 বোতল 4 অন্যান্য 55	
315	আপনি কোষ একটি ঢাকনা ব্যবহার করতে চান?	হ্যাঁ 1 কোন 2 কখন কখন 3	
316	আপনি কত ঘন ঘন কোষ পরিষ্কার করবেন?	নিয়মিত 1 দুবার সপ্তাহে 2 একবার একটি সপ্তাহ 3 একবার এক মাসের মধ্যে 4 না 5	
317	আপনার কোষ পরিষ্কার কি ব্যবহার করবেন?	জল শুধু 1 পানি ও সাবান বা ডিটারজেন্ট 2 অন্যান্য 55	
318	আপনি টয়লেট কি ধরনের ব্যবহার করবেন?	রিং স্লাব 1 অফসেট 2 পায়খানা ঝুলন্ত 3 খুলুন 4	
319	যেখানে আপনি আপনার আবর্জনা মীমাংসা করবেন?	ওঁচলাকুড় 1 জলনির্গমন –প্রণালী 2 এয়ার খুলুন 3 অন্যান্য 4	

ধারা :4 – স্বাস্থ্য

Ques. No	প্রশ্ন	উত্তর	Skip
401	আপনি এটি নিরাপদ পান করতে জল চিকিত্সা সম্পর্কে জানেন?	হ্যাঁ 1 কোন 2 জানি না 3	
402	আপনি এটি নিরাপদ পান করার জন্য আপনার জল আচরণ করবেন না?	হ্যাঁ 1 কোন 2 কখন কখন 3	
403	সাধারণত আপনি পানীয় আগে জল চিকিত্সা কি করব?	কিছুই না 1 একটি কাপড় দিয়ে Straining 2 ফুটন্ত 3 ঔষধ যোগ করার পদ্ধতি 4 অন্যান্য 5	

Ques. No	প্রশ্ন	উত্তর	Skip
404	আপনি টয়লেট ব্যবহারের সময় স্যান্ডেল পরেন না?	হ্যাঁ 1 কোন 2 জানি না 3	
405	আপনি আপনার হাত ধুয়ে কখন?	খাবার আগে 1 খাবার গ্রহণের পূর্বে 2 সন্তানকে খাওয়ানোর আগে 3 টয়লেট ব্যবহারের পর 4 শিশুদের মলের পরিষ্কার করার পর 5 জানি না 6	
406	আপনি কিভাবে হাত ধুতে হয়?	জল দিয়ে কেবল 1 ছাই / কাদা সঙ্গে 2 পানি ও সাবান দিয়ে 3 জানি না 4	
407	কিভাবে প্রায়ই আপনি স্নান করব?	একবার একটি দিন 1 একবার দুই দিন 2 একবার একটি সপ্তাহ 3 বলা হলে 4 কখনও5	
408	আপনি ধূমপান করেন?	হ্যাঁ 1 অনিয়মিত 2 অতীত ধুম্রপান 3 না 4	
409	আপনি অ্যালকোহল গ্রহণ করবেন না?	যাঁ 1 অনিয়মিত 2 অতীত যে পান করে 3 না 4	
410	আপনি পোকা বাদাম নিচ্ছেন?	যাঁ 1 অনিয়মিত 2 অতীত chewer 3 না 4	
411	আপনি ব্যসন আছে?	হ্যাঁ 1 অনিয়মিত 2 অতীত আসক্ত 3 না 4	
412	আপনি কি কখনো পানি সম্পর্কিত রোগের শুনেছেন?	যাঁ 1 কোন 2 মনে করতে পারেন না 3	

