BASELINESTUDY REPORT: TRANSFORMING RURAL LIVELIHOOD THROUGH WASHIN CLIMATE VULNERABLE AREAS IN SOUTH-WEST BANGLADESH

WaterAid Bangladesh

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Baseline Study Report: Transforming Rural Livelihood Through WashIn Climate Vulnerable Areas In South-west Bangladesh

Final Report

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About the Project 'Transforming Rural Livelihood through WASH in Climate Vulnerable Areas in South-West Bangladesh'

Climate Change Program is one of the WaterAid Bangladesh (WAB)'s mainstream programs. The program aims to transform the lives of climate vulnerable people by improving and sustaining their access to safe drinking water as well as improved sanitation and hygiene. Under this program WAB has been implementing the project of 'Transforming Rural Livelihood through WASH in Climate Vulnerable Areas in South-West Bangladesh' in all the nine unions of Dacope upazila of Khulna district.

The overall objective of the project is to reduce WASH deprivation among the poor and marginalized disaster vulnerable households living in Dacope upazila. The project wants to see everyone in the target communities established their access to safe drinking water and improved sanitation; while their hygiene and healthcare practices are improved.

In fact, the project is intended to achieve specifically seven changes among the target population as follows:

1. Reduction in average water collection time and distance per household
2. Increase in per capita water consumption at household level
3. Increase in proportion of households using improved latrine
4. Improvement of hand washing practice of household members at household level and children at school
5. Improvement of governance orientation of Union Parishad (UP) for WASH
6. Enhancement of community capacity to demand WASH services from UP
7. Improvement of household awareness on climate resilience and water safety

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Acronyms

BBS	Bangladesh Bureau of Statistics
CI	Confidence Interval
DPHE	Department of Public Health Engineering
DRR	Disaster Risk Reduction
FGD	Focus Group Discussion
GOB	Government of Bangladesh
HW	Hand Washing
KII	Key Informant Interview
KPI	Key Performance Indicators
LGSP	Local Government Sector Programme
MICS	Multiple Indicator Cluster Survey
NGO	Non-Government Organization
ppb	Parts per billion
PPS	Probability Proportional to Size
PSF	Pond Sand Filter
PSU	Primary Sampling Unit
SMC	School Management Committee
SPSS	Statistical Package for Social Sciences
SSC	Secondary School Certificate
TTC	Thermotolerant Coliform
UDMC	Upazila Disaster Management Committee
UNO	Upazila Nirbahi Officer
UP	Union Parishad
WAB	WaterAid Bangladesh
WASH	Water, Sanitation and Hygiene
WSP	Water Safety Plan

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Executive Summary

This is a baseline report of the project-"Transforming Rural Livelihood through WASH in Climate Vulnerable Areas in Southwest Bangladesh" of WaterAid Bangladesh (WAB), a leading non-government organization in Bangladesh, to promote people's understanding of climate change impact on public health, adaption and exploration of climate resilient technologies in Dacope upazila of Khulna district. Before the start of the project WaterAid Bangladesh executed this baseline study in the intervention upazila. The study included two surveys of 749 sample households and 10schools,7 focus group discussions (FGDs),6 key informant interviews KIIs), and water quality test of 60 sample water from water points and review of secondary information. FGDs were conducted with members of Union Disaster Management Committee (UDMC), WatSan Committee, School Management Committee (SMC) and different professional groups. KIIs were conducted with Upazila Vice Chairman, engineer of Department of Public Health Engineering (DPHE), Upazila Agriculture Officer, UP Chairmen and Members and NGO officials working on climate and disaster risk reduction (DRR) and WASH. The whole study took place between 5thApril and 6thMay 2015.

Findings

Water source and availability of water in source

Findings reveal that 31.6 percent of households were collecting and using pond water, while 28.3 percent tube-well/shallow tube-well water for drinking purpose. One fourth of them (23.8 percent) were collecting drinking water from Pond Sand Filter (PSF). Distance from household to water point was found to be 388 meters on average, while 32 minutes on average was needed for water collection from the source. Majority (82.1 percent) of households didn't own their sources of water. About two thirds(67.6 percent) of households were facing crisis for drinking water as water was not available in their main source the whole year. Majority (86.1 percent) of households, facing crisis, were using rainwater during crisis time.

Consumption and expenditure of water

Current water consumption privilege in household (average per capita quantity being used) was 3.6 litres per person per day. Average monthly expenditure of household for collecting drinking water stood at Tk. 77.

Practice of Water Safety Plan (WSP)

Proportion of households practicing water safety plan (WSP) was determined through identifying status of some specific components of WSP: 31.6 percent of households were using pond water for drinking purpose; 70.2 percent always used a lid to cover water container while carrying water to household; 90.3 percent placed water preserving container on the floor of a room and did not use any lid or used a coconut shell/earthen

pot/cloth/net/polythene to cover the container; 83.5 percent didn't clean the containers every day, where42.2 percent cleaned the container once in a week; 77.0 percent respondents served water properly without dipping fingers into water and without touching upper outside area of the glass of water.

Level of TTC, arsenic and iron in water

TTC, arsenic and iron content in 60 water samples were tested and results show that TTC was found in water of all 22 ponds, 33 percent rainwater sample and 1out of 21 (5 percent) tubewell or shallow tubewell. However, as expected, no TTC was found in water sample of all 14 sample PSFs.

Iron content (>3.0 mg/litre) was found in 14.3 percent water sample and arsenic (>0.01 mg/litre) was found in 38.1 percent water sample.

Access to improved sanitation facilities and maintenance cost

Over half (57.3 percent) of households had access to improved sanitation facilities. Over one third (35.9 percent) of households share latrines with others As operation and maintenance cost for latrine, households spent Tk. 129.2 on average the year preceding the survey.

Alternative latrine facility during inundation

A little over 15 percent households' latrines were submerged during flood or rainy season or during a tidal surge; 46.4 percent of them used no latrine or specific place during inundation.

Hand washing place with soap and water

One third (33.9 percent) of households had hand washing place in side or near latrines. However, in 57.1 percent cases 'pond/river/canal' was observed as hand washing point or place. Also, by observing hand washing places, both water and soap were found in 29.1 percent households only. Average monthly expenditure for hand washing purpose was Taka 17.1 only.

Hand washing practice

Over half (57.1 percent) of mothers reportedly wash their hands after defecation; while 42 percent after cleaning child's bottom. However, they rarely (2-5 percent) wash hands before cooking, eating and feeding child.

Water borne disease among children

About 15 percent of children suffered from diarrhoea in past two weeks preceding the survey, 32.7 percent suffered from dysentery, 21.7 percent from skin diseases, 2.5 percent from typhoid; and2.1 percent from jaundice in three months preceding the survey.

School children's awareness on hand washing at five critical times

Only 39.5 percent of children reportedly were washing their hands with soap after defecation. Very few of them were washing their hands with soap 'before taking tiffin', and

'after cleaning school rooms/school playground' and 'after playing games' (1.0-2.8 percent).About 22percent of children, who were washing school latrine, washing hands with soap after cleaning of school latrine.

Understanding climate change and its effects and adaptation strategies

People in the study area mostly did not have specific idea about risk and impact of climate change on water, sanitation and hygiene practices. Conversely, different government and non-government officials and elected representatives of local government bodies had better understanding about climate change. Government and non-government officials and people's representatives mentioned some specific adaptation measures mitigate climate change and disaster risks. However, adaptation measures of local government bodies were found to be at initial stage and inadequate. So far, Disaster Management Committees at upazila and union levels and farmers and fishermen groups at union level were formed. However, ward level committees were yet to be formed. Also, they did not yet practice regarding vulnerability assessment and resource mobilization strategies. The UDMC and different groups have started their activities. They have made people aware about impending disasters including climate change adaptation through awareness campaign.

Local government's response towards WASH and disaster management

Records of union parishads on budgetary allocation revealed that ratio of expenditure for WASH purpose to the total budget in the fiscal year 2013-2014 remained from 0.1 to 10.9percent across 9 unions. Similarly, ratio of expenditure to the total budget for the same purpose in the following fiscal year of 2014-2015 ranged from 0.1 to 17.6 percent across the unions.

Some of unions rarely allocated any amount of money exclusively for disaster management. Seven out of nine unions allocated for this purpose during the above two fiscal years. However, it was found to be very small amount ranging from 0.1 to 0.5 percent out of total budget.

School information

Pond was main source of drinking water in 4 schools; rainwater in 4 schools, PSF in 1 school and tube-well in remaining 1 school (out of 10 schools visited). Latrines were functioning properly in 8 schools; only one school had a separate latrine for girls. Hand washing facility was available inside or near latrines in 7 schools; soap was available in hand washing place in 2 schools.

Thus, it appears that access of household members and school children in the study area to safe drinking water and improved sanitation facilities in the study area was precarious. Hygiene practices of mothers and school children were not found to be at expected level. People had no idea or had very limited understanding of climate change as well as its risks and impact on safe water, sanitation and hygiene practices. Responses taken by the local government bodies towards climate change adaptation and risk reduction was confined mainly in formation of Disaster Management Committees and farmers and fishermen

groups at upazila and union levels and small budgetary allocation for disaster management. There is an ample scope to improve the situation through concerted efforts to address the above-mentioned shortcomings.

Recommendations:

- Majority of households in the project area do not have easy access to safe drinking water. Water sources are situated at on average 388 meters away from the households and 38 percent of them need on average 30 minutes to collect water from sources. In order to make safe drinking water easily available to community people round the year, all stakeholders including local government institutions and NGOs should work together with an appropriate coordination mechanism to develop and make available improved safe water facilities in the communities (through installing PSF, deep tubewell and tubewell etcetera). Communities may be encouraged to be involved in the operation and maintenance of the water facilities along with local government institutions and NGOs. Priority should be given in this regard for the pockets with more difficulty in collecting safe water.
- Community people are vulnerable to the effects of climate change. But they have very limited understanding about climate change and its risks and impacts on safe water, sanitation and hygiene practice. Households' practice of water safety plan (WSP) is not encouraging. A concerted effort using various media and assigning field level health workers should be made to aware the community people on the use of safe drinking water, water safety plan, hygienic sanitation and hygiene practice.
- Households' access to improved sanitation facilities is also at stake. About 43 percent households use unimproved latrines. During flood, tidal surge and rainy season, members of about 46 percent households have to defecate in an open place. A comprehensive plan should be made and implemented with active support of local government institutions to increase access of the households to improved sanitation facilities. Efforts should be made to introduce and install environment and disaster friendly latrines in the communities by both government and NGOs.
- School children's access to safe drinking water and improved sanitation facilities is quite limited. Their hand washing practice is also not encouraging. School authorities should be motivated to install safe drinking water and hygienic latrine facilities in the respective schools. Priority should be given to install separate latrines for girl students. Students should be well oriented on how to maintain personal hygiene including hand washing practice in hygiene and sanitation class.
- Hygienic hand washing practice of community people including mothers is not as improved as expected. Mothers rarely wash their hands before cooking,

eating or feeding a child. Awareness raising activities should be further enhanced to make community people particularly mothers on maintaining hygiene practice including hygienic hand washing practice through awareness campaign, courtyard meeting and display of posters, bill boards etcetera.

- Local governments' response to WASH and disaster management is quite limited. Disaster Management Committees have been formed at upazila and union levels. But ward level committees have not yet been formed. Local governments do not practice vulnerability assessment and resource mobilization strategies. Local governments should be more proactive to respond to WASH and disaster management activities in the communities. Union Parishads should prepare yearly plan and budget for WASH and disaster management and implement the plan.

CHAPTER ONE : INTRODUCTION AND METHODOLOGY

1.1 Introduction

The South-West coastal region of Bangladesh has adverse environmental characteristics. Being situated near the Bay of Bengal the region is extremely vulnerable to natural and climate change disasters. Due to water logging and salinity in water, there is scarcity of safe drinking water as well as water for other uses. On the other hand, because of coastal environmental condition, sanitation situation is also unfavorable in this part of the country, which results in higher prevalence of water borne and other diseases as well. Besides, livelihood opportunities are quite limited in the region[1]. The area is at high risk of environmental vulnerability due to global climate change.

According to experts, Bangladesh will suffer the worst effect of climate change in South Asia[2]. As a consequence, particularly people in climate vulnerable areas in Bangladesh are apprehended to face tremendous difficulties in accessing safe water and hygienic sanitation due to environmental degradation. Lives and livelihood of the poor and marginalized people will be seriously affected. People living in flood prone areas, coastal belt, Barind tract and Hill tract regions have already started experiencing such consequences[3].

Since 1986, WaterAid Bangladesh (WAB), an international non-government organization with its head office in UK, has been working to improve safe water and sanitation access including hygiene behavior of the poor and marginalized population in Bangladesh. The organization has gained reputation in the sector for its innovation and lead role in fighting against WASH poverty with special focus on climate vulnerable areas.

The Climate Change programme, one of five mainstream programmes of WaterAid Bangladesh, intends to address existing knowledge gap and promote the understanding of climate change impact on public health, effective adaption and exploration of climate resilient technologies in different hydro-geological zones. The programme aims to transform lives of climate vulnerable people by improving and sustaining access to safe drinking water, improved sanitation and hygiene. It prioritizes poor households, vulnerable to climate change impact and living with acute WASH deprivation.

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1 Vulnerabilities and Resilience among Extreme Poor People: the South West Coastal Region of Bangladesh, shire working paper 5, UKAID, CDS BATH, Save the Children UK, Extreme Poverty Research Group (EPRG), October 2011, Source: http://www.shiree.org/wp-content/uploads/2012/02/5-Vulnerabilities-and-Resilience-among-Extreme-Poor-People-the-South-West-Coastal-Region-of-Bangladesh.pdf and
M.H. Minar, *M. Belal Hossain* and *M.D. Shamsuddin,* Climate Change and Coastal Zone of Bangladesh: Vulnerability, Resilience and Adaptability, Middle-East Journal of Scientific Research 13 (1): 114-120, 2013, Source: http://www.researchgate.net/publication/234040171_Climate_Change_and_Coastal_Zone_of_BangladeshVulnerability_Resilience_and_Adaptability

2 A Study on: Twelve Countries on Climate Change Hit-List' reads: Bangladesh heads the list of countries most at risk of flooding. Increasing glacial melt from the Himalayan ranges as a result of rising global temperatures is set to swell the Ganges and Brahmaputra rivers and their hundreds of tributaries, flooding 30-70 percent of the country each year as the water makes its way to the Bay of Bengal in the south, where the coast is also vulnerable to flooding from rising sea levels. Source: http://www.irinnews.org/report/85179/global-twelve-countries-on-climate-change-hit-list

3 ToR, Baseline Survey on the Project of Transforming Rural Livelihood through WASH Program in Climate Vulnerable Areas of South-West Bangladesh

WaterAid Bangladesh, through engaging its implementing partner, is going to initiate a 22-month long project from March 2015 titled "Transforming Rural Livelihood through WASH in Climate Vulnerable Areas in Southwest Bangladesh" under its Climate Change programme in all nine Unions of Dacope Upazila under Khulna district covering 30,463 households with financial support from HSBC Bank.

The overall objective of the project is to reduce WASH deprivation among the poor and marginalized disaster vulnerable households living in Dacope Upazila. The project wishes to see everyone in the target communities established their access to safe drinking water and improved sanitation; while their hygiene and healthcare practices are improved.

More specifically, the project is intended to achieve seven specific changes as follows:

1. Reduction in average water collection time and distance per household
2. Increase in per capita water consumption at household level
3. Increase in proportion of households using improved latrine
4. Improvement in hand washing practice of household members at household level and children at school
5. Improvement of governance orientation of Union Parishad (UP) for WASH
6. Enhancement of community capacity to demand WASH services from UP
7. Improvement of household awareness on climate resilience and water safety

1.2 Background and rationale of the study

As indicated above, in order to reduce WASH deprivation of poor and marginalized disaster prone households, WaterAid Bangladesh has undertaken the project-"Transforming Rural Livelihood through WASH Program". As part of this project, the WaterAid authority felt the need to execute a baseline in the project area in order to establish a benchmark with which the status of project implementation could be compared. Accordingly, the organization has decided to conduct this baseline study.

The main focus of the baseline study was to learn the condition of the targeted population regarding household access to safe drinking water, hygienic sanitation, hygienic hand washing points and their sustainability. At the same time, the baseline wanted to learn their water use practices and cleansing agent in the hand washing points. Also, it aims to identify people's exercise on water safety plan (WSP) in their everyday life. The study findings are expected to help establishing a benchmark on important indicators through which progress against the baseline will be compared. The findings will also provide concrete evidence and information for the implementing agency and other stakeholders to make realistic decisions.

1.3 Objectives of the study

WaterAid Bangladesh plans to conduct a baseline study for the above mentioned project with an aim to understand and analyze present WASH situation of the intervening areas and provide necessary benchmark information to WaterAid and its Partners in setting

intervention priorities towards implementation of the project.

Specific objectives of the study are as follows:

1. Know the proportion of households in intervention Unions having access[4] to context specific[5] safe drinking water supply
2. Measure current water consumption privilege in household (average per capita quantity being used) and average monthly expenditure of the household to collect drinking water.
3. Understand the proportion of households in intervention areas that are practicing water safety plan (WSP)
4. Assess the level of TTC[6], Iron and Arsenic in the water of the facilities in intervention areas.
5. Assess the proportion of households in intervention areas that have access to improved sanitation[7] facilities
6. Measure monthly expenditure of the household for the purpose of sanitation and hygiene.
7. Understand the prevalence of water-borne[8] disease in the intervention areas, especially among the under five children.
8. Identify local government practices and responses to WASH service delivery in terms of resource allocation-cum-utilization and participatory planning
9. Assess proportion of households having hand washing devices near the latrines and household awareness (mother of under 5 children) regarding hand washing at five critical times.
10. Assess children's awareness at school on hand washing at five critical times.
11. Assess level of understanding of the people living in intervention areas about the risks and impacts of climate change on water, sanitation and hygiene practice.

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4 Access refers to distance from household to water point, water collection times and availability of water

5 In this project context specific means coastal area specific

6 Thermotolerant Coliform

7 Improved latrines are: flush or pour flush to piped sewer system or septic tank or pit latrine, ventilated improved pit latrine, pit latrine with slab and composting toilet. On the other hand, unimproved latrines includeflush/pour flush to elsewhere, refers to excreta being deposited in or nearby the household environment (not into a pit, septic tank, or sewer). Excreta may be flushed to the street, yard/plot, open sewer, a ditch, a drainage way or other location, pit latrine without slab; bucket refers to the use of a bucket or other container for the retention of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment, disposal, or use as fertilizer. hanging toilet or hanging latrine is a toilet built over the sea, a river, or other body of water, into which excreta drops directly, no facilities or bush or field and includes defecation in the bush or field or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea). includes defecation in the bush or fi eld or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea).

8 Water-borne diseases include diarrhea, jaundice, typhoid, dysentery, and skin diseases

12. Assess the extent/amount of support that has been mobilized in the recent years from the local government (UP, DPHE, and Upazila Parishad) to address WASH needs/crisis in the communities.
13. Identify local governments' (Union Parishad, Upazila Parishad, Upazila Coordination Body) present stage of understanding and practices towards responding climate change adaptation and disaster risk reduction.
14. Explore the current knowledge and practice regarding vulnerability assessment and resource mobilization strategies towards risk reduction and adaptation.
15. Identify the existence and present set-up, process, planning and activity of Ward level committees and informal community groups towards climate and disaster risk reduction and alternatives. (How community platforms at ward are engaged for assessing vulnerability, planning adaption, implementing intervention of different development initiatives)

1.4 Methodology

This is a descriptive study that describes the baseline situation of the study area. It helps establishing a benchmark to assess the outcomes at the end of the project. The study used both quantitative and qualitative methods for better triangulation of collected information.

1.4.1 Study area

The study was conducted in 9 unions in Dacope upazila in Khulna district of Bangladesh. Table: 1.1 shows the names of 9 unions with number of households and population.

Table-1.1:List of unions with number of household and population

Serial number	Name of unions	Number of households	Population
1	Dacope	1825	7047
2	Pankhali	3735	15570
3	Tildanga	4095	17006
4	Bajua	3577	15753
5	Kailasganj	3443	14516
6	Kamarkhola	3559	13897
7	Sutarkhali	7463	30043
8	Laudubi	2042	9222
9	Baniashanta	3398	14606
Total		**33137**	**137660**

Source: Bangladesh Population Census 2011, Community Series, Zila: Khulna, Bangladesh Bureau of Statistics

1.4.2 Methods of data collection

To meet the study objectives, data in the baseline study were collected through following methods:

1. Quantitative method (household survey with children survey)

2. Qualitative methods (focus group discussions-FGD and key informant interviews, or KIIs)
3. School survey (FGD and observation)
4. Water quality test in a laboratory (to identify presence of Thermotolerant Coliform, Iron and Arsenic)
5. Review of secondary sources of information, i.e., annual plan and annual budget of union parishad, project documents as well as other relevant documents and other similar study reports as far as available

1.4.2.1 Quantitative method

A well justified sample size and sample design are needed to obtain a representative sample of households. The quantitative data were collected from sample households with face-to-face interviews using a structured questionnaire.

1.4.2.2 Qualitative methods

Qualitative data were collected through different methods, viz., Focus Group Discussion (FGD) and Key Informant Interview (KII). A total of 7FGDs and 6 KIIs were conducted. Participants or respondents were selected purposively and they were pre-contacted before any interview.

Two FGDs were conducted with members of union disaster management committee (UDMC), 1 with members of WatSan committee, 2 with members of school management committee (1 from primary school and 1 from secondary school) and 3 with different professional groups.

Six KIIs were conducted with 1 each with the following groups: upazila vice chairman (female), engineer of DPHE, upazila agriculture officer, UP chairman, UP members and NGO official working on climate and disaster risk reduction (DRR) and WASH.

1.4.2.3 School survey

A maximum of 8 primary schools and 2 secondary schools from catchment area of selected clusters were visited to observe water and sanitation facilities and hand washing devices. From these schools, 1 primary and 1 secondary school were selected for conducting FGD with School Managing Committee (SMC) members on their knowledge about climate change, climate vulnerability, disaster risk reduction (DRR) and WASH as well as existing facilities in their schools and their future plan regarding these issues. Information was collected from head teachers of the schools as well as from school going children of the sample households in school survey.

1.4.2.4 Water quality test

- **Water quality assessment**

Water quality testing was administered to a sub-sample of sample households for measuring TTC, iron and arsenic content in the household drinking water. It was decided to administer 100 water samples; 97 from household level storage and 3 from school level storage. To achieve this number, water quality was measured at every 7th of the 750 interviewed households at both source and storage levels. Thus, water sample was collected from these two levels of 3 to 4 households in each cluster (considering possible non-response or wastage of sample). Of the targeted 97 households water sample was collected from 60 sources. Three tests of arsenic, iron and TTC were conducted for water collected from source and only TTC was conducted for water at storage in the households.

In addition, at school level water was collected from the storage from two primary schools and 1 secondary school and only TTC was conducted.

- **Management of water sample**

For testing water quality, respondents or household heads of targeted households were requested to provide a glass of water, which they usually drink and thus, water samples were collected. Similarly, water samples were also collected from sources from where households collect water. Water samples were also collected from the storage from three schools. Three hundred milliliter water was collected from each water sample using a container provided by Asia Arsenic Centre, a local agency which tested the water samples. The containers filled with sample water were placed in ice boxes and transported to Asia Arsenic Centre laboratory at Jessore within 8 hours of collection.

One field investigator was assigned for one cluster for water sample collection in a day. Selection of this sub-sample of households was finalized during or after completion of household survey.

1.4.2.5 Review of secondary data

Data on annual plans and annual budgets of Union Parishads, department of public health and engineering (DPHE) institutes and other related NGOs or private organizations working in the study area for the past 2 to 5 years were collected from respective authorities. The main focus of this initiative was to collect relevant data on planning and budgeting of these organizations and institutes for programs and activities, like infrastructural development, training, awareness development programs regarding climate change adaptation, climate vulnerability, disaster risk reduction (DRR) and WASH.

1.4.3 Study population and sampling

1.4.3.1 Study population

The study population consisted of all households in study area. In addition, the study also included UP, DPHE, Upazila Parishad, school and different community groups.

1.4.3.2 Sample size

The sample size was determined using the well-known statistical formula for testing a hypotheses of equality of two proportions (H_0:P_1=P_2 Vs. H_A:P_1≠P_2) as follows (Lemeshow, 1991[9]):

- **Hypothesis tests for two population proportions (**For a two-sided test**)**

$$n = \{Z_{1-\frac{\alpha}{2}}\sqrt{[2\bar{P}(1-\bar{P})]} + Z_{1-\beta}\sqrt{[P_1(1-P_1)+P_2(1-P_2)]}\}^2/(P_1-P_2)^2$$

where $\bar{P} = (P_1 + P_2)/2$

p_1 = estimated proportion found in the baseline

p_2 = estimated proportion found in the endline

z_α = standard normal value with 5% level of significance = 1.96

z_β = standard normal value with 80% power = 1.28

d = Admissible error difference between baseline and endline estimates

deft = design effect for cluster sampling = 1.2

1.4.3.3 Sample design for the household survey

A two-stage cluster sampling design was followed for the household survey. In the first stage, 30 villages/mauzas were selected through systematic sampling technique from the geographical arranged list of all villages in the study area following probability proportional to size sampling (*PPS*) method. Then each village/mauza was divided into some segments of about 100 households in each, on an average, by preparing a sketch map. Such segments were considered as the primary sampling units (*PSU*) in the sampling process. Then 25 households were selected from each PSU by systematic sampling. Thus, the required sample size stood at 750 households (25 households × 30 clusters). However, finally749sample households were selected and interviewed.

- **Respondent in household survey**

Housewives were targeted as respondents in household survey, as they were more likely to provide necessary information correctly as needed in the context of study objectives. However, the household heads were considered as alternative respondent if housewives were unavailable.

- **Children survey**

The study targeted school going children in the selected households to assess their practices at school and household levels on hand washing at critical moments that are applicable for children. Information was collected from maximum two children of primary and secondary

[9] Lwanga, S. K. and Lemeshow, SW. (1991), Sample Size Determination in Health Studies: A Practical Manual, World Health Organization, Geneva.

grades of the selected households, where available. While selecting two children, the study team balanced sex-ratio (where primary and secondary levels children were not available) and education level (where primary and secondary levels children were available) as far as possible. Children were enquired about hand washing facilities available in school, hand washing practices in applicable critical times during school period as well as while staying at house.

1.4.3.4Listing operation for household survey

After selection of villages/mauzas, one segment of approximately 100 households was selected from each of the selected villages to complete a listing of households. The listing consists of name of the household head and address or location of the households. This list provided an up-to-date frame (list of households) for selecting second stage sample. After listing and sketch mapping, 25 households were selected from each selected segment following systematic sampling procedure. This procedure of selection ultimately produced a sample which was self-weighting in the study area i.e. every household within the study area had the equal probability of being selected. Household listing operation was started on 5thApril and ended on 15thApril 2015.

1.5 Implementation plan for data collection

1.5.1 Preparation of questionnaire and qualitative instruments

A broad list of indicators was prepared by the study team based on previous experience as well as study objectives. Thus, different parameters and indicators for survey respondents were identified.In preparing the questionnaire, similar questionnaires from previous studies were used to make the baseline study results objectively comparable.

The household survey questionnaire and separate checklists for FGDs and KIIs were developed based on the study objectives covering all required indicators in consultation with concerned officials of WaterAid Bangladesh. The household questionnaire was finalized after repeated field tests.

1.5.2 Training and orientation

Three training and orientation programs were organized for field investigators and supervisors as well as for facilitators and moderators, viz., one on household listing operation, one on household survey data collection and one on qualitative operation. Additional orientation session was arranged on questionnaire editing techniques for editing staff. Special sessions were arranged for designated supervisors of field teams, qualitative data collection teams and data processing and entry personnel. In addition, a brief orientation for the data analyst and report writers were arranged which was imparted by the Principal Investigator focusing the project, study objectives and study requirements and report writing style.

1.5.3 Data collection period

Quantitative data collection took place between 17thApril and 6thMay 2015,while qualitative data collection took place between 21stApril and6thMay 2015.

1.5.4 Monitoring, supervision and quality control

A quality control team comprised of senior study team members was involved to ensure quality controlling of survey data. Quality control checking was designed to verify whether the investigators had completed the questionnaires by interviewing respondents in the targeted households by asking appropriate questions. Checking for quality control was done both in 'presence' and 'absence' of interviewing team.

Overall quality control measures started from the very beginning of questionnaire development to train field investigators and supervisors including their selection, monitoring of fieldwork, data checking and editing at field level and finally data entry and removal of anomalies and inconsistencies based on preliminary findings.

Utmost care was taken to ensure quality of the survey data. The Survey Manager or Research Officer had the overall responsibility to monitor and guide field level data collection and field operations. During data collection, primary responsibility of data quality control depended on the field investigators and supervisors. The team did not leave field/cluster until inconsistencies, missing data and non-responses from questionnaires were checked at household level. The supervisors also performed cross-checking of data with respondents on sample basis covering 5-10% of the filled-in questionnaires.

1.6 Data management and analysis

1.6.1 Data management

Final editing and consistency checking of filled-up questionnaires were done at survey operator's office in Dhaka by some trained data processing cum data entry personnel. The survey manager along with are search officer supervised the data processing and management process. The survey manager ensured editing and coding of all questionnaires before giving 'ready for entry' clearance.

All 'ready for entry' questionnaires were entered into computers by some experienced and trained data entry operators. For this purpose, customized data entry software using MS Access for Windows2007 was developed and used.

The data analyst performed cleaning of data files by consistency checks and identifications of extreme values for each variable. During data cleaning, the analyst shared some of the major findings with the survey manager and field monitoring staff as and where necessary.

In addition, customized SPSS syntaxes were used to check consistencies of data entered into

computers and check accuracy of tables generated from the data files.

The second tire editing, based on the preliminary analysis and frequency tables, was done to clean data at final stage.

Qualitative and quantitative interpretations and discussions on survey data were done by the study team. The Principal Investigator and the data analyst ensured standards of interpretations and discussions of the report.

1.6.2 Data analysis

A tabulation plan containing dummy tables was prepared as per study objectives. The desired tables were generated based on dummy tables with modifications where needed.

Quantitative data were analyzed using SPSS software. Frequency distribution tables were constructed to describe various indicators.

Qualitative data was analyzed manually using content analysis technique. At first qualitative transcripts were gone through to see whether was any inconsistency and missing data. Then responses were coded and arranged them in categories (e.g. theme and sub themes). A summary write up was made against each theme interpreting the existing data.

1.7Preparation and organization of the report

The baseline report is prepared based on the findings arrived through different methods of data collection applied in the study. The report is structured on the basis of study objectives so that readers can easily go through the findings in accordance with the objectives. The report consists of some specific chapters. Chapter one presents the introductory statements and background information relating to this study as well as methodology applied in this study. Chapter Two discusses about socio economic characteristics of the sample households. Chapter Three shed light on the findings regarding safe water source for household, Chapter Four on sanitation facilities of households and Chapter Five on hand washing practices of households. Chapter Six focuses on the findings related to water, sanitation and hand washing facilities in schools in the community and Chapter Seven on water borne diseases. Chapter Eight describes the findings on community's knowledge, risk and impact about climate change and Chapter Nine sheds light on the budgeting and allocation by union parishads of the study upazila for WASH related activities. Finally Chapter Ten discussion and concludes the study findings briefly. The draft report has been submitted to WaterAid Bangladesh authority and after incorporating their feedback and comments into it the report has been finalized.

CHAPTER TWO : HOUSEHOLD SOCIO-ECONOMIC CHARACTERISTICS

Chapter Two focuses on demographic and social condition of study households of the project area. The chapter comprises of profiles of household, household head and the respondent.

2.1 Household profile

This section presents the household profile in terms of land property, durable asset, income expenditure, dwelling status, dependency ratio and average household size.

2.1.1 Land property

Land property is considered as the most important asset of a household in Bangladesh. However, the study area is a bit different in nature being situated offshore of the Bay of Bengal. Table 2.3.3 presents the data relating to household ownership of land property. Findings show that 8.3 percent of the households have no land and over half (57.3 percent) possess 1-50 decimal land. On the other hand, one out of five (20.1 percent) possess more than one acre (100 decimal) of land. The average (mean) amount of land, possessed by the households, stands at 89.6 decimal, while the median amount stands at 18.0 decimal. Huge difference between average and median amounts indicates that majority of land property belongs to few of the households only, while majority of households own relatively a small part of land property.

Table-2.1.1: Household profile

Amount of land (in decimal)	Percent	No. of households
No land	8.3	62
1-50 decimal	57.3	429
51-100 decimal	14.3	107
>100 decimal	20.1	151
Mean amount	89.6	749
Median amount	18.0	749
Total	100.0	749

2.1.2 Durable assets

Table 2.3.4 presents data on durable assets possessed by the households. Table shows that about two thirds of households (63.6 percent) have access to electricity. About 23 percent of households possess television, while only 8.4 percent possess radio. Sewing machine is possessed by 11.5 percent households. Besides, 11.6 percent households have bicycle, and 4 percent have motorcycle. Small proportions of them have power pumps, power tiller, shallow pump machine (2.4 –3.3 percent) and refrigerator (1.5 percent).

Table-2.1.2: Possession of durable assets by the household

Goods/assets (multiple questions and answers)	Percent	No. of households
Electricity	63.6	476
Television	22.9	171
Radio	8.4	63
Sewing machine	11.5	86
Bicycle	11.6	87
Motorcycle	4.0	30
Shallow machine	3.3	25
Power tiller	2.9	22
Power pump	2.4	18
Refrigerator	1.5	11
Total		748

2.1.3 Income and expenditure

Table2.1.3 reveals that the average monthly income per household is Tk. 8517, while the median income stands at Tk. 7000. On the other hand, the average monthly expenditure per household is Tk. 6773, while the median is Tk. 5800. Findings thus indicates that majority of households are poor and marginalized.

Table-2.1.3: Income and expenditure of households

Variables	Mean amount	Median amount
Monthly household income	8517.0	7000.0
Monthly household expenditure	6772.7	5800.0
Total	749	749

2.1.4 Dwelling status

Condition of dwelling room in a household is an important socio-economic indicator for a household. Data relating to this indicator is presented in Table 2.1.4. Data reveal that roof of majority of sample households (60.2 percent) are made of tin, while about one third (34.2 percent) are made of straw/bamboo leaf/palm leaf. Only few of households have cemented roof made of concrete (2.9 percent). The households have 1.7 dwelling rooms on average.

Table-2.1.4: Status of main room in the house

Variables	Percent	No. of households
Type of roof		
Tin/steel	60.2	451
Straw/bamboo leaf/palm leaf/polythene	34.2	256
Concrete	2.9	22
Tally	2.7	20
Total	100.0	749
Number of dwelling rooms		
Average number of rooms	1.7	749

2.1.5Household composition

Table 2.1.5 shows that the households have 4.8 members on average, which is quite consistent with the corresponding national estimate(4.6 members per household, BDHS 2011: 21).The households have the dependency ratio of 689.2;less than the national estimate of 769.9 (BDHS 2011: 18).

Table-2.1.5: Household composition

Variables	Average and dependency
Household size	Average
Average household size	4.8
n (number of household)	749
Dependency ratio	Dependency ratio
Dependency ratio	689.2
n (number of household members)	3571

2.2 Household head profile

Household head profile in terms of sex, educational status, main occupation and religious status of household heads is presented in Table 2.2. Findings show that almost all of sample households are male headed (98.7 percent)while the remaining few (1.3 percent) are female headed households, quite lower in proportion compared to national estimate (about 11 percent, BDHS 2011: 21)[10].

Slightly less than one third (30.6 percent) of household heads have primary level of education, followed by secondary level (27.8 percent). Only 1 out of 6 of them have 'above secondary level' of education (16.8 percent passed SSC or above). However, a few of them (5.0 percent) have no literacy at all.

Regarding main occupation, about half of household heads (47.8) are laborers (skilled and unskilled) followed by those, who are involved in agriculture (25.1 percent). Besides, some of them are doing business (10.3 percent) or service holders (7.1 percent). However, few of them are 'retired or old aged', and are doing nothing (5.2 percent). Majority of households are of Hindu community (61.8 percent), followed by Muslims (37.1 percent).