Ques. No	প্রশ্ন	উত্তর	Skip
413	আপনি জল ছড়িয়ে করতে পারেন এমন কিছু রোগের নাম করতে পারি?	ডায়রিয়া 1 আমাশা 2 জ্বরবিকার 3 কলেরা 4 অন্যান্য)কৃমি(5 কেউ না 99	
414	এই রোগ প্রেরণ কিভাবে?	লিন পানীয় জল 1 দূষিত খাদ্য দ্বারা 2 ব্যক্তিগত যোগাযোগ দ্বারা 3 ক্রোধে উন্মত্ত হয়ে পড়ে এবং মশা 4 অন্যান্য 55	
415	আপনি শেষ 1 মাস ছিল সাম্প্রতিক অসুস্থতা কি?	কোন রোগ 1 ডায়রিয়া 2 কলেরা 3 অন্য আন্ত্রিক রোগ 4 হেপাটাইটিস / জন্ডিসের 5 জ্বরবিকার 6 শ্বাস প্রশ্বাসের রোগের 7 চামড়া রোগ 8 সাধারণ ঠান্ডা 9 জানি না 99	
416	নিচে থেকে কি রোগ দূষিত জল থেকে হতে পারে?	কলেরা 1 অন্য আন্ত্রিক রোগ 2 হেপাটাইটিস / জন্ডিসের 3 জ্বরবিকার 4 শ্বাস প্রশ্বাসের রোগের 5 চামড়া রোগ 6 সাধারণ ঠান্ডা 7 জানি না 8 99	
417	কি রোগ ভ্রান্ত স্যানিটেশন এবং ব্যক্তিগত স্বাস্থ্যবিধি থেকে ঘটতে পারে	কলেরা 1 অন্য আন্ত্রিক রোগ 2 হেপাটাইটিস / জন্ডিসের 3 জ্বরবিকার 4 শ্বাস প্রশ্বাসের রোগের 5 চামড়া রোগ 6 সাধারণ ঠান্ডা 7 জানি না 8 99	

Ques. No	প্রশ্ন	উত্তর	Skip
418	আপনি কিভাবে সাধারণ রোগ থেকে নিজেকে প্রতিরোধ করতে পারি	নিরাপদ পানীয় জল 1 ব্যক্তিগত স্বাস্থ্যবিধি নিয়ন্ত্রণের 2 আশপাশ পরিষ্কার রাখা 3 খাদ্য নিরাপত্তা বজায় রাখা 4 জানি না 99	
419	সুস্থ পেতে হলে আপনি কি করবেন	সরকারি হাসপাতালে যান 1 কাউন্টার ঔষধ ওভার 2 পরম্পরাগত ঔষধ 3 কিছু করবেন না 4	
420	চিকিৎসার জন্য অসুস্থ পেতে যখন আপনি কত সাধারণত ব্যয়	এর চেয়ে কম 100 টাকা 1 500-100টাকা 2 500বেশী টাকা 3 অন্যান্য 55	

421	এটা মানুষের টয়লেট ব্যবহার করার জন্য গুরুত্বপূর্ণ কেন	গোপনীয়1 স্বাস্থ্যবিধি উদ্দেশ্য2 পরিবেশ পরিচ্ছন্ন 3 রাখুন রোগ 4 নিয়ন্ত্রণ ও প্রতিরোধ হিসাবে রিপোর্ট প্রকাশের 5 জানি না অন্যান্য	
422	আপনি কেন হাত ধোয়া না?	গ্লানি মুছে ফেলার জন্য1 সুস্থ থাকার) রোগ নিয়ন্ত্রণ ও প্রতিরোধ(2 জানি না অন্যান্য55	
423	কেন হাত ধোয়া খুবই জরুরী তা না হয়?	গ্লানি মুছে ফেলার জন্য1 সুস্থ থাকার) রোগ নিয়ন্ত্রণ ও প্রতিরোধ(2 জানি না অন্যান্য55	

424	কেন একটি স্নান গুরুত্বপূর্ণ?	তাজা থাকার সুস্থ থাকার জানি না অন্যান্য 55	

425	ভাল স্বাস্থ্যবিধি বজায় রাখার জন্য গুরুত্বপূর্ণ পদক্ষেপ কি?)একাধিক উত্তর সম্ভব(	প্রয়োজনে হাত ওয়াশিং 1 নিয়মিত স্নান 2 প্রাবরণ খাবার 3 প্রাঙ্গন পরিষ্কার রাখা 4 জানি না 5 অন্যান্য 55	