[10] Bangladesh Demographic and Health Survey 2011, National Institute of Population Research and Training (NIPORT), Ministry of Health and Family Welfare, Government of Bangladesh (GoB), Dhaka, and MEASURE DHS ICF International, Calverton, Maryland, USA, January 2013

Table-2.2: Household head profile

Variables	Percent	No. of household
Sex of household head		
Male	98.7	739
Female	1.3	10
Total	100.0	749
Educational status		
Illiterate	4.9	37
Non-formal education	19.9	149
Primary	30.6	229
Secondary	27.8	208
Secondary School Certificate (SSC) or above	16.8	126
Total	100.0	749
Main occupation		
Labour (skill, unskilled)	47.8	358
Agriculture	25.1	188
Business	10.3	77
Service holder	7.1	53
Retired/old/incapable to do work	5.2	39
Other (house wife, unemployed, handicraft, imam, fishery etc.)	4.5	34
Total	100.0	749
Religious status		
Hindu	61.8	463
Islam	37.1	278
Christian	0.9	7
Buddhist	0.1	1
Total	100.0	749

2.3 Respondent profile

Table 2.3 presents the findings relating to respondents' profile in terms of their sex, education level, occupation and main occupation.

Findings in Table 2.3show that about three fourth of respondents are female (72.1 percent) while the rest are male (27.9 percent). Slightly over one third (35.4 percent) of them have secondary level (vi-ix) of education, which is followed by primary level (28.5 percent). Small proportions of them passed 'SSC or above' (12.9 percent).However, about 17 percent have non-formal education. Still about 6 percent of them are non-literate.

The female respondents are largely (66.1 percent) housewives or involved in household chores. However, other than 'housewives' some of them are labourer or involved in agriculture (12.6 and 8.9 percent respectively). Only 3.1 percent are doing business. Some 4.7 percent of them do nothing being old aged.

Table-2.3: Respondent profile

Variables	Percent	No. of respondents
Sex of respondents		
Male	27.9	209
Female	72.1	540
Total	100.0	749
Educational status		
Non-literate	5.9	44
Non formal education/can sign only/pre-primary	17.4	130
Primary (I-V)	28.5	213
Secondary (VI-IX)	35.4	265
Secondary School Certificate (SSC) or above	12.9	97
Total	100.0	749
Main occupation		
Housewife/household chore	66.1	495
Labour (skill, unskilled)	12.6	94
Agriculture	8.9	67
Retired/old/incapable to do work	4.7	35
Business	3.1	23
Others (service, tuition, handicraft, imam, fishery, servant, beggar etcetera)	4.6	35
Total	100.0	749

CHAPTER THREE : SAFE WATER SOURCE FOR HOUSEHOLD

Access to safe drinking water and hygienic sanitation is essential for health, hygiene and protection of human life. Bangladesh's progress toward reaching a Millennium Development Goal—*'Reducing the proportion of the population without sustainable access to safe drinking water and basic sanitation halve by 2015'*—may be accelerated by promoting sanitation and hygiene.[11] The Government of Bangladesh (GoB) has already shown its commitment to these goals through its national 'Sanitation for All by 2013' campaign. However, much work needs to be done in this regard[12].

Chapter Three presents the findings related to water of households mentioned above. It discusses findings focusing the household sources of drinking water and water for cooking and washing utensils in the households, availability of water in main water sources, alternative sources of water, time needed to collect safe drinking water and distance of sources of safe drinking water, amount of water consumed for drinking purpose, number of users per water facility, ownership of drinking water sources and operation and maintenance of the facilities.

3.1 Sources of drinking water

Table 3.1 reveals that about one third (31.6 percent) of households collected and used pond water, while 28.3 percent tube-well/shallow tube-well water for drinking purpose. One fourth of them (23.8 percent) collected drinking water from Pond Sand Filter (PSF). However, few of them (8.4 percent) collected rainwater or supplied water through PSF (5.2 percent) for the purpose.

Table-3.1: Main sources of drinking water for household

Sources of drinking water of household	Percent	No. of households
Pond water	31.6	237
Tubewell/shallow tubewell	28.3	212
Pond Sand Filter (PSF)	23.8	178
Rain water (with cover)	8.4	63
Supply through PSF[13]	5.2	39
Others (purchase filter water, well, rain water without cover, deep tubewell)	2.6	20
Total	100.0	749

However, interviewers' observations as well as qualitative information reveal that condition of tubewell and functionality of PSF was not satisfactory enough to collect and use safe drinking water on a regular basis.

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[11] Office of the High Commissioner for Human Rights, Consultation on Human Rights and Access to Safe-Drinking Water and Sanitation: Summary of Discussions (Geneva: United Nations, 2007).

[12] WSP, ADP and World Bank, Dhaka. 2011. The Economic Impacts of Inadequate Sanitation in Bangladesh.

[13] Supply through PSF refers to an arrangement of water supply through water pipeline. GIZ and World Vision Bangladesh, two international NGOs, have installed some PSFs with 1 kilometer supply pipeline to surrounding area of PSF and installed some taps after a specific interval. Water through this line is supplied in some fixed times every day when local people collect water from the taps.

The study team members observed physically and it was reported by the respondents that overwhelming majority of hand pump (90.7 percent) of tubewell or shallow tubewell had no cover or lid over. Besides, 40 percent of tube-wells were found in a bad environmental condition; that is, there was a heap of rubbish or filth or cowshed near the tubewells. Also, in one third cases (34.1 percent) drains connected to the tubewell were found closed with garbage or filth. Furthermore, in some cases there was 'a crack found in the drain connected to the platform or it was broken' (23.9 percent) or 'water was logged on the platform' (22.1 percent)(see appendix A Table-A 3.1.1).

About one third of PSFs had its connecting drains closed or damaged, while about 20 percent had broken or damaged water collecting tube/machine, or the PSF was set in a pond where ducks, cows and goats entered into the pond. Pond with PSF was found unprotected for 18.4 percent cases as well (see appendix A Table-A 3.1.2).

Regarding rain water it was observed that the rainwater harvesting system was installed manually without any modern technology. The cover used was not clean that can help access to safe drinking water. Furthermore, in 41 percent cases the collected rainwater (#26) were found in a bad environmental condition; that is, rubbish/dust was on the roof or thatching of the room from which rainwater was collected; while in 36.5 percent cases (#23) the pipe collecting rainwater (from roof/thatching)was unclean (with dirt). Besides, there was a heap of rubbish in about 18 percent cases (#11) and rainwater collecting pipe was broken or crackedin16 percent cases (#10) (see appendix A Table-A 3.1.3).

3.2 Ownership of source of drinking water

Households were enquired about ownership of drinking water sources used by the households and the findings are presented in Table 3.2.Findings show that majority (82.1 percent) of households didn't own their sources of water. About 44 percent of the sources were owned by "neighbor", followed by "NGO'" (21.0%).In 10 percent cases these were under government ownership as well. Only 14.8 percent had 'own' sources and 3.1 percent had 'joint ownership'.

Table-3.2: Ownership of source of drinking water

Ownership status	Percent	No. of households
Neighbour/relatives	43.9	329
NGO	21.0	157
Own	14.8	111
Government	10.4	78
Mosque pond	5.2	39
Joint ownership	3.1	23
Purchased water	1.6	12
Total	100.0	749

3.3 Alternative source of drinking water

The study area is one of the typical water scarcity areas of Bangladesh where safe drinking water remains scarce round the year. People in this area face difficulties in collecting and using safe drinking water from main sources in all seasons. Therefore, people often depend on alternative sources. Table 3.3 shows that about two thirds (67.6 percent) of households faced crisis for drinking water and majority of them (83.6 percent) faced the crisis during 3-4 months in a year. They (82.8-87.7 percent) further reported the months of scarcity of water mainly (in Bangla months) ~Ashar, Shraban and Bhadra (mid-June to mid-September)(see appendix A Table-A 3.2.1).

Table-3.3: Facing water scarcity in usual source and alternative sources of water

Variables	Percent	No. of households
Household faces crisis for drinking water		
Yes	67.6	506
No	32.4	243
Total	100.0	749
Months of crisis		
1-2 months	4.9	25
3-4	83.6	423
5-6	11.5	58
Total	6.3	506
Sources used during crisis (multiple responses)		
Rain water(with cover)	56.9	288
Rain water(without cover)	29.2	148
Pond water	9.9	50
Tube well/shallow tube well	6.3	32
Purchased water	2.6	13
Others (deep tube well, PSF)	1.8	9
Total		506

Table 3.3 shows that 86.1 percent of households used rainwater during crisis time, where 56.9 percent used rainwater with cover, while 29.2 percent used rain water uncovered. The study team was informed by the respondents that despite their regular main sources containing water during rainy season, they preferred rain water during this season because of its easiness. However, as mentioned above, households, who collected rainwater, had unsafe system of rain water collection irrespective of whether they preserve the collected rainwater covered or uncovered .The remaining households used other sources as alternative source (e.g. tubewell, pond water, purchased water or water through PSF etcetera).

3.4 Sources of drinking water during disaster

Households were further enquired about their alternative sources of water during natural disaster, e.g. flood or a tidal surge, and their responses are presented in Table 3.4. Findings

show that 36.9 percent of them reported that they had used pond water in such a critical situation, which is higher in proportion than proportion using pond water in usual time (31.6 percent). About 3 out of 10 households (27.8 and 27.0 percent, respectively,) used tube well and covered rainwater during such situation. However, few of them used PSF system or 'collected and stored rainwater without cover' (11.6 and 10.5 percent, respectively). Very few of them collected water from other sources, e.g. supplied water through PSF system[14] or deep tubewell or from water donated as relief item, or purchased drinking water (Table 3.4).

Table-3.4: Sources of drinking water during disaster

Sources of drinking water during disaster(multiple responses)	Percent	No. of households
Pond water	36.9	277
Tubewell/shallow tubewell	27.8	208
Rain water(with cover)	27.0	202
Rain water(without cover)	10.5	79
PSF	11.6	87
Purchased water (bottled water or other types)	2.8	21
Relief water	2.4	18
Deep tubewell	2.3	17
Supply water by PSF	2.0	15
Total		749

3.5 Time and distance to collect drinking water

Table 3.4shows that about three fourth of households (74.2 percent) needed to travel more than 50 meters to collect water from water sources and20 percent needed to travel more than a half kilo meter. On average the households needed to travel about 388meters (median: 200 meters) to reach the water sources.

Table 3.2.1 also reveals that 3 out of 5 of all households needed more than 15 minutes to collect drinking water from source (including round trip) while 2 out of 5 of them needed more than half an hour for this purpose. On average they needed more than half an hour (31.5 minutes) for a round trip (median: 22 minutes).

Table-3.5: Distance of source of drinking water from house

Variables	Percent	No. of households
Distance (in meter) of main source of drinking water from house		
Up to 50 meters	25.8	193
51-200	26.0	195
201-500	28.2	211
>500	20.0	150
Mean distance	387.8	749
Median distance	200.0	749
Total	100.0	749

[14]See footnote on PSF in 1st page of Chapter Three above

Variables	Percent	No. of households
Time (in minute) needed to fetchdrinkingwater from source		
Upto 15 minute	40.6	304
16-30	21.2	159
>30	38.2	286
Mean time needed	31.5	749
Median time needed	22.0	749
Total	100.0	749

3.6 Use of drinking water per person per day

Information on amount of drinking water used by households per day was collected. The total amount of drinking water used in a household was divided by size of household. It provides an estimate of amount of drinking water per person per day used in each household. Findings are presented in Table 3.5. It shows that almost all households used more than 2 litres of water, while a little over 60 percent used4 or more litres of water per person per day. On average a member in each household used3.6 litres of drinking water in a day (median amount: 3.3 litres). However, though the amount of water consumed by household members seems sufficient, they hardly got safe drinking water, as evident from findings on sources of water (see section 3.1).

Table-3.6: Amount of drinking water used per person per day

Use of drinking water per person per day (litre)	Percent	No. of households
<2 liters	2.4	18
2-3	36.8	276
4or more	60.7	455
Mean amount of water (litre) used	3.6	749
Median amount of water (litre) used	3.3	749
Total	100.0	749

3.7 Any expense for drinking water purpose

Table 3.7 presents the findings related to any expenses for drinking water purpose that households spend by sources of water. Though PSFs were provided by the government or NGOs, users often need to bear cost for its maintenance. Thus, findings reveal that about half (48.4 percent) of households, who used PSF, spent money for drinking water purpose. The mean amount they spent stood at Taka 52 per month (among those who spent for PSF). While 18.4 percent of households, using tube well or shallow tube well, spent money for this purpose while the average they spent was Tk. 44 per month. Findings add that majority (about 80 percent) of them, using tube well or shallow tube well, used others' sources (e.g. relatives' or neighbours'); they didn't own sources. Hence, almost none of them needed to spend money in this regard. Only those who owned the tube well or shallow tube well (about 20 percent) sometimes needed to spend for the maintenance (not shown in the Table).

On the other hand, vast majority of households, using pond water (94.9 percent) or rain water (92.2), did not need to spend money for this purpose. Thus, it appears that overall 21.9 percent of households spent money for drinking water purpose and the average amount they spent was Taka 77.2 per month.

Table-3.7: Expense for drinking water by source

Variables	Percent						
	Pond	PSF	TW/ STW	Deep tub well	Rain water	Purchase water	Overall
Any expense for drinking water purpose							
Yes	5.1	48.4	18.4	0.0	7.8	100.0	21.9
n	236	217	212	14	64	2	745

Note: PSF refers to pond sand filtering, TW to tube well and STW to shallow tube well

3.8 Practice of Water Safety Plan (WSP)

Data on different components of Water Safety Plan (WSP) of households were collected. The components include condition of water source, use of lid for covering container while carrying water to household, water preservation system in the household, cleanliness of water preserving container and serving water. The study team collected information on all components through direct observation except source of water[15] and cleanliness of water preserving container. Findings related to these components are described in this section. However, findings on conditions of water sources are already presented in section 3.1 above.

3.8.1 Use of lid to cover container during carrying water

Table 3.8.1 presents the findings relating to use of a lid for covering water container while carrying water to household from the source. Findings show that 70.2 percent of households always used a lid to cover water container while carrying water to household. They used plastic or melamine or aluminum-made lid, or a steel pot or stopper as lid (not shown in Table). While the remaining 29.8 percent households did not use anything at all or used some material, like coconut shell/earthen pot/cloth/net/polythene for this purpose.

Table-3.8.1: Use of lid to cover container when carrying water to household

Use of lid to cover container when collecting water	Percent	No. of households
Yes (use plastic/melamine/aluminum-made lid/steel pot/stopper)	70.2	526
No (use nothing or use coconut shell/earthen pot/cloth/net/polythene)	29.8	223
Total	100.0	749

3.8.2 Water preservation system

Vast majority of households (90.3 percent) placed water preserving container on the floor of a room in the household and did not use any lid or used coconut shell/earthen pot/cloth/net/polythene to cover the container (Table 3.8.2).

[15] For most cases water sources were not observed; only some of the sources was observed physically

Table-3.8.2: Preservation system of drinking water in the household

Water preservation system in household (place where container is placed)	Percent	No. of households
In a container on a platform half a cubic high above floor with a lid	0.1	1
In a container on a platform half a cubic high above floor with no lid	3.1	23
In a container on the floor with a lid	6.5	49
In a container on the floor without a lid	90.3	676
Total	100.0	749

3.8.3 Cleanliness of water preserving container

Table 3.8.3 reveals that all of households usually cleaned water preserving containers. However, majority (83.5 percent) of them were not found to clean the containers every day; only 16.5 percent cleaned it every day. While 42.2 percent of them cleaned the container once in a week, about a quarter cleaned it twice or more than twice in a week and 15.3 percent once or more than once in a month.

Table-3.8.3: Cleanliness of water preserving container

Number of times water preserving container is cleaned	Percent	No. of households
Once in a week	42.2	105
Twice/more than twice in a week	26.1	65
Once /more than once in a month	15.3	38
Every day	16.5	41
Total	100.0	249

3.8.4 Serving water

Dipping an unclean finger into a glass of water or touching upper outside area of the glass may cause pollution and contamination of water. This study has attempted to know the habit of household members through observing the behaviour of respondents in this regard. During data collection the respondents were requested to bring a glass of water to see whether they dip their fingers into water or touch upper outside area of the glass while serving it to the field investigators. Accordingly, they brought glasses of water and the investigators observed their serve. The findings, presented in Table 3.8.4, reveal that in majority cases (77.0 percent) the respondents served water properly without dipping fingers into water and without touching upper outside area of the glass. While the remaining 23.0 percent served with a mistake, i.e. they either dipped fingers into water or they touched upper outside area of the glass.

Table-3.8.4: Serving water

While serving water	Percent	No. of households
Fingers not dipped into water and upper outside area of glass not touched	77.0	577
Fingers dipped into water or upper outside area of glass touched	23.0	172
Total		749

3.9 Arsenic test of tubewell, shallow tubewell or deep tubewell water

Along with increase in salinity in water, contamination of water with arsenicosis is a threat for the people of coastal region. Respondents of households, who used tubewell, shallow tubewell or deep tubewell, were asked about whether water of their sources had been tested to determine the presence of arsenicosis in water. The study team also enquired about and observed whether colour sign was put on the sources. The related findings are presented in Table 3.9.As Table demonstrates the sources in majority of households (85.0 percent) were tested to identify presence of arsenicosis in it. However, 6.6 percent did not know whether their sources were tested or not.

In majority cases (71.4 percent) the study team did not find any color sign on the tested sources for presence or absence of arsenicosis in water; while in the remaining 28.6 percent cases they observed green colour sign on the sources (indicating absence of arsenicosis)(Table 3.9).

Table-3.9: Arsenic test and colour signing of water source

Variables	Percent	No. of households
Performed arsenic test of main water source		
Yes	85.0	192
No	8.4	19
Don't know	6.6	15
Total	100.0	226
Any colour sign on water source after arsenic test		
Yes, green colour	28.6	55
No colour	71.4	137
Total	100.0	192

3.10 Test results of drinking water

A total of one hundred households were selected at random from among the sample households for water test and 60 water sources of them in total were identified. Water was collected from all these sources and tested in a laboratory to deter mine presence of Thermotolerant Coliform (TTC). Test results are presented in Table3.10.1.

Results show that among the 60 sources, 22 were pond, 14 were PSF, 21 were tubewell or shallow tubewell and 3 were rain water. None of 22 water samples from ponds were found free from TTC, as all contained at least 1cfu[16] of TTC per 100 ml, whereas reference water quality standard to be free from TTC is 0 cfu/100 ml water according to Bangladesh as well as WHO standard[17]. Water of 18 ponds out of 22 contained more than 100 cfu/100 ml. That

[16] In microbiology, a colony-forming unit (CFU) is a unit used to estimate the number of viable bacteria or fungal cells in a sample. Viable is defined as the ability to multiply viabinary fission under the controlled conditions. Counting with colony-forming units requires culturing the microbes and counts only viable cells, in contrast with microscopic examination which counts all cells, living or dead. The visual appearance of a colony in a cell culture requires significant growth, and when counting colonies it is uncertain if the colony arose from one cell or a group of cells. Expressing results as colony-forming units reflects this uncertainty. Source: https://en.wikipedia.org/wiki/Colony-forming_unit

[17] It is less than 10 cfu/100 ml according to WaterAid Bangladesh

is, sample water mostly were severely contaminated. On the other hand, all 14 PSF and 20 out of 21 tubewells or shallow tubewells were free from TTC. Similarly, 2 rain water samples out of 3 were also free from TTC.

Table-3.10.1: Test results (TTC) of household drinking water collected from selected sources

Thermotolerant Coliform (TTC)	Source (number)			
	Pond	PSF	TW/STW	Rain water
0 cfu/100 ml	0	14	20	2
1–10 cfu/100 ml	1	0	1	0
11–100 cfu/100 ml	3	0	0	0
101–1000 cfu/100 ml	18	0	0	1
Total	22	14	21	3

Water quality standard for arsenic (maximum acceptable limit) is 0.05 mg/litre according to Bangladesh as well as WaterAid Bangladesh standard, while it is 0.01 mg/litre according to WHO standard[18]. On the other hand, water quality standard for iron is 0.3-3.0 mg/litre for rural Bangladesh[19], which is also adopted by WaterAid Bangladesh. However, WHO has no guideline value in this regard.

Against this backdrop, in addition to TTC, water samples collected from 21 tubewells (TWs) or shallow tubewells (STWs) were also tested for presence of iron and arsenicosis and the results are presented in Table3.10.2.Findings show that 85.7 percent (18 out of 21) of water samples contained iron content of upto3.0 mg/litre, while 38.1 percent (8 out of 21) contained arsenic contamination of 0.011-0.05 mg/litre. That is, majority of water samples were safe in terms of iron content according to rural Bangladesh standard. On the other hand, in terms of arsenic contamination, all 21 water samples were safe based on Bangladesh standard, while 38 percent (#8) were unsafe according to WHO standard.

Table-3.10.2: Test results (iron and arsenicosis) of household drinking water collected from selected sources

Variables	Percent	No. of sources
Iron		
0.3-3.0 mg/litre	85.7	18
3.1-10 mg/litre	14.3	3
Total	100.0	21
Arsenic		
Upto 0.01 mg/litre	61.9	13
0.011–0.05 mg/litre	38.1	8
Total	100.0	21

[18] Water Quality Testing Protocol 2015, A guideline for water quality monitoring, WAB, January 2015. Page-25, Table-4.4
[19] Water Quality Testing Protocol 2015, A guideline for water quality monitoring, WAB, January 2015. Page-25, Table-4.4

Key Findings on Safe Water Source of Household	
a	Distance from household to water point was 388 meters on average
b	32 minutes on average was needed for water collection
c	Water was available in main sources round the year in 32 percent households
d	Current water consumption privilege in household (average per capita quantity being used) was 3.6 litres per person per day and average monthly expenditure of household for collecting drinking water was Tk. 77
e	Proportion of households practicing water safety plan (WSP): 1) About one third (31.6 percent) of households used pond water for drinking purpose 2) 70.2 percent of households always used a lid to cover water container while carrying water to household 3) Vast majority of households (90.3 percent) placed water preserving container on the floor of a room in the household and did not use any lid or used a coconut shell/earthen pot/cloth/net/polythene to cover the container 4) Majority (83.5 percent) didn't clean the containers every day;42.2 percent cleaned the container once in a week 5) In majority cases (77.0 percent)respondents served water properly without dipping fingers into water and without touching upper outside area of the glass of water
f	Levels of TTC in water of the facilities were: • Pond- 100 percent (all 22 ponds) • Rain water- 33percent (1 out of 3 samples) • Tubewell or shallow tubewell-5 percent (1 out of 21 tubewell or shallow tubewell) • PSF- no TTC (all 14 PSFs)
g	Level of Iron and Arsenicosis in water of the facilities were: • Iron- 14.3 percent (>3.0 mg/litre) • Arsenicosis- 38.1percent (>0.01 mg/litre)

CHAPTER FOUR : SANITATION FACILITIES

Chapter Four reveals the situation of sanitation facilities in the households, i.e. condition of latrine, ownership, operation and maintenance, and place of defecation during flood.

4.1 Toilet facility

The study aimed at assessing the situation of the households in terms of access to improved sanitation facilities. Improved sanitation facility refers to flush or pour flush to piped sewer system or septic tank or pit latrine, ventilated improved pit latrine, pit latrine with slab and composting toilet, while unimproved latrines are flush/pour flush to elsewhere, pit latrine without slab, bucket, hanging toilet or hanging latrine, no facilities or bush or field or shared facilities of any type[20].

Table 4.1 below shows that highest 43.3 percent of the households used pit latrine with slab, follwed by pit latrine without slab (30.2 percent). Only 14.0 percent used water seal latrine with flush to septic tank or pit. Besides, it is noticeable that 7.3 percent used hanging latrine.

Table 4.1 also shows that 57.3 percent of the households had access to improved and hygienic sanitation facilities that includewater seal latrine with flush to septic tank or pit and pit latrine with slab. The remaining 42.7 percent households did not have improved facilities.

Table-4.1.1: Toilet facility in household

Variables	Percent	No. of households
Type of latrine		
Pit latrine with slab	43.3	324
Pit latrine without slab	30.2	226
Water seal with flush to septic tank or pit	14.0	105
Water seal broken or flush to unsafe septic tank	4.8	36
Hanging latrine	7.3	55
Open defecation	0.4	3
Total	100.0	749
Hygiene status of latrine		
Hygienic latrine	57.3	429
Unhygienic latrine	42.7	320
Total	100.0	749

Association between hygiene status and socioeconomic status of households were examined. In view of that, three different socioeconomic indicators- education of household head,

[20] Refers to excreta being deposited in or nearby the household environment (not into a pit, septic tank, or sewer). Excreta may be flushed to the street, yard/plot, open sewer, a ditch, a drainage way or other location. Pit latrine without slab, bucket, refers to the use of a bucket or other container for the retention of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment, disposal, or use as fertilizer. hanging toilet or hanging latrine is a toilet built over the sea, a river, or other body of water, into which excreta drops directly., no facilities or bush or field and shared facilities of any type includes defecation in the bush or field or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea)

his/her occupation and monthly household income were considered and their relations with hygiene status of latrine were obtained along with statistical test of significance.

Table 4.1.2 shows that about two third (67.6 percent) of households that led by illiterate household head used unhygienic latrine whereas the vast majority of households (79.0 percent) that led by higher educated household head (e.g. HSC or above) used hygienic latrines. Level of education of household head has significant relation with latrine status (p-value<0.05). The result given in Table 4.1.2 indicates that the lower the level of education of household head the higher the likeliness of using unhygienic latrines. Likewise, the relation of latrine status with household monthly income was also found significant (p-value<0.05).The results reveal that households with lower income are more likely to use unhygienic latrines (Appendix A Table-A 4.1.1). However, latrine status did not differ significantly with various types of occupation of household head (Appendix A Table-A 4.1.2).

Table-4.1.2: Hygiene status of latrine by Educational qualification of household head

Educational qualification of household head	Hygiene status of latrine (%)	
	Hygienic latrine	Unhygienic latrine
Illiterate	32.4	67.6
Non formal education/can sign only/pre-primary	48.3	51.7
Primary (I-V)	56.3	43.7
Secondary (VI-IX)	59.6	40.4
SSC/equivalent	67.2	32.8
HSC or above	79.0	21.0
n	429	320

Note: chi-square= 29.3, p-value=0.000

4.2 Sharing of latrine

The households, who used any latrine, were enquired if they shared their latrines with others; and if so, the number of households they shared with. Their responses are presented in Table 4.3. Findings indicate that 64.1 percent of them did not share their latrine with others, while the remaining 35.9 percent shared their facilities; where 17.0 percent shared with 2 households, and 18.9 percent shared with 3 or more households.

Further, about 73 percent of households owned latrines they used, but among them 8.9 percent shared their latrine with others. While the remaining 27 percent used latrines of joint ownership or other type of ownership (government, NGO etc.) and thus, they shared the facilities with others (not shown in the Table).

Table-4.2: Sharing of latrine

Sharing of latrine	Percent	No. of households
Do not share	64.1	478
Share with 2 household	17.0	127
Share with 3 household or more	18.9	141
Total	100.0	746

4.3 Installation cost for latrine

Findings in Table 4.3 show that about 37 percent of households spent upto Tk. 1000, while about 20 percent each spent Tk.1001-2000 and Tk. more than 2000 for installation of toilet facilities. However, some of them did not need to spend money for this purpose, as they were using latrines donated by NGO or government (15.1 percent) or others' latrines without cost or they were not using any latrine (7.2 percent). Among those, who spent money for installation, the mean amount of cost stood at Tk. 2652, while the median amount stood at Tk. 1200; indicating that relatively a small proportion of households spent a larger amount of money, while majority of them spent a small amount of money for this purpose.

Table-4.3: Installation cost for latrine

Installation cost for latrine	Percent	No. of households
Upto Tk. 500	16.4	123
Tk. 501-1000	20.4	153
Tk. 1001-2000	19.9	149
Tk. 2001 or more	19.8	148
Donated by NGO/govt.	15.1	113
No latrine/use other's latrine without cost	7.2	54
Don't know	1.2	09
Mean cost	2651.8	573
Median cost	1200.0	573
Total	100.0	749

4.4 Operation and maintenance cost for latrine

About 70percent of households needed to spent nothing as operation and maintenance cost for latrine in 12 months preceding the survey, while 16.3 percent and 7.2 percent respectively spent Tk. 1-500 and more than Tk. 500 for this purpose. However, remaining 7.2 percent spent nothing for this purpose, as they were using other's latrine without cost or not using any facility at all; instead they were defecating in an open place or bush. About 10 percent spent Tk. 101-500 for this purpose, while about 7 percent spent upto Tk. 100 (6.5 percent) or more than Tk. 500 (7.2 percent). On average they spent Tk. 129.2 for this purpose during the year preceding the survey.

Table-4.4: Operation and maintenance cost for latrine in past 12 months

Operation and maintenance cost for latrine	Percent	No. of households
No cost	69.3	519
Tk. 1-500	16.3	122
Tk. 501 or more	7.2	54
No latrine/use other's latrine without cost	7.2	54
Average cost	129.2	695
Total	100.0	749

4.5 Installation of latrine above flood level and alternative place during flood

In an attempt to assess if the households considered the flood level before installation of latrines they were asked about whether their latrines are inundated during flood or rainy season or during a tidal surge. Findings in Table 4.5 show that only 15 percent of them reportedly faced such a situation.

Table-4.5: Inundation of latrine in flood water/tidal water/surge water and alternative place to defecate during flood and tidal surge

Variables	Percent	No. of households
Latrine is inundated in flood or tidal surge		
Yes	15.1	113
No	84.9	633
Total	100.0	746
Place to defecate if latrine inundated in flood/tidal surge		
Here and there/bushes/no fixed place	54.9	62
Others' latrine	23.9	27
Latrine of shelter centre	19.5	22
Setting own latrine at a high place	1.8	2
Total	100.0	113

Table 4.5 further reveals that among those, who experienced inundation,54.9 percent reported that they had used no latrine or specific space during inundation; instead they had defecated here and there, e.g. bush or field. Contrary to this, about 24 percent used others' latrine, while about 20 percent used latrine of shelter centre i.e., the latrine of the place where they took shelter during flood. Few of them used their own latrine after re-setting it at a high place (1.8 percent).

Key Findings on Sanitation facilities	
a	57.3 percent of households had access to improved sanitation facilities
b	Over one third (35.9 percent) of households share latrines
c	As operation and maintenance cost for latrine, they spent Tk. 129.2 on average for this purpose the year preceding the survey
d	15.1 percent households' latrines were submerged during flood or rainy season or during a tidal surge; 46.4 percent of them used no latrine or specific space during inundation

CHAPTER FIVE : HAND WASHING PRACTICES

Different evidences show that maintenance of hygiene, especially hand-washing with soap at critical times, e.g., after defecating and before eating or preparing food can significantly reduce the incidence of diarrhoea, which is the second larger cause of death amongst children under-five years old. Chapter Five presents the current status of sample households with regard to hand washing location inside or near latrine, presence of water and soap in hand washing place, availability of soap in household, monthly expenditure for soap/detergent for hand washing, and hand washing behavior of mothers in five critical times/occasions.

5.1 Hand washing location inside or near latrine

Table 5.1 presents the findings relating to hand washing location inside or near latrine and type of hand washing arrangement in household. Table shows that one third (33.9 percent) of households had hand washing location inside or near latrine, while the remaining two third had no such location. Those, who had hand washing location, were requested to show hand washing arrangement in those locations. Thus, the study team in over half of cases (57.1 percent) observed 'pond/river/canal' as hand washing point or place, followed by 'bucket' (51.2 percent).

Table-5.1: Hand washing location near latrine

Variables	Percent	No. of households
Hand washing place inside or near latrine		
Yes	33.9	254
No	66.1	495
Total	100.0	749
Type of hand washing arrangement (Multiple responses)		
Pond/river/canal	57.1	145
Bucket	51.2	130
Pitcher/jug/jarcane	10.2	26
Tubewell	9.1	23
Tap	1.2	03
Total		254

5.2 Water and soap in hand washing place inside or near latrine

By observing the hand washing places, the investigators found water in most of the households (89.7%), while they found soap (or detergent or liquid soap) in only 29.9 percent households. Overall they observed both water and soap in 29.1 percent households (Table 5.2).

Table-5.2: Water and soap in hand washing place inside or near latrine

Variables	Percent	No. of households
Water available in hand washing place		
Yes	89.7	672
No	10.3	77
Total	100.0	749
Soap available in hand washing place		
Yes	29.9	224
No	70.1	525
Total	100.0	749
Water and soap available in hand washing place		
Yes	29.1	218
No	70.9	531
Total	100.0	749

5.3 Soap in household without soap in hand washing place

The households, who have no soap at hand washing location inside or near latrine, were requested to show soap if any in the households (for any purpose). In response soap was observed in overwhelming majority (95.0 percent) of the households (Table5.3).

Table-5.3: Soap available in household without soap in hand washing place

Variables	Percent	No. of households
Soap available in household		
Yes	95.0	499
No	5.0	26
Total	100.0	525

5.4 Monthly expenditure for soap/detergent for hand washing

Respondents reported that only few of the households had soap, used only for hand washing purpose (not shown in Table). Therefore, the study team relied on assumptions of the respondents to get information on monthly expenditure for soap used for hand washing purpose. However, qualitative information reveals that household respondents over estimated this cost, and their estimates are presented in Table 5.4 below.

Table 5.4shows that household monthly expenditure for purchasing soap/detergent for hand washing. It shows that over half (56.2 percent) reportedly spent Taka upto 15 per month for this purpose. Average expenditure for this purpose was Taka 17.1 per month.

Table-5.4: Monthly expenditure on soap/detergent for hand washing

Household monthly expenditure for soap/detergent	Percent	No. of households
Up to Tk. 15	56.2	421
More than Tk. 15	43.8	328
Average monthly expenditure	17.1	749
Total	100.0	749

5.5 Hand washing behavior of mothers in five critical times

Data on hand washing behavior of mothers at five critical times/occasions were collected. Five critical times include: after defecation, after cleaning child's bottom, before cooking, before eating and before feeding child. Findings in Table5.5 show that over half (57.1 percent) of mothers reportedly washed their hands after defecation, while 42 percent washed hands after cleaning child's bottom. Five percent of them washed hands before feeding their children. Only 2-3 percent of them washed hands before eating (2.7 percent) and before cooking (1.6 percent).Thus, it appears that, 42-57 percent of mothers had habit of hand washing after own defecation and cleaning child's bottom. However, they rarely washed their hands at other three critical times, viz., before cooking, eating and feeding child.

Table-5.5: Hand washing behavior of mothers in five critical times

Hand washing behavior of mothers	Percent	No. of mothers
After defecation	57.1	749
After cleaning child's bottom	42.0	749
Before eating	2.7	749
Before cooking	1.6	749
Before feeding child	5.0	749

Key Findings on Hand washing and Use of Soap	
a	One third (33.9 percent) of households had hand washing location inside or near latrine
b	In 57.1 percent cases 'pond/river/canal' was observed as hand washing point or place
c	By observing hand washing places, both water and soap were found in 29.1 percent households
d	Average expenditure for hand washing purpose was Taka 17.1 per month
e	Over half (57.1 percent) of mothers washed their hands after defecation; while 42 percent after cleaning child's bottom; they rarely (2-5 percent) washed hands before cooking, eating and feeding child

CHAPTER SIX : WATER, SANITATION AND HAND WASHING IN SCHOOL

Chapter Six focuses on situation of water, sanitation and hand washing facilities in selected schools in the study area. It elaborates the findings relating to source of drinking water, availability of latrine facilities, hand washing facilities as well as soap in hand washing place(s) in schools. In addition, this Chapter describes the level of school going children's awareness on hand washing at critical moments in school as well as in households. Also, qualitative information regarding situation of water, sanitation and hand washing facilities in schools, arrived through FGD and observation, is presented in this chapter[21].

6.1 Source of drinking water in school

Table 6.1 presents the findings on sources of drinking water in the visited schools. Data reveal that main source of water in 4 schools is pond, while covered rainwater in another 4 schools. PSF is the main source in one school and tube-well in the remaining one school.

Table-6.1: Main source of drinking water in school

Source of drinking water	Number of schools
Pond	4
Rain water (covered)	4
PSF	1
Tube-well	1
n	10

6.2 Toilet facility in school

Latrines were functioning properly in 8 schools, while those were not functioning properly in 2 schools. In 8 schools latrines were water sealed and in 2 schools non-water-sealed (see Table A6.2.1 in appendix A).

There was only one school out of ten, which had a separate latrine for girls (it is one of two high schools).In addition, there were three schools which had separate latrines for teachers.

6.3 Frequency of cleaning latrine

Latrines were cleaned once a week in 8 out of 10 schools; while once a month in one school. However, cleaning was quite irregular in the other school (Table 6.3).

[21]Ten schools were selected at random in the study area for visit. One school was selected from each of eight unions and two schools from the remaining one union of the study upazila. Out of these schools, 8 are primary and 2 are secondary. Information was collected through interview with head teachers and FGD with SMC members during school visits and from school going children during household survey. A total 1266 students were enrolled in the selected schools in the year 2015 with an average of 126.6 students per school. Of them, 615 students were boys, and 615 students were girls. The ratio of boy to girl was 100: 106 i.e. 106 girls were enrolled as against every 100 boys (Table A6.1.1and A6.1.2 in appendix A).