পানি, স্যানিটেশন এবং স্বাস্থ্যবিধি অনুশীলনের জন্য পর্যবেক্ষণ চেকলিস্ট

প্রশ্ন ন	প্রশ্ন	উত্তর	কর
101	পানীয় জলের উত্স	টিউবওয়েলের 1 পানি সরবরাহ লাইন 2 মোবাইল জল সরবরাহ 3 নদী / জলাশয় 4 জল ক্রয় 5 অন্যান্য 55	
102	পানি বিতরণের পয়েন্ট স্থল বেশী	হ্যাঁ 1 না 2 অন্যান্য 55	
103	ভাল বা টোকা নল Cemented বেস	হ্যাঁ 1 না 2	
104	কাছে দৃশ্যমান নিষ্কাশন বা জল উৎ স সংলগ্ন বর্জ্য পদার্থ নিষ্কাশন	হ্যাঁ 1 না 2	
105	জলের মধ্যে কোনো দৃশ্যমান কণা / গ্লানি নেই	হ্যাঁ 1 না 2	
106	জলের মধ্যে কোন খারাপ গন্ধ আছে	হ্যাঁ 1 না 2	
107	জলে কোন রং নেই	হ্যাঁ 1 না 2	

108	পাত্রে পানি সংগ্রহের জন্য ব্যবহৃত	প্লাস্টিক বোতল (1-2 লিটার) 1 প্লাস্টিক বোতল (1-2 লিটার) 2 ড্রাম 3 অন্যান্য 55	
109	স্টোরেজ কন্টেইনারে ঢাকনা	হ্যাঁ 1 না 2	
110	সংগ্রহস্থল ধারক চেহারা	1 পরিষ্কার রং এবং ময়লা 2 অন্যান্য 55	
111	টয়লেট মধ্যে ডোর	হ্যাঁ 1 না 2	
112	টয়লেট জলের সহজলভ্যতা	হ্যাঁ 1 না 2	
113	টয়লেট এ আলোর উৎস	হ্যাঁ 1 না 2	
114	টয়লেট এ নোংরা গন্ধ	হ্যাঁ 1 না 2	
115	কাছে দৃশ্যমান টয়লেট এর প্যান মধ্যে দাগটা দূর	হ্যাঁ 1 না 2	

116	পুরুষ এবং মহিলা জন্য পৃথক টয়লেট	হ্যাঁ 1 না 2	
117	টয়লেট মধ্যে স্যান্ডেল ব্যবহার করুন	হ্যাঁ 1 না 2	
118	টয়লেটে হাত ওয়াশিং সুবিধা	হ্যাঁ 1 না 2	
119	টয়লেট ব্যবহারের পর হাত ওয়াশিং মানুষ	জল মাত্র 1 পানি ও সাবান 2 পানি ও কাদা বা ছাই 3 নেই সমস্ত 4	
120	এলাকা নিষ্কাশন	Stagnant জল 1 উচ্ছ্বসিত ধূসর জল 2 দুর্গন্ধ 3 ক্রোধে উন্মত্ত হয়ে পড়ে এবং মশা 4	
121	সান্নিধ্যের মধ্যে আবর্জনা ব্যবস্থাপনা	ভাল রক্ষণাবেক্ষণ dustbin 1 নিষ্কাশন ব্যবস্থার মধ্যে আবর্জনা 2 প্রায় সব জঞ্জাল 3 অন্যান্য 55	
122	অংশগ্রহণকারী ব্যক্তিগত স্বাস্থ্যবিধি	হাতের তালু এবং মুখে কাছে দৃশ্যমান ময়লা 1 কাছে দৃশ্যমান পোষাকের গ্লানি এবং শরীর 2 নোংরা ওষুধের শরীরের গন্ধ 3 অন্যান্য 55	

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