Table-6.3: Cleanliness of latrines

How often latrinesare cleaned	Numberof schools
Weekly	8
Monthly	1
Irregularly	1
n	10

6.4 Hand washing place and soap

Data on hand washing facilities in latrines of the visited schools are presented in Table 6.4. It shows that in 7 schools out of 10, there was hand washing facility inside or near latrines (within 10 feet). Only in 2 out of these 7 schools, soap was available in hand washing place.FGD with SMC members add that soap was generally provided from the school fund.

Table-6.4: Hand washing facility inside or near latrine

Variables	Numberof schools
Hand washing place inside or near latrine	
Yes	7
No	3
Total	10
Soap available in hand washing place	
Yes	2
No	5
Total	7

While conducting the household survey, the household children were asked about availability of hand washing facilities in school.

About half of children (48.4 percent) reported that they have pond/river, as hand washing places in their schools. It is followed by bucket (36 percent) and tubewell (34.9 percent). Few of them (6.7 percent) mentioned water tap in this regard (see Table A6.4.1 in appendix A).

6.5 Cleaning of classrooms

Cleanliness of classrooms and veranda in the schools was observed and also the head teachers were asked about this. The classrooms and veranda were found quite clean in 6 schools, while somewhat clean in 4 schools.

Dustbins or baskets for garbage and waste were found in the premises of 8 schools. Baskets were found in all classrooms of 6 schools; in some classrooms of 2 schools, while in none of classrooms of rest 2 schools. After gathering garbage or wastes from all dustbins and/or baskets, those were reportedly burned or buried under ground in 7 schools, and dumped in river or pond in one school.

There were sufficient number of brooms for cleaning classrooms in all schools. However, the classrooms were reportedly cleaned every day only in 2 schools, but every after 6 days in 4 schools; every after 3 days in 3 schools; and every after 2 days in 1 school (see TableA6.5.1 in appendix A).

6.6 SMC's activities on water, sanitation and hygiene

Table A6.6.1 in appendix A presents the findings related to different activities of SMC related to water and sanitation in schools, like arranging of safe drinking water for teachers and students, or arranging adequate latrine facility including separate latrines for girls, etcetera. However, members of SMC added that arrangement of drinking water for the students is not sufficient. They suggested that the problem could be resolved by setting more tube wells and constructing rainwater reservoirs.

Besides, they mentioned some activities being done by SMC on hygiene. The activities include purchasing soap by school authority, teaching the students the method of hand washing, demonstration of proper hand washing method before students, different awareness activities, like "Hand Washing Day" observation, and monthly meeting on cleanliness, etcetera.

Nevertheless, through observation the study team found that the arrangements for safe drinking water and latrine for all including separate toilets for girls as well as hand washing places were not adequate in any of the schools.

6.7 Children's awareness on hand washing at critical times

While conducting the household survey, the school going household children were asked about their hand washing behavior at critical moments of hand washing in schools as well as in households. This provides information on children's awareness level on hand washing at critical times. The sample children were asked about how frequently they washed hands with soap at critical times during school hour. They were also asked about their hand washing practices while they stay in their households. Their responses are presented in Table 6.7.

Findings reveal that only 39.5 percent of children reportedly wash their hands with soap after defecation. Very few of them wash their hands with soap 'before taking the tiffin', 'after cleaning school rooms/school playground' and 'after playing games' (1.0-2.8 percent). However, about 22 percent of children, who wash school latrine, wash hands with soap after cleaning of school latrine.

While they stay in households, 54 percent of children wash their hands with soap after defecation and29.1 percent after cleaning latrine. Besides, they wash their hands with soap very rarely 'before eating', 'after household chore' and 'after playing games' (1.0-1.5 percent). Notably, proportion of children washes their hands with soap after defecation in schools is lower than the corresponding proportion at household level. It is also noteworthy that about one sixth of children (about 100 out of 619) used to clean latrines in schools and in households and majority of them do not wash their hands with soap after cleaning latrines (higher in school).

Table-6.7: Hand washing behavior of children in critical times with soap

Variables	Percent	No. of children
Hand washing behavior of children in school		
After defecation	39.5	602
Before taking tiffin	2.4	594
After cleaning school rooms/school playground	2.8	564
After playing games	1.0	604
After cleaning school latrine	21.6	111
Hand washing behavior of children in household		
After defecation	54.0	613
Before eating	1.5	619
After household chore	0.9	528
After playing games	1.0	613
After cleaning latrine	29.1	103

Key findings on water, sanitation and hand washing situation in school	
a	Pond is main source of drinking water in 4 schools; rainwater in 4 schools is, PSF in 1school and tubewell in remaining 1 school (out of 10 schools visited)
b	Latrines were functioning properly in 8 schools; only one school had a separate latrine for girls
c	Hand washing facility was available inside or near latrines in 7 schools; soap was available in hand washing place in 2 schools
d	only 39.5 percent of children wash their hands with soap after defecation during school period; this proportion is lower than the proportion in households (54.0 percent)
e	Very few of them (2.4 percent) wash their hands with soap 'before taking tiffin'

CHAPTER SEVEN: WATER BORNE DISEASES

Chapter Seven discusses about findings related to prevalence of some selected water borne diseases among household children in the study area in the recent past.

7.1 Prevalence of water borne diseases among children

Table 2.4 presents the findings related to prevalence of dysentery, typhoid and jaundice among children aged 0-59 months during three months prior to the survey. It also provides information on the prevalence of diarrhoea among them during past two weeks. Findings show that 14.6 percent of children suffered from diarrhea during last two weeks. About one third of them (32.7%) suffered from dysentery, 21.7 percent suffered from skin disease, but only 2.1 percent suffered from jaundice and 2.5 percent from typhoid during three months preceding the survey.

Table-7.1: Morbidity among children aged 0-59 months in last three months prior to survey

Variables	Percent	No. of children
Diarrhoea during last two weeks		
Yes	14.6	437
Dysentery during last three months		
Yes	32.7	437
Skin disease during last three months		
Yes	21.7	437
Typhoid during last three months		
Yes	2.5	437
Jaundice during last three months		
Yes	2.1	437

Key findings on water borne disease	
a	About 15 percent of children suffered from diarrhoea during past two weeks preceding the survey
b	About one third of them (32.7%) suffered from dysentery during three months preceding the survey
c	21.7 percent from skin disease during three months preceding the survey
d	2.5 percent from typhoid during three months preceding the survey; and
e	2.1 percent from jaundice during three months preceding the survey

CHAPTER EIGHT : RISK AND IMPACT OF CLIMATE CHANGE

Chapter Eight focuses on understanding level of community people, including government and NGO personnel, living in the study area about risks and impacts of climate change on water, sanitation and hygiene practice. The discussions include elaboration of perception of household respondents and other stakeholders, e.g., engineers of DPHE, upazila agriculture officer, upazila vice chairman, UP chairmen and members and officials of NGOs working on climate, and members of SMC, WatSan Committee, UDMC, farmer groups and fisherman groups, on risks and impact of climate change on access to safe water, sanitation and hygiene, and vulnerability of areas and people and local government institutions' practices towards climate change adaptation and risk reduction. Also, this chapter sheds lights on their perception on future effect of probable change in global climate. Finally, it presents their opinion on means of adaptation with climate change for risk reduction.

8.1 Risk and impact of climate change on water, sanitation and hygiene

Household respondents were asked if they believed that climate was changing in the study area. The respondents, who provided a positive response, were further asked about probable risk and impact of climate change on access to safe water, hygienic sanitation and hygiene practice. Findings relating to the responses to all such questions are presented in Table 8.1.

Table reveals that 45.9 percent of respondents believed that climate was changing gradually in their area, while 17.5 percent didn't think so. Notably, over one third of them (36.6 percent) didn't have clear idea about it and hence could not indicate whether it was changing or not.

In response to the question about risk and impact of climate change, 43.6 percent and 24.7 percent of the respondents, respectively, perceived that the problem of 'scarcity of pure drinking water' and 'problems in collecting water and in bathing' were some risks and impacts in this regard; while 17.2 percent cited the impact that community people were being compelled to use unsafe water for household purposes. Few of them were of the opinion that due to climate change, drainage system and its structure in the area were damaged (8.7 percent), while open defecation was increasing day by day (4.9 percent)(Table 8.1).

Table-8.1: Change in climate in the area and perceived risk and impact of climate change on water, sanitation and hygiene

Variables	Percent	No. of households
Climate is changing in the study area		
Yes	45.9	344
No	17.5	131
Don't know/not sure whether it is changing or not	36.6	274
n	100.0	749
Perceived risk, impact of climate change on water, sanitation and hygiene (Multiple responses)		
Risk and impact on water		
Scarcity of safe drinking water	43.6	150
Women and children facing problems in collecting water and in bathing	24.7	85
People compelled to use unsafe water for household purposes	17.2	59
Source of pure drinking water/tubewell inundated under flood/tidal water	4.1	14
Tubewell/dug well becoming dysfunctional	3.5	12
Risk and impact on sanitation		
Drinage system and its structurebeing damaged	8.7	30
Open defecation increasing	4.9	17
Risk and impact on hygiene		
People's hygiene practices hampered due to lack of water	33.1	114
Healthcare including reproductive health hampered (for lack of hygiene practice)	4.7	16
Don't know/cannot specify risk and impact	17.2	59
Total		344

Further, one third of household respondents (33.1 percent) were of the opinion that as impact of climate change people's hygiene practices in the area were hampered due to insufficient water caused by climate change; 4.7 percent believed that healthcare including reproductive healthcare were hampered(due to lack of hygiene practices among people). However, a considerable proportion (17.2 percent) of them did not have any perception about risk and impact of climate change (Table 8.1).

Qualitative findings (arrived through FGD and KII methods) add manifold aspects with regard to climate change, its impact on water, sanitation and hygiene in the study area. Besides, qualitative findings focus on the current status of local government institutions' understanding and practices towards climate change adaptation and risk reduction. Participants[22] in the qualitative methods were of the opinion that as an effect of global climate change, remarkable changes were taking place in local climate. They were feeling

[22] Engineers of DPHE, upazila agriculture officer, upazila vice chairman, UP chairmen and members and officials of NGOs working on climate in the area, and members of SMC, WatSan Committee, UDMC, farmer groups and fisherman groups etcetera

that imbalance in the climate was evident in the study area due to the change in climate globally. They elaborated that reversing the usual feature of weather- sometimes worm weather prevailed in the winter season, while cold weather existed in dry season. Also, it seems, storm, tidal surge and other natural calamities are occurring in the coastal belt including study area more frequently than before. Excessive rainfall during monsoon, and severe draught during summer are also increasing day by day. They added further that prevalence of different diseases, particularly water borne diseases, were increasing in the area. At the same time, they continued, ground water level was going down rapidly. Also, salinity of water was increasing steadily. As a result scarcity of safe drinking water was even deteriorating in the whole coastal region.

Level of sea water was raising and siltation of river beds also increased and was increasing gradually. Thus, the rivers were losing its navigability. At the same time, tidal water was staying for longer time increasing the flooding and water logging in the region. Furthermore, embankments in the regions were being damaged or eroded and river banks were being eroded also.

It is to be noted that the study had no scope to and hence did not assess technically (meteorologically or by measuring through use of some model) the reflection of these observations in the study area.

8.2 Adaptation with changed situation

Qualitative findings add that no specific initiatives were undertaken at community level as a response to climate change adaptation and disaster risk reduction due to lack of awareness among community people. At the same time, though there were some budgetary allocations for disaster adaptation by the local level government and non-government organizations they did not practice specifically for resource mobilization strategy for disaster risk reduction and climate change adaptation. Also, there was no arrangement by them for identifying any area or group of people vulnerable to climate change and disaster risk.

However, in order to adapt with the situation the Upazila Agricultural Office established farmers' group in each union of the study upazila. These groups reportedly conduct awareness campaign through public gathering and dissemination of information (through amplifier). They motivate farmers for cultivating saline resistant crops and planting fruit trees in homesteads and pond's banks. In addition, some community forums were established at community level, which undertook awareness activities including awareness about raising homesteads, and built PSF and planted trees.

Against this backdrop, respondents in the qualitative component provided some suggestions as to what the government and other organizations as well as general people can do to adapt climate change and reduce disaster risk. They pointed out: Adequate number of ponds should be dug with raised banks so that saline water cannot enter into the

ponds to ensure safe drinking water. People should be encouraged to collect rainwater in a hygienic manner. Salinity free piped water from adjacent upazila may be supplied to the study upazila.

People should build houses on raised homestead land. Further, raised river embankments should be built to prevent saline water entering into croplands, existing embankments should be further raised and sluice gates should be repaired.

People should be made aware so that they cultivate crops according to changed cropping pattern and change in climate. Saline resistant hybrid rice and other crops and fishes should be cultivated.

In brief, general people mostly did not have specific idea about risk and impact of climate change on water, sanitation and hygiene practice. In contrast, local government and other government and non-government officials and people's representatives (e.g. upazila vice chairman and UP chairmen and members) had a better understanding about the issue. They cited some specific measures as part of adaptation with climate change and disaster risk reduction. However, practice of local government institutions towards these issues was at its initial stage. This was evident from the fact that their practices so far were as follows: disaster management committees at upazila and union levels and farmers and fishermen groups at union level were formed but ward level committees of any type were not formed yet. Also, they did not yet practice regarding vulnerability assessment and resource mobilization strategies. The UDMC and different groups initiated its activities. They make people aware about disaster including climate change adaptation through awareness raising campaign.

CHAPTER NINE : LOCAL GOVERNMENT'S RESPONSES TO WASH

Chapter Nine presents the findings related to budgeting and expenditure in total budgets planned and approved for the activities related to WASH and risk and impact of climate change by the local governments (union parishads) in the study upazila. Relevant documents and papers of union parishads are used in this regard. Findings arrived through interview with UP chairmen and members are also presented in this chapter.

9.1 Budgeting and monetary allocation

Planning and budgeting of socio-economic development of a Union Parishad (UP) is done through a process. The process is: a sector wise five year Local Government Sector Plan (LGSP)-2 plan of a Union Parishad is prepared in a general meeting with the participation of its all members. The development sectors include: agriculture and small irrigation; physical infrastructure; fisheries and livestock; public health; socio-economic infrastructure; and sports and culture.

A sector wise budget for a ward is prepared in a pre-budget ward meeting of each ward considering demand of the people of the ward. Then each ward budget is placed in the standing committee of the Union Parishad. Standing Committee scrutinizes all the ward budgets and sends those to the Union Parishad. The Union Parishad then arranges a general meeting with UP chairman in the chair with participation of all members including women members. After discussion and with the consent of all members, the draft annual budget of the Union Parishad is prepared. Every year a Union Parishad arranges an open budget meeting before 30thMay. All UP members and elite persons of the community participate in the meeting. The draft budget is revised or changed and finalized and approved with their suggestions. The approved budget is then sent to the Upazila Nirbahi Officer (UNO) for approval.

The above information on preparing budget was found from UP chairman, UP members and UP secretary. Also the documents on last two years financial budgetary allocation and expenditure were collected and reviewed.

Though there was no specific budgetary allocation for climate change in union parishad budgets, there were budgeted expenditure for "WASH" and "Disaster Management" activities. Data on the budgeted expenditure for the fiscal years of 2013-2014 and 2014-2015on "WASH" and "Disaster Management" are presented in Tables 9.1 and 9.2. In the years 2013-2014, and 2014-2015, there were budgeted expenditure on WASH activities for all 9 unions of the study upazila. Ratio of expenditure for WASH purpose to the total budget in the year 2013-2014 ranged from 0.1 to 10.9percent across the unions. In the year 2013-2014, there were budgeted expenditure for disaster management in five unions and the planned expenditure ranged from 0.1 to 0.4 percent of the total budget.

Table-9.1: Information on budget of Union Parishad 2013-2014

Upazila	Name of Union Parishad	Total Budget (Tk.)	Cost/Expenditure		Ratio of WASH	Category *	Ratio of Disaster Management	Category
			WASH (Tk.)	Disaster Management (Tk.)				
Dacope	Dacope	8493064	9000	10000	0.11	1	0.12	1
	Pankhali	13710722	1500000	0	10.94	1	0.00	0
	Tildanga	7443000	85000	0	1.14	1	0.00	0
	Bojua	15910000	295000	60000	1.85	1	0.38	1
	Kailasganj	28997972	20000	60000	0.07	1	0.21	1
	Kamarkhola	12765896	25000	25000	0.20	1	0.20	1
	Sutarkhali	4200000	200000	0	4.76	1	0.00	0
	Laudubi	16677348	100000	0	0.60	1	0.00	0
	Baniashanta	17519500	100000	40000	0.57	1	0.23	1

* Category is 0=No cost, 1=below 20%, 2=20% and more

Ratio of expenditure for WASH purpose to the total budget in the year 2014-2015 ranged from 0.1 to 17.6 percent across the unions. Budgeted allocation for disaster management was available in only two unions-Kailashganj and Kamarkhola. However, it was only 0.5 and 0.2 percent of total budget for these two unions, respectively, for 2014-2015 fiscal year. That is, in both the unions, budgetary allocation for WASH is very small. This budget was spent overall in the union as per need. However, there was no specific budgetary allocation for extreme poor.

Table-9.2: Information on Budget of Union Parishad 2014-2015

Upazila	Union Parishad	Total Budget (Tk.)	Expenditure		Ratio for WASH	Category*	Ratio of Disaster Management	Category *
			WASH (Tk.)	Disaster Management (Tk.)				
Dacope	Dacope	9436766	50000	0	0.53	1	0.00	0
	Pankhali	17086421	3000000	0	17.6	1	0.00	0
	Tildanga	11758523	10000	0	0.09	1	0.00	0
	Bojua	15910000	295000	0	1.85	1	0.00	0
	Kailasganj	30367446	3500000	150000	11.53	1	0.49	1
	Kamarkhola	13766182	25000	30000	0.18	1	0.22	1
	Sutarkhali	37000000	200000	0	0.54	1	0.00	0
	Laudubi	9897398	500000	0	5.05	1	0.00	0
	Baniashanta	17535258	100000	0	0.57	1	0.00	0

* Category is 0=No cost, 1=below 20%, 2=20% and more

Key findings on local government's responses to wash	
a	Ratio of expenditure for WASH purpose to the total budget in the year 2013-2014 ranged from 0.1 to 10.9 percent across the unions
b	Ratio of expenditure for WASH purpose to the total budget in the year 2014-2015 ranged from 0.1 to 17.6 percent across the unions
c	For disaster management very small amount of money was spent in some of the unions ranging from 0.1 to 0.5 percent

CHAPTER TEN : DISCUSSION CONCLUSION AND RECOMMENDATIONS

The baseline study explored the current status of the study households with main focus on: households' access to safe drinking water and hygienic sanitation facilities and hygiene practice; level of TTC, iron content and arsenic in water; prevalence of water borne diseases among children; people's level of understanding of climate change, its risks and impart on safe water, sanitation and hygiene practice.

Main sources of drinking water for the households were pond, tubewell, PSF and rainwater, where 3 out of 5 households were using improved sources (tubewell, PSF and rainwater)(less than national estimate: 97.9 percent, MICS 2012-2013: 11). Water was available in the main sources throughout the year in only about 32 percent of households. About one third households were using pond water for drinking purpose. In majority cases water sources were not within the household premises, situated at a place of on average 388 meters away from households, and on average it was taking 32 minutes to collect water from those sources. It appeared that study households needed much more time than the national estimates, as 3.7 percent of households nationally, and 4.4 percent of them in the rural area as against 38.2 percent of the study households needed more than 30 minutes to collect water (BDHS 2011: 12).

Households' practice of water safety plan (WSP) was not encouraging. Though majority of households always were covering the water container with lid while carrying water from sources, a vast majority of them put the preserving container on the floor either without any lid or with covering with cocoanut shell or cloth. Further, majority of the households were not cleaning the preserving container every day.

Mostly quality of water in the study area was not good. TTC was found to be most common and highest in pond water and also it was common in tubewell water. Iron and arsenic content in the water of the sources was also higher than the acceptable level. Overall, households, access to safe drinking water in the project area was at the critical situation.

Though over half of the households had access to improved sanitation facilities, about 43 percent of them were still using unimproved facilities. Latrines of 15 percent households get submerged during flood, tidal surge or rainy season. Members of about 46 percent of these households were defecating in an open field or here and there during inundation period. Thus, households' access to improved sanitation facilities was also at stake.

Members of over half of the households were washing hands in ponds, rivers or canals. There was no specific hand washing place inside or near about the latrine in majority of the households. Mothers' hand washing practice was lagging behind, as over half of them were washing their hands with soap after defecation, and 42 percent of them after rinsing a child; but they rarely did it before cooking, eating and feeding a child.

School children's access to safe drinking water and improved sanitation facilities and their hand washing practice were not encouraging. Pond, rainwater collection and tubewell were the main sources of drinking water in schools. Though latrines were functioning properly, only in one school there were separate latrines for girls. Though hand washing facility was available inside or near the latrine in some schools, soap was available only in few of them. About 40 percent of the children were washing their hands with soap after defecation during school period but very few of them doing it before taking tiffin.

Water borne diseases were very much prevalent among the children in the study area; 15 percent of them suffered from diarrhea, 32 percent from dysentery, 22 percent from skin disease and 3 percent from typhoid during two weeks preceding the survey. Prevalence of diarrhoea was higher among study children aged under-five compared to national estimate of 3.9 percent and divisional estimate of 6.2 percent in Khulna among the same aged children (MICS 2012-2013: 9).

Local governments' response to WASH and disaster management was quite limited. Ratio of expenditure for WASH purpose in financial year of 2013-2014 was 0.1 to 10.9 percent of the total budget across all the unions, while it was 0.1 to 17.6 percent in the year 2014-2015. For disaster management it ranged from 0.1 to 0.5 percent of total budget in some unions.

To conclude it may be mentioned that, access of household members and school children to safe drinking water and improved sanitation facilities in the study area was at stake. Hygiene practice of mothers and school children was also not as improved as expected level. Moreover, people were vulnerable to the various effects of climate change. However, they had no idea or had very limited understanding of climate change as well as its risks and impacts on safe water, sanitation and scope of hygiene practice. On the other hand, response by the local government institutions towards climate change adaptation and risk reduction was limited, although disaster management committees and farmers and fishermen groups were formed and forced at upazila and union levels. These committees were working on awareness raising activities by these committees and groups in a small scale. Therefore, concerted efforts may be provided to address the above mentioned points to improve the situation.

Recommendations:

- Majority of households in the project area do not have easy access to safe drinking water. Water sources are situated at on average 388 meters away from the households and 38 percent of them need on average 30 minutes to collect water from sources. In order to make safe drinking water easily available to community people round the year, all stakeholders including local government institutions and NGOs should work together with an appropriate coordination mechanism to develop and make available improved safe water facilities in the communities (through installing

PSF, deep tubewell and tubewell etcetera). Communities may be encouraged to be involved in the operation and maintenance of the water facilities along with local government institutions and NGOs. Priority should be given in this regard for the pockets with more difficulty in collecting safe water.

- Community people are vulnerable to the effects of climate change. But they have very limited understanding about climate change and its risks and impacts on safe water, sanitation and hygiene practice. Households' practice of water safety plan (WSP) is not encouraging. A concerted effort using various media and assigning field level health workers should be made to aware the community people on the use of safe drinking water, water safety plan, hygienic sanitation and hygiene practice.
- Households' access to improved sanitation facilities is also at stake. About 43 percent households use unimproved latrines. During flood, tidal surge and rainy season, members of about 46 percent households have to defecate in an open place. A comprehensive plan should be made and implemented with active support of local government institutions to increase access of the households to improved sanitation facilities. Efforts should be made to introduce and install environment and disaster friendly latrines in the communities by both government and NGOs.
- School children's access to safe drinking water and improved sanitation facilities is quite limited. Their hand washing practice is also not encouraging. School authorities should be motivated to install safe drinking water and hygienic latrine facilities in the respective schools. Priority should be given to install separate latrines for girl students. Students should be well oriented on how to maintain personal hygiene including hand washing practice in hygiene and sanitation class.
- Hygienic hand washing practice of community people including mothers is not as improved as expected. Mothers rarely wash their hands before cooking, eating or feeding a child. Awareness raising activities should be further enhanced to make community people particularly mothers on maintaining hygiene practice including hygienic hand washing practice through awareness campaign, courtyard meeting and display of posters, bill boards etcetera.
- Local governments' response to WASH and disaster management is quite limited. Disaster Management Committees have been formed at upazila and union levels. But ward level committees have not yet been formed. Local governments do not practice vulnerability assessment and resource mobilization strategies. Local governments should be more proactive to respond to WASH and disaster management activities in the communities. Union Parishads should prepare yearly plan and budget for WASH and disaster management and implement the plan.

APPENDIXA : ADDITIONAL TABLES ON STUDY FINDINGS

Table-A 3.1.1: Condition of PSF as main water source

Variables	Percent	No. of PSF
Condition of PSF		
The pond is not protected	18.9	212
Pond's embankment is damaged/there is no embankment	4.7	212
Hanging latrine is there over the pond within the distance of 30 foot	0.9	212
Ducks, cows & goats enter into pond	19.8	212
Pond is used for bathing	13.7	212
Fish is cultivated in the pond by applying fertilizer and medicine	0.9	212
Hand pump of the water source is out of order	0.5	212
Lid of PSF is open	8.5	212
Water collecting machine is damaged	20.3	212
The drain of PSF is closed or damaged	32.1	212
Cleaning of filter in PSF		
Ever cleaned	77.0	164
Never cleaned	0.0	0
Don't know	23.0	49
Total	100.0	213
Time interval of cleaning in PSF		
Cleaned in 1-2 months	39.6	65
Cleaned in 3-4 months	28.0	46
Cleaned in 5-10 months	32.3	53
Average time (month) of cleaning	3.7 months	164
Total	100.0	164

Table-A 3.1.2: Condition of tube well as main water source

Variables	Percent	No. of tube well
Condition of tube well		
There is latrine near the tube well (within 30 feet)	4.4	226
There is latrine near the tube well (within 30 feet) at a place above tube well	5.8	226
There is heap of rubbish or filth or any cowshed near the tube well	34.1	226
The drain connected to the tube well is closed with garbage	40.3	226
Water is logged on the platform of the tube well	22.1	226
There is crack on the platform of the tube well	16.8	226
There is crack in the drain connected with the tube well or the drain is broken	23.9	226
The foundation of the tube well is not in a good condition	5.8	226
There is no cover or lid over the hand pump	90.3	226
Type of water used to operate the tubewell (multiple response)		
Tube well	67.9	152
Surface water	60.7	136

Variables	Percent	No. of tube well
Shallow tubewell	1.8	04
Motor	0.4	01
Collected rain water	2.7	06
No need of water	15.2	34
Total		226

Table-A 3.1.3: Condition of rainwater as main water source

Variables	Percent	No. of rain water
Condition of rain water		
Water is not filtered	70.0	60
Rubbish/dust on roof/thatching of room from which rainwater is collected	35.0	60
The pipe for collecting rain water from the roof/thatching is not clean	41.7	60
Pipe for collecting rain water from roof/thatching broken or a crack in it	15.0	60
There is a crack or leak in the water collecting tank	8.3	60
The lid of the water collecting tank is open/broken	8.3	60
The tap of the water collecting pipe is broken/there is a leak in it	11.7	60
There is a heap of rubbish or filth or stool near the tank	16.7	60
Condition of place under the tap for rainwater		
Clean and no crack	77.8	42
Unclean and no crack	7.4	4
Clean but there is a crack	5.6	3
Unclean and there is a crack	9.3	5
Total	100.0	54

Table-A 3.1.4: Sources of water for cooking and washing utensils

Sources of water for cooking and washing utensils	Percent	No. of households
Pond water	79.7	597
Tubewell/shallow tube well	6.9	52
River water	5.7	43
PSF	3.9	29
Others*	3.7	28
Total	100.0	749

* 'Others' include deep tubewell, rain water with/without cover, well, supply through PSF, purchased water

Table-A 3.2.1: Not available of drinking water in the main source round the year

Months when water not available (multiple responses)	Percent	No. of households
Ashar	86.8	439
Shraban	87.7	444
Bhadra	82.8	419
Ashshin	35.6	180
Kartik	5.1	26
Agrahayan	1.8	9
Paush	4.2	21

Months when water not available (multiple responses)	Percent	No. of households
Magh	4.9	25
Falgun	9.3	47
Chaitrya	10.9	55
Baishakh	9.1	46
Jaisthya	16.8	85
Total		506

Table-A 4.1.1: Hygiene status of latrine by Monthly income of household

Monthly income of household	Hygiene status of latrine (%)	
	Hygienic latrine	Unhygienic latrine
Upto 5000	54.4	45.6
5001 - 7500	56.4	43.6
7501 - 10000	52.1	47.9
10001-15000	61.6	38.4
15001 - 20000	80.8	19.2
20001 -25000	68.8	31.3
Above 25000	87.5	12.5
n	429	320

Note: chi-square= 16.0, p-value=0.014

Table-A 4.1.2: Hygiene status of latrine by Monthly income of household

Monthly income of household	Hygiene status of latrine (%)	
	Hygienic latrine	Unhygienic latrine
Agriculture	63.3	36.7
Labour	52.0	48.0
Service/professional	64.2	35.8
Business	55.8	44.2
Housewife/HH chore	60.0	40.0
Unemployed	53.8	46.2
Retired/old/incapable	66.7	33.3
Others(servant, tuition, handicraft, imam, fishery, beggar etc)	68.8	31.3
n	429	320

Note: chi-square= 10.4, p-value=0.169

Table-A 6.1.1: Name of the schools

School name	Type of school	Union	Number
Shaheber Abad Govt. Primary School	Primary	Dacope	1
Parjoynagar Govt. Primary School	Primary	Kamarkhola	1
Pankhali (1 No.) Govt. Primary School	Primary	Pankhali	1
Purbo Bajua Govt. Primary School	Primary	Bajua	1
Kalabaghi Adarsha Govt. Primary School	Primary	Sutarkhali	1
Amtala Uttar Para Govt. Primary School	Primary	Baniashanta	1
K.B (Baro Back) Govt. Primary School	Primary	Laudob	1
Trimohoni Govt. Primary School	Primary	Kailasganj	1
Banishanta Pinac Pani High School	Secondary	Baniashanta	1
Tildangga Junior High School	Secondary	Tildangga	1
n			10

Table-A6.1.2: Number of students enrolled in school in 2015

Students enrolled in school in 2015	Number
Total students	1266
Average (mean) number of students	126.6
Boys	615
Girls	651
Ratio of students (Boys: Girls)	100: 106
n	1266

Table-A 6.1.3: Number of positions for teachers in schools

Number of teachers in school	Number
Number of positions for teachers	51
Average number of teachers in school (mean)	5.1
Number of serving male and female teachers	
Male teachers	27
Female teachers	24
Ratio of teachers (Male: Female)	100: 89
n	51

Table-A 6.1.4: Information about SMC

Variables	Number
School has SMC	
Yes	10
Members of SMC	
Male	59
Female	35
Total	94
Ratio of teachers (Male: Female)	100: 59
n	94
Sex of SMC chairperson	
Male	10
n	10
Number of times the SMC conducted meeting in 2014	
9	1
11	1
12 or more	8
n	10

Table-A 6.2.1: Health and hygiene activities performed by SMC in 1 year prior to survey

Variables	Frequency
SMC/school performed any health or hygiene related activity	
Yes	7
No	3
n	10
Type of activities*(multiple response)*	
Observed Hand Washing Day	4
Children in the assembly made aware on cleanliness	1
School authority purchased soap and taught students how to wash hands with soap	2
Students are demonstrated how to wash hands on hand washing day	1
Merits and demerits of cleanliness are discussed	1

Students are encouraged to wash hands with soap on hand washing day	1
Students made aware about cleanliness in monthly meetings and guardian gathering	1
Students advised on weight measure, take vitamin capsule, healthcare by student's doctor team	1
n	10

Table-A 6.6.1: Hand washing places in school

Variables	Percent	No. of Children
Type of hand washing facilities/arrangements in the school (Multiple responses)		
Pond/river/canal	48.4	304
Bucket	36.0	226
Tubewell	34.9	219
Water tap	6.7	42
Water tap with basin	1.1	7
Pitcher/jug/jerican	1.6	10
Don't know/can't explain	3.2	20
Total		628
Soap/ detergent available in the hand washing point/ place		
Yes	69.1	433
No	25.7	161
Don't know	5.3	33
Total	100.0	627

Table-A 6.7.1: Cleaning of classrooms and school building

Variables	Number
Dustbin in the school	
Yes	8
n	10
Dustbin available in the classroom	
Yes, all classroom	6
Yes, some classroom	2
No, none the classroom	2
n	10
School rubbish after collection from rubbish bin	
Burn/burry at school	7
Dump in river/pond	1
n	8
Enough brooms for all class rooms to clean those	
Yes	10
n	10
How often does a classroom get cleaned (cleaning rota)	
Every day	2
Every after 2 days	1
Every after 3 days	3
Every after 6 days	4
n	10
Class rooms and corridor clean	
Yes	6
Fairly	4
n	10

APPENDIX B : SURVEY QUESTIONNAIRE

HOUSEHOLD QUESTIONNAIRE

Confidential, for research use only

Identification Number | | | | | |

Baseline Survey for the Project "Transforming Rural Livelihood through Wash in Climate Vulnerable Areas in Southwest Bangladesh" 2015

Executed by WaterAid Bangladesh

Conducted by SURCH

HOUSEHOLD QUESTIONNAIRE

Interview starting time: | | Hour | | Minute

Household consent paper for interview
(Read out to respondent before starting interview; then start interview if he agrees)

Assalamu Alaikum, My name is _____ I have come from SURCH, a research organization, situated in Dhaka. From time to time various government or non-government organization implement different programs for socio-economic development of the country. SURCH conducts surveys and research related to this. Now, on behalf of Water Aid Bangladesh, we have come to survey peoples' use of safe water, sanitation, hygine and socio-economic condition of Dacope upazila in Khulna district. Your participation to this survey is necessary. This survey will take three-fourth of an hour.
For survey, we will make questions related to your household, child health, cleanness and use of safe water etc. Data taken from you or your household will be confidential and for research use only. For taking part to this survey you will be given nothing. You may not give answer completely if you wish. Have you any question about this survey? Can I start interview now?

Area identification:

A) Upazila: Dacope **B))**Union _____

C) Village: _____ **D)** Household No: | | |

E)Cluster No: _____ | |

Respondent'sIdentification :

F)Respondent's Name**:** _____ **G)** HH Member no. of respondent's | |

H) Religion **:** 1 = Islam, 2 = Hindu, 3 = Christian, 4 = Buddhist, 5 = Others (Specify) ____ |

I)Name and code number of interviewer/supervisor :

	Interviewer	**Supervisor**
Name and code:	| |	|
Signature:		
Date **:**	……**/……./2015** DD / MM / YY	……**/……./2015** DD / MM / YY

Team Number	**:** |	Editor/coder **:**	……
Entrier	**:** ……	Checker **:**	……

J) Team Number: |

K) Result code: 1 = Completed, 2 = Partial, 3 = Refused, 4 = Not at home |

SECTION 1: HOUSEHOLD MEMBER INFORMATION

101	**Total household members**			**Persons**				
102	**Ask about every household member:**							
HH members No	Name of household members (Start from HH head)	Relation with HH head	Sex	Age		Marital status	Highest grade passed	Main Occupation
				Year	month			
(1)	**(2)**	**(3)**	**(4)**	**(5)**		**(6)**	**(7)**	**(8)**
01		**01**						
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								

Code:

(3) Relation to household head:
01. Self
02. Husband/wife
03. Son
04. Daughter
05. Brother/sister
06. Mother/father
07. Daughter or son-in-law
08. Niece/nephew
09. Grandfather/ mother
10. Grandson/daughter
11. Others _____

(4) Gender:
1. Male
2. Female

(5) Age:

Write in month less than 5 years. Write 97 or above

(6) Marriage status:
1. Unmarried
2. Married
3. Widow
4. Divorced/Separated/ Discarded

(7) Educational qualification (Write the highest grade passed)

00. Illiterate/can sign only
22. Pre-primary
33. Can sign only
44. Nurani/Hafezi/Qoumi madrasah
66. Non-formal education
88. Not applicable (<6 years)

(8) Main Occupation
01. Agriculture (only own land)/Agriculture (own and mortgage /lease)
02. Agriculture (only mortgage / lease land)
03. Unskilled labour (day labour/ agriculture labour/ mason/ carpenter assistant)
04. Skillful labour (poter/ blacksmith/cobler/weaver / fisherman/tailor/ mason/ car-penter etc)
05. Rickshaw/van/boat/push curt puller
06. Motorized vehicle driver
07. Government/non-government employee
08. Government/non-government officer
09. Salaried employee
10. Petty business
11. Whole seller
12. Housewife
13. Unemployed/do nothing
14. Retired/old
15. Student
16. Tuition
17. Professional (teacher/advocate/ doctor/ engineer)
18. Village doctor/kabiraj/ Homeo doctor
19.Imam/Muajjin/ purohith/brahman
20. Maid Servant
21. Handicraft/cottage industry
22. Begging
88. Not applicable (<6 years)
23. Others (specify)_____

SECTION 2: LIVING CONDITION AND HOUSEHOLD ASSETS

Q. No	Question	Answer and code	Skip
201	With what material roof of the main dwelling room of the household is built? (**Observe and then write**)	Straw/bamboo leaf/palm leaf ---------- 01 Plastic sheet/polithin ---------- 02 Tally ---------- 03 Tin/steel ---------- 04 Wood ---------- 05 Concrete ---------- 06 Others (specify) _____	
202	With what material walls of the main dwelling room of the household are built? (**Observe and then write**)	Cane/straw/leaf/jute stick ---------- 01 Mud ---------- 02 Bamboo/bamboo &mud ---------- 03 Wood ---------- 04 Tin ---------- 05 Concrete ---------- 06 Others (specify) _____	
203	With what material floor of the main dwelling room of the household is built? (**Observe and then write**)	Mud ---------- 01 Bamboo/palm tree/ betelnut tree --------- 02 Wood ---------- 03 Concrete ---------- 04 Others (specify) _____	
204	Number of dwelling rooms in household?	☐ No	
205	Does your household or any member of your household possess the following in good and working condition? **(Ask one by one)**	Yes / No A. Electricity/solar power---------- 1 2 B. Almirah (wood/steel)---------- 1 2 C. Chair/table ---------- 1 2 D. Cot/Bedstead---------- 1 2 E. Radio ---------- 1 2 F. Television ---------- 1 2 G. Fridge ---------- 1 2 H. Sewing machine---------- 1 2 I. Bicycle---------- 1 2 J. Motor bike ---------- 1 2 K. Power tiller ---------- 1 2 L. Shallow machine ---------- 1 2 M. Power pump ---------- 1 2	

Q. No	Question	Answer and code	Skip
206 *M	Does household have any land? If yes, type of land and amount of land?	Type of land — Do have? Yes / No — If yes, amount (Decimal) 1. House yard------- 1 2 ☐☐☐☐ 2. Cultivable land-- 1 2 ☐☐☐☐ 3. Pond---------- 1 2 ☐☐☐☐ 4. Orchard---------- 1 2 ☐☐☐☐ 5. Others _____ 1 2 ☐☐☐☐	
207	Monthly income of household (including income of all earning members)	☐☐☐☐☐☐☐ Tk	
208	Monthly household expenditure by item of expenditure?	Item — Amount 1. Food---------- ☐☐☐☐ 2. Education---------- ☐☐☐☐ 3. Health care---------- ☐☐☐☐ 4. Others¨ ---------- ☐☐☐☐	
209	Total household monthly expenditure	☐☐☐☐☐☐☐ Tk	
210	Whether stutus of householdis determined throuth socio-eco**nomic analysis done by WDMC ?**	Yes---------- 1 No---------- 2	**301**
211	If, yes mention ststus of HH according to status list prepared by WDMC?	Rich ---------- 1 Middle class---------- 2 Poor---------- 3 Very much poor ---------- 4	

SECTION 3: WATER

Q. No	Question	Answer and code	Skip
301	What are the main sources of drinking water of the household?	PSF ---------- 01 Deep tubewell---------- 02 Tubewell/shallow tubewell---------- 03 Rain water(with cover) ---------- 04 Rain water(without cover)---------- 05 Dug Well water---------- 06 Ring-well---------- 07 Pond water---------- 08 River/canal water---------- 09 Other(Specify))_____	
302	Ownership of the main sources of drinking water of the household?	Self---------- 01 Joint ---------- 02 Neighbour ---------- 03 Relative---------- 04 Owner of house/land ---------- 05 Community ownership---------- 06 NGO---------- 07 Government---------- 08 Other(Specify)_____	**306**
303	If ownership is self or joint, how many years before the source wasinstalled?	☐☐ years	
304	How much money was spent to install the water source?	☐☐☐☐ Tk	
305	During last 12 month show much money was spent to repair the source?	☐☐☐☐ Tk	**→307**
306	If water is collected from others' source how much money was spent to collect water during last 1 month?	☐☐☐☐ Tk	
307	How many months in a year do you get water from the main water source of your household?	☐☐ Month Throughout the year = 12 months ——→	**311**
308 *M	If water is not available throughout the year, in which months of the year it is not available?	Baishak ---------- 01 Jaisthyah ---------- 02 Ashard ---------- 03 Sraban ---------- 04 Bhadryah ---------- 05 Ashin ---------- 06 Kartik ---------- 07	

Q. No	Question	Answer and code	Skip
		Agrayayan ---------- 08 Paush ---------- 09 Magh ---------- 10 Falgun ---------- 11 Chaitryah ---------- 12	
309 *M	What are the reasons that, water is not available in the source throughout the year?	Ground Water level goes down ---------- 01 Sea water level goes up ---------- 02 Damage of water source---------- 03 Drought---------- 04 Other disasters---------- 05 Don't know---------- 77 Others(Specify) _____	
310 *M	During that time from where you fetch water?	PSF ---------- 01 Deep tubewell---------- 02 Tubewell/shallow tubewell---------- 03 Rain water(with cover) ---------- 04 Rain water(without cover)---------- 05 Dug well ---------- 06 Ring-well---------- 07 Pond ---------- 08 River ---------- 09 Other (Specify) _____	
311 *M	From wheredo you fetch water during anydisaster?	PSF ---------- 01 Deep tubewell---------- 02 Tubewell/shallow tubewell---------- 03 Rain water(with cover) ---------- 04 Rain water(without cover)---------- 05 Dug Wellr---------- 06 Ring-well---------- 07 Pond ---------- 08 River ---------- 09 Other (Specify)_____	
312	What are the main sources of water of the household for cooking and washing utensils?	PSF ---------- 01 Deep tubewell---------- 02 Tubewell/shallow tubewell---------- 03 Rain water(with cover) ---------- 04 Rain water(without cover)---------- 05 Dug Well ---------- 06 Ring-well---------- 07 Pond ---------- 08 River ---------- 09 Other (Specify)) _____	

Q. No	Question	Answer and code	Skip
313	What are the main sources of water of the household for other householdwork?	PSF ---------- 01 Deep tubewell---------- 02 Tubewell/shallow tubewell---------- 03 Rain water(with cover) ---------- 04 Rain water(without cover)---------- 05 Dug Well ---------- 06 Ring-well---------- 07 Pond ---------- 08 River ---------- 09 Other (Specify)_____	
314	Whether arsenic test is performed for the main water source of your household?	Yes ---------- 1 No---------- 2 Don't know ---------- 7	316
315	Has any colour sign been put in your water source after arsenic test?	Yes, Red ---------- 1 Yes, Green ---------- 2 No colour ---------- 3 Don't know ---------- 7	
Observe the main water source of the household and cicle appropiate RESPONSE code			
316	If the main water source is PSF, observe,and ask the following and circle appropiate response code	Condition / Yes / No 1. The pond is not protected ---------- 1 2 2.Pond's embankment is damaged/there is no embankment ---------- 1 2 3. Hanging latrine is there over the pond within the distence of 30 foot ---------- 1 2 4.Duckes, cows & goats entere into pond----- 1 2 5. Pond is used for bathing ---------- 1 2 6.Fish is cultivated in the pond by appling fertilizer and medicine---------- 1 2 7. Hand pump of the water source is out of order---------- 1 2 8. Lid of PSF is open---------- 1 2 9. Water collecting mashine is damaged------- 1 2 10. The drain of PSF is closed or damaged----- 1 2	
317	If the main water source is PSF, how frequently is the filter cleaned?	☐☐ **month** (Code: No need as installation is new-66,never done-00, Don't know-77)	
318	If the sourse of drinking water is tube well, observe, ask the following and circle appropiate response code?	Condition / Yes / No 1. Thereis latrine near the tube well (within 30 feet)---------- 1 2 2. There is latrine near the tube well (within 30 feet) at a place above the tube well--------- 1 2	

Q. No	Question	Answer and code			Skip
		3 There is any heep of rubbish or filth or any cowshed near the tube well ----------	1	2	
		4. The drain connected to the tube well is closed with garbage----------	1	2	
		5. Water is logged on the platform of the tube well----------	1	2	
		6. There is crack on the platform of the tube well----------	1	2	
		7. Thereis crack in the drain connected with the tube well or the drain is broken----------	1	2	
		8.The foundation of the tube well is not in good condition----------	1	2	
		9.There is no cover or lid over the hand pump----------	1	2	
319 *M	If drinking water source is tube well, what type of water is used to operate the pump of the tube well?	Tube wellwater---------- 01 Shallow tubewellwater---------- 02 Deeptubewell water---------- 03 PSFwater---------- 04 Pump is operated throughMotor ---------- 05 Surface water ---------- 06 Collected rain water ---------- 07 No need of water---------- 66 Other (Specify) _____			
320	If the source of drinking water is rain water, ask the following, observe and circle appropiate response code.	Condition	yes	no	
		1.Water is filtered----------	1	2	
		2. There is rubbish/ dust on the roof / thatching of the room from which rain water is collected----------	1	2	
		3. The pipe for collecting rain water from the roof / thatching is not clear----------	1	2	
		4. The pipe for collecting rain water from the roof/ thatching is broken or there is crack in it----------	1	2	
		5.There is a crack or leak in the water collecting tank----------	1	2	
		6.The lid of the water collecting tank is open/broken----------	1	2	
		7. The tap of the water collecting pipe is broken/ there is a leak in it ----------	1	2	
		8.There is a heap of rubbish or filth or stool near the tank----------	1	2	
321	If drinking water source is rain water,observe the condition of the placeunder the tap and circle appropiate response code?	Clean and no crack---------- 1 Unclean and no crack---------- 2 Clean but there is crack---------- 3 Unclean and there is crack ---------- 4			

Q. No	Question	Answer and code	Skip
322	If drinking water source is a ring well, observe, ask the following and circle appropiate response code?	Condition — Yes — No 1. There is any cowshed/other rubbish near the well (within 30 feet)---------- 1 2 2. There any pit latrine near the well (within30 feet) ---------- 1 2 3.The platform of the well is boken/ there is crack in it---------- 1 2 4. Water logs in the platform---------- 1 2 5. Water logs in the drain of the well---------- 1 2 6. Thereis crack in the base of the tubewell- 1 2 7. There is cover over the well---------- 1 2 8.There is a gas pipe line near the well ------- 1 2	
Water Transport, Storage and Cleanliness			
323	Distance of the source of drinking water from the household?	☐☐☐ Hand ☐☐☐ Mitre Source is within the household = 000 →	**326**
324	How much time is required to fetch water from the source of drinking water (to go to the source and come back home excluding waiting time)?	☐☐☐ Minutes	
325	How much time is required to fetch water from the source of drinking water (to go to the source and come back home including waiting time)?	☐☐☐ Minutes	
326	How much drinking water does your household normally require each day? ***(Investigator will observe the container, assess the quantity of water required and then write it down)***	☐☐ Litres	
327 *M	What types of container do you normally use to collect water?	Pitcher ---------- 1 Bucket ---------- 2 Pot ---------- 3 Plastic container/jerican ---------- 4 Drum ---------- 5 Other (specify) _____	
328	Do you clean the container very well in which you collect water from the source? If so how frequently do you do that?	Once in a day ---------- 1 More than once in a day---------- 2 Twice /more than twice in a week ---------- 3 Once in a week ---------- 4 Once /more than once in a month---------- 5 Never cleaned---------- 6 Others (specify)_____	
329	How frequently do you clean the container in which you store/preserve drinking water?	Yes, always ---------- 1 Yes, sometimes ---------- 2 No ---------- 3	

Q. No	Question	Answer and code	Skip
330	Do you cover the container by which you collect water?	Yes, always ---------- 1 Yes, sometimes ---------- 2 No ---------- 3	
331 *M	If so, what types of cover do yo use?	Plastic/melamine/ steel pot, cover ---------- 01 Earthen lid ---------- 02 Cocoanut shell---------- 03 Cloth/cloth net ---------- 04 Stopper ---------- 05 Other (specify) _____	
332	Do you preserve drinking water ofyour household in the same container(s) by which you collect water?	Yes ---------- 1 No---------- 2	→335
333 *M	If not, what types of container do you normally use to preserve drinking water of your household?	Pitcher ---------- 1 Bucket ---------- 2 Pot ---------- 3 Plastic container/jerican ---------- 4 Drum ---------- 5 Other (specify) _____	
334	Do you clean the container very well in which you preserve drinking water of your household? If so, how frequently you do that?	Once in a day ---------- 1 More than Once in a day ---------- 2 Twice /more than twice in a week ---------- 3 Once in a week ---------- 4 Once /more than once in a month---------- 5 Never washed---------- 6 Others (specify)_____	
335	Do you cover the container in which you preserve drinking water (Observe and circle appropriate response code)	Yes---------- 1 No---------- 2	→337
336 *M	If so, with what types of cover do you cover the container?(Observe and circle appropiate response code)	Plastic/melamine/ alluminium/steel pot---------- 01 Earthen pot,lid---------- 02 Coconut shell---------- 03 Cloth/ cloth net---------- 04 Stopper ---------- 05 Filter lid ---------- 06 Other (specify) _____	
337 *M	Where do you set/ keep the container in which you preserve drinking water of your household?(Observe and circle appropriate response code)	On the floor ---------- 1 On a platform half a cubit high above the floor----- 2	

Q. No	Question	Answer and code	Skip
338 *M	Ask to give you a glass of water from the container where drinking water is preserved? Observe carefully whether fingers are dipped into water in the container while pouring water in to the glass.	Fingers dipped into water---------- 1 Fingers did not dip into water---------- 2 Glass was hold up---------- 3 Other (specify) _____	
339 *M	Ask to give you a glass of water from the container where water is preserved and observe the manner of serving water to you?	Fingers touched water in the glass ---------- 1 Fingers did not touch water in the glass ---------- 2 Glass was held ups at upper outside area of glass---- 3 Other (specify) _____	

SECTION 4: SANITATION

Q. No	Question	Answer and code	Skip
401	What type of latrine do the members of household generally use? (Observe physically, be sure and encircle appropriate response code)	Water sealed slab latrine and dirts filth discharge to septic tank---------- 01 Water seal slab latrine and dirts filth discharge to unsafe tank ---------- 02 Water sealed broken slab latrine and dirts filth discharge to septic tank ---------- 03 Water sealed broken slab latrine and dirts filth discharge to unsafe tank ---------- 04 Water sealed pit latrine with slab---------- 05 Sealed Pit latrine with cover ---------- 06 Sealed Pit latrine without cover ---------- 07 Pit latrine without slab ---------- 08 Pit latrine but connected to swerage pipe/canal---------- 09 Open/hanging latrine ---------- 10 No latrine/defecate in open place/bushes ---------- 11 Others (specify)_____	→ **501**
402	Is the latrine clean? (Observe physically, be sure and encircle appropriate response code)	Yes ---------- 1 No---------- 2	
403	Does bad smell emit from the latrine? (Observe physically, be sure and encircle appropriate response code)	Yes ---------- 1 No---------- 2	
404	Type of ownership of the latrine which is used by the household members?	Self ---------- 1 Joint ---------- 2 Others---------- 3	→ **408**
405	How much money was spent (Including cost of material) to install latrine which is used by the household members?	☐☐☐☐ Tk	

Q. No	Question	Answer and code	Skip
406	How many years ago was the latrine installed?	☐☐ Years	
407	How much money was spent to repair or clean the latrine during last 12 months?	☐☐☐☐ Tk (If no money spent write-0000)	→ **409**
408	If the household members use other's latrine, whether in last one month the household had to pay money for latrine use? If so how much money the household paid?	☐☐☐☐ Tk (If no money spent write-0000)	
409	Is the latrine submerged with Flood water/tidal water/surge water?	Yes ---------- 1 No ---------- 2	→ **411**
410 *M	When the latrine is submerged with flood water/tidal water/ surge water, where do the members of the household defecate?	Other's latrine ---------- 1 Community latrine ---------- 2 Here and there/bushes ---------- 3 Other (specify) _____	
411	Do you/members of your household use sandal while using latrine?	Yes always ---------- 1 Yes sometimes---------- 2 No, sandle is not used ---------- 3	
412	Do the members of other households Use the latrine which is being used by the members of your household?	Yes ---------- 1 No ---------- 2	→ **501**
413	Members of how money households (including your own household) use this latrine?	☐☐ Numbers	

SECTION 5: HYGIENE

Q. No	Question	Answer and code	Skip
501	Is there any soap/ditergent or any other locally made cleaning material in your household?	Yes ---------- 1 No ---------- 2 Not available today---------- 3	**503**
502 *** M**	Would you please show me those? (Observe and list all of those)	Soap ---------- 1 Detergent powder ---------- 2 Liquid soap ---------- 3 Ash/mud /sand---------- 4 Could not show/Did not want to show---------- 5	
503	Today or yesterday, have you used any soap/ditergent or locally made cleaning material in your household for cleaning purpose?	Yes ---------- 1 No---------- 2 →	505
504 *** M**	If yes, for what purposes, have you used those? **(Multiple response, don't prompt)**	Washing clothes ---------- 01 Batheing/cleaning body ---------- 02 Cleaning own hand after defecation ---------- 03 Cleaning own hand after rinseing child's excreta 04 Cleaning own hand before feeding child ---------- 05 Cleaning own hand before eating ---------- 06 Cleaning own hand before cooking ---------- 07 Cleaning own hand after cooking ---------- 08 Cleaning own hand after doing household work--- 09 Other (specify) _____	

Q. No	Question	Answer and code	Skip
505	Now I shall mention some critical times for hand washing, would you please tell me how often you wash your hands with soap at those times.		

Critical times for hand washing	How frequently hand is washed with soap ?				
	Never	Sometimes	often	always	Not applicable
While washing hand and face after awaking from sleep	1	2	3	4	8
While bathing	1	2	3	4	8
After defecation	1	2	3	4	8
After rinseing a child	1	2	3	4	8
Before eating	1	2	3	4	8
Before cooking	1	2	3	4	8
Before feeding a child	1	2	3	4	8
After doing household work	1	2	3	4	8
After cleaning a latrine	1	2	3	4	8

Q. No	Question	Answer and code	Skip
506 * M	Where do you normally wash your hands at the critical times mentioned before? (Observe and circle the appropriate response code)	Inside/outside the latrine ---------- 01 Inside/near the cooking place/ kitchen---------- 02 In any place in the courtyard away from latrine or kitchen---------- 03 In bathroom ---------- 04 In pond/river/canal---------- 05 Other (specify) _____	
507	Is there any hand washing point/ place either inside or outside the latrine? (Observe and circle the appropriate response code)	Yes ---------- 1 No ---------- 2 N/A ---------- 8	509
508	How far is the hand washing place from the latrine (in yard)? (observe and write the distance in yard)	☐☐	
509 * M	What types of hand washing facilities/arrangements are there in the hand wasing poin/place?	Tube-well---------- 01 Tap ---------- 02 Basin with tap---------- 03 Bucket ---------- 04 Pitcher/jug/jericane---------- 05 In pond/river/canal---------- 06 Locally arranged facility (please note down) --------- 07 Other(specify) _____	
510	Is water available in the hand washing point/place? (Observe whether water is available in the tap/pump/basin/bucket or any container in the hand washing place and circle the appropriate code)	Yes ---------- 1 No ---------- 2	
511 * M	If soap/detergent/locally made cleaning material is available in the hand washing point/ place, list each of those (Observe each of those and list them)	Nothing ---------- 01 Soap ---------- 02 Detergent/powdered soap ---------- 03 Liquid soap ---------- 04 Ash /mud/ sand---------- 05 Other (specify) _____	
512	Number of hand washing point/ place in the household?	☐ Num	
513 * M	What types of soap/detergent have you used during last one month and how much money have you spent on account of each of those types of items (in Taka)	Soap/detergent name — Net cost (in Taka) 1. Soap for body washing -------- ☐☐☐ 2. Soap for washing cloth-------- ☐☐☐ 3.Detergent/ powdered soap --- ☐☐☐ 4.Liquit soap---------- ☐☐☐ 5. Other (specify) _____ ☐☐☐	

Q. No	Question	Answer and code	Skip
514	In what place do you through away waste of your household? (Observe and circle appropiate response scode)	Here and there---------- 01 Specific place---------- 02 Dustbin---------- 03 In pond/river/canal---------- 04 Other (specify) _____	

SECTION 6: RISKS AND IMPACTS OF CLIMATE CHANGE

Q. No	Question	Answer and code	Skip
601	Do you think climate is being changed in your area?	Yes ---------- 1 No ---------- 2 Don't know---------- 7	701
602 * M	What types of impacts are there on the life and livehood of the people of your area due to climate change?	Farmers can not produce three crops-in the same land- 01 Fertility of land is being resuded---------- 02 People are being compelled to change their profession 03 People's migration is being increased---------- 04 Other (specify) _____	
603 * M	What types of impacts are there on health of the people of your area due to climate change?	Prevalence of diseases increases ---------- 01 New types of diseases are occuring-(specify) ---------- 02 Other (specify)) _____	
604 * M	What types of impacts are there on disasters and natural environment in your area due to climate change?	Level of sea water is being increased---------- 01 Natural disasters are being occurringfrequently ------- 02 Salinity of water is being increased ---------- 03 Temperature is being increased---------- 04 Severity of cold is being increased---------- 05 Other (specify)) _____	
605 * M	What types of impacts are there in The use of pure water, hygienic latrine and sanitation in your area due to climate change?	**Pure water** Source of pure drinking water/tubewell in being inundated ---------- 01 Tubewell/dugwell are becoming unusable ---------- 02 Scaricity of pure drinking water---------- 03 Women and children are facing problems in collecting water and bathing---------- 04 Community people are being compelled to use impure water for household use ---------- 05 Other (specify) _____ **Latrine** Drinage system and structure are being damaged ------- 11 Prevalence of open defecation is being increased--------- 12 Other (specify) _____ **Sanitation** General and reproductive health care are being hampered ---------- 21 Sanitation practices is being hampered due to want of pure water---------- 22 Other (specify) _____	

SECTION 7: MORBIDITY (FOR CHILDREN)

Q. No	Question	Answer and code		Skip
701	Total number of 0-59 months children in the household **(See the household list and write the total number)**	☐☐ Persons**(If 0 then skip to Q801)**		
702	Name of the child:	Child (1)_____	Child(2)_____	
703	Household member number of the child	☐☐	☐☐	
704	Household member number of mother of the child	☐☐	☐☐	
705	Date of birth of the child	☐☐ ☐☐ ☐☐ Day Month Year	☐☐ ☐☐ ☐☐ Day Month Year	
706	Age of the child (in full month)	☐☐ Month	☐☐ Month	
707	Did the child (Name) ever have loose motion three or more times during last two weeks?	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	
708	Did the child (Name) ever have loose motion three or More times during last three months?	Yes ---------- No ---------- 2 Don't know/can't tell ---------- 7	1 No ---------- 2 Don't know/can't tell ---------- 7	
709	Did the child (Name) everhave jaundice during last three months?	Yes ---------- No ---------- 2 Don't know/can't tell ---------- 7	1 No ---------- 2 Don't know/can't tell ---------- 7	
710	Did the child (Name) ever have typhoid during last three months?	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	
711	Did the child (Name)ever have dysentry during last three months?	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	
712	Did the child (Name) ever have skin disease during last three months?	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	Yes ---------- 1 No ---------- 2 Don't know/can't tell ---------- 7	

SECTION 8: CHILDREN'S PRACTICES ON HAND WASHING

Q. No	Question	Answer and code		Skip
801	No of school going children in the household(see household list and put the number)	☐☐ Person**(If 0 than skip to Q L)**		
802	Name of the child	Child (1)_____	Child (2) _____	
803	Household member number of the child	☐☐	☐☐	
804	Household member number of mother of the child	☐☐	☐☐	
805	Age of the child (complete year)	☐☐ Year	☐☐ Year	
806	Name of the school in which the child is currently studying	School(1)_____	School(2) _____	
807	Class/Grade in which the child is currently studying	☐☐ class	☐☐ class	
808	Write the class roll number of the child	☐☐	☐☐	
809	Is there any latrine in the school for use of the students?	Yes---------- 1 No---------- 2 Don't know---------- 7	Yes---------- 1 No---------- 2 Don't know---------- 7	
810	Is there any hand washing point or arrangement inside or outside of the latrine?	Yes---------- 1 No---------- 2 Don't know---------- 7	Yes---------- 1 No---------- 2 Don't know---------- 7	
811	What types of hand washing point/ arrangement are there inside/ outside of the latrine?	Tubewell---------- 1 Water Tap---------- 2 Water tap with basin---------- 3 Bucket---------- 4 Pitcher/jug/jerican---------- 5 Pond/River/Canel---------- 6 Don't know---------- 7	Tubewell---------- 1 Water Tap---------- 2 Water tap with basine---------- 3 Bucket---------- 4 Pitcher/jug/jerican---------- 5 Pond/River/Canel---------- 6 Don't know---------- 7	
812	Is there any soap or detergent in the hand washing point/arrangement for the purpose of washing hand?	Yes---------- 1 No---------- 2 Don't know---------- 7	Yes---------- 1 No---------- 2 Don't know---------- 7	

Q. No	Question	Answer and code											Skip
813	Now I shall mention some critical times for handwashing, would you please tell how frequently you wash your hand with soap at these times while you are in school.	While hand washing	Never	Sometimes	Most often	Always	N/A	While hand washing	Never	Some times	Most often	Always	N/A	
		1.After defecation	1	2	3	4	8	1.After defecation	1	2	3	4	8	
		2. Before taking tiffin	1	2	3	4	8	2. Before taking tiffin	1	2	3	4	8	
		3. After cleaning school rooms/school play ground	1	2	3	4	8	3. After cleaning school rooms/school play ground	1	2	3	4	8	
		4. After play	1	2	3	4	8	4. After play	1	2	3	4	8	
		5. After cleaning school latrine	1	2	3	4	8	5. After cleaning school latrine	1	2	3	4	8	
814	Then I shall mention some critical times for handwashing, would you please tell how frequently you wash your hands with soap at these times while you are at home?	While hand washing	Never	Sometimes	Most often	Always	N/A	While hand washing	Never	Some times	Most often	Always	N/A	
		1. While washing hand and face after awaking from sleep	1	2	3	4	8	1. While washing hand and face after awaking from sleep	1	2	3	4	8	
		2. While bathing	1	2	3	4	8	2. While bathing	1	2	3	4	8	
		3. After defecation	1	2	3	4	8	3 After defecation	1	2	3	4	8	
		4. Before eating	1	2	3	4	8	4 Before eating	1	2	3	4	8	
		5. After household work	1	2	3	4	8	5. After household work	1	2	3	4	8	
		6.After playing	1	2	3	4	8	6After playing	1	2	3	4	8	
		7. After cleaning latrine	1	2	3	4	8	7 After cleaning latrine	1	2	3	4	8	

L	Is water of the household tested? If tested, please write the code number.	Yes---------- 1 No---------- 2	
M	Is water at the water source of the household tested? If tested, please write the code number	Yes---------- 1 No---------- 2	

Address of watersource:

N) Time of ending interview- ☐☐ Hour ☐☐ Minutes

(End interview with giving thanks)

FGD Checklist

FGD with Member of WatSan Committee

01. Identification of WatSan Committee:

02. Respondent's Identification (name, age, educational qualificational and designation):

02a. As a member of WatSan committee what activities do you performed and how do you performed those activities?

07.Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

12. Do you or your organization conduct any type of works or activities on the issue/subject of climate change? If so, what types of works/activities does it conduct? Is there any work plan for the future? If there is no current or future work plan, do you think it is necessary to have such a work plan? Why do you think so?

13. How do you ascertain in which locations or areas there is acute problem of safe water and hygiene latrine?

14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?

15.Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?

20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?

21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?

22. Do the Watsan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

FGD with Member of Union Disaster Management Committee (UDMC)

01.Identification of Union Disaster Management Committee (UDMC):

02. Respondent's Identification (name, age, educational qualificational and designation):

02a.As an UDMC member what activities do you performed and how do you performed those activities?

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. Whatsteps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

12. Do you or your organization conduct any type of works or activities on the issue/subject of climate change? If so, what types of works/activities does it conduct? Is there any work plan for the future? If there is no current or future work plan, do you think it is necessary to have such a work plan? Why do you think so?

13. How do you ascertain in which locations or areas there is acute problem of safe water and hygiene latrine?

14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?

15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?

20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?

21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?

22. Do the Watsan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

FGD with Member of Members of School Managing Committee (SMC)

01.Identification of School Managing Committee (SMC) (name of school and address):

02. Respondent's Identification (name, age, educational qualificational and designation):

02a. How many male and female members are there in the School Management Committee?

02b.As a member of SMC what activities do you perform those activities?

02c. Is there any latrine for the students in the school? Are the latrines use worthy? Is there any arrangement for brush and detergent to clean student's latrine? Is there any soap in the student's latrine to wash hands? Who does generally supply the soap?

02d.What is the main source of drinking water in the school? Is there any arranagement of sufficient drinking water for the student's in the school? If no such arranagement, how can this problem be removed?

02e. During the last one year, has the SMC/ school authority done anything on health or health protection issues? If so, what events/activities have they performed and how have they performed? (e.g: observing hand washing day; observing health and cleanliness day etc.).

02f.Are the students taught any health protection topics? How much important is such a teaching, a teaching, as you think?

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

FGD with Member of Different Professional Groups (farmer/fisherman/other group)

01.Name of Professional Groups and address:

02.Respondent's Identification (name, age, educational qualificational and designation):

07.Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08.What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?

15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?

20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?

21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?

KIIChecklist

Key Informant Interview with Union Parishad Chairman/Member

01. Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

03. How do you prepare Annual Development plan for Union Council (Have the development problems or issues been identified through meetings at ward level)? What roles do UP members, members of the standing committees and community people play in this regard? How do you prepare the plan for LGSP-2 or other plans? (See the plans and write a brief description).

04. Information about preparing the budget:

    (1) How do you prepare the budget? How do you involve UP members in preparing the budget?

    (2) How do the woman members participate in the process of preparing the budget? To what extent their opinions are considered?

    (3) How do the community people participate in the process of budget preparation? To what extent their opinions are considered?

    (4) How are the demands of the poor people of the area reflected in the budget? Or, what types of provisions or arrangements are kept in the budget to meet the demands of the poor people?

05. What amount of money has been allocated for water and sanitation in the budget of the union Parishad or for Wards for the financial year 2014-2015?

06. What amount of money has been allocated for climate change and disaster management in the budget of the Union Parishad or for Wards for the financial year 2014-2015?

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?
12. Do you or your organization conduct any type of works or activities on the issue/subject of climate change? If so, what types of works/activities does it conduct? Is there any work plan for the future? If there is no current or future work plan, do you think it is necessary to have such a work plan? Why do you think so?
13. How do you ascertain in which locations or areas there is acute problem of safe water and hygiene latrine?
14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?
15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?
16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?
17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?
18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?
19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?
20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?
21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?
22. Do the WatSan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

Key Informant Interview with Union Parishad Secretary

01. Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

03. How do you prepare Annual Development plan for Union Council (Have the development problems or issues been identified through meetings at ward level)? What roles do UP members, members of the standing committees and community people play in this regard? How do you prepare the plan for LGSP-2 or other plans? (See the plans and write a brief description).

04. Information about preparing the budget:

(1) How do you prepare the budget? How do you involve UP members in preparing the budget?

(2) How do the woman members participate in the process of preparing the budget? To what extent their opinions are considered?

(3) How do the community people participate in the process of budget preparation? To what extent their opinions are considered?

(4) How are the demands of the poor people of the area reflected in the budget? Or, what types of provisions or arrangements are kept in the budget to meet the demands of the poor people?

05. What amount of money has been allocated for water and sanitation in the budget of the union Parishad or for Wards for the financial year 2014-2015?

06. What amount of money has been allocated for climate change and disaster management in the budget of the Union Parishad or for Wards for the financial year 2014-2015?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?

20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?

Key Informant Interview with Upazila Vice Chairman (female)

01.Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

12. Do you or your organization conduct any type of works or activities on the issue/subject of climate change? If so, what types of works/activities does it conduct? Is there any work plan for the future? If there is no current or future work plan, do you think it is necessary to have such a work plan? Why do you think so?

15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?

18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?

21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?

22. Do the Watsan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

Key Informant Interview with DPHE Official at upazila level

01. Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

05. What amount of money has been allocated for water and sanitation in the budget of the union Parishad or for Wards for the financial year 2014-2015?

06. What amount of money has been allocated for climate change and disaster management in the budget of the Union Parishad or for Wards for the financial year 2014-2015?

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

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13. How do you ascertain in which locations or areas there is acute problem of safe water and hygiene latrine?

14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?

15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

17. How much assistance could the Union Parishad, Upazila Parishad and DPHE provide in last three years for risk reduction in water and sanitation issues as per demand of the community people?
18. Do the Union Parishad, Upazila Administration and DPHE conduct any program of activities to ensure safe water and hygienic latrine to the deprived people of the area and develop hygiene practice among them?
19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?
20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?
21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?
22. Do the Watsan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

Key Informant Interview with Upazila Agriculture Officer/Block Supervisor

01.Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

10. Have any steps been taken in your family or community to cope up with the problems or disfavourable situations evolved or are being evolved due to the effect of climate change?

11. Do you know which organization is responsible for working on the issue or subject of climate change? Is any organization currently working on the issue/subject of climate change in your area? If so, what types of works or activities are being done by which organizations?

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15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

Key Informant Interview with NGO Official

01. Name of Union Parishad and address:

02. Respondent's Identification (name, age, educational qualificational and designation):

07. Do you know what types of problems or disfavourable situations are being evolved in your area due to the effect of climate change? Would you state those in details?

08. What other types of problems or disfavourable situations may arise in future due to the effect of climate change, you think?

09. What steps should be taken, you think, to cope up with the problems or disfavourable situations that are being evolved in your area due to the effect of climate change?

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14. Is there any arrangement in the area/locality/community to identify the most vulnerable area or group of people? If so, what arrangement is there?

15. Do you have any fund for disaster risk reduction and for coping up with the disfavourable situation or impacts of climate change? If so, what type of fund do you have and how do you utilize the fund?

16. Do you conduct any program of activities to face disaster or for disaster risk reduction? If so, how do you conduct what types of activities?

19. Do you have any committee at Ward level? If so, what type of committee is there? Who are the members of that committee? What activities do them problem?

20. Who are the members of the Union Disaster Management Committee (UDMC) and the Watsan Committee and standing committee at Ward level? What types of actions do they perform?

21. Who are the members of the Watsan committee under the Upazila Parishad? What types of activities do they perform? How much effective role could those committees play, you think?

22. Do the Watsan committee or the UDMC expect any cooperation and liasion from your side? If so, how much cooperation it is possible for you to provide?

SCHOOL QUESTIONNAIRE:

Baseline Survey for the Project "Transforming Rural Livelihood through Wash in Climate Vulnerable Areas in Southwest Bangladesh" 2015

Executed by WaterAid Bangladesh

Conducted by SURCH

SCHOOL INFORMATION

Name of interveiwer: _____

Q.No	Questionnaire	Information
A	School name, Union, Upazila	
B	Interview Date (Day/Month/Year):	Day ☐☐ Month ☐☐ - ☐☐ - Year ☐☐☐☐
C	Name & Position of Respondent:	Name:_____ _____ Head Teacher 1 Asst. Teacher 2 Others 3
REGISTER INFORMATION		Total Student ☐☐☐☐ Boy ☐☐☐ Girl ☐☐☐
D	Enrolled in School in 2015	☐☐☐☐ ☐☐☐ ☐☐☐

Q.No	Questions	Data	Code
01	How many positions for teachers are there in your school?	☐☐ Persons	Enter number
02	How many serving male and female teachers?	Male ☐☐ Female ☐☐	Enter number or 00
03	What is the official grade of the school?	☐	1= A, 2= B, 3=C, 4= Not yet decided
04	How many SMC male and female members?	Male ☐☐ Female ☐☐	Enter number or 00 for no SMC

Q.No	Questions	Data	Code
05	Is the SMC chairperson male or female?	☐	1=Male; 2=Female; if no SMC, then 9=NA
06	How many times did the SMC conduct meeting in 2014?	2014 ☐☐	Enter number or 00 if no meetiing held
07	Has the SMC/school executed any health or hygiene related activity in the past 1 year? (e.g., hand-washing day; health and cleaning event, cleaning materials etc.)	☐	1=Yes; 2=No
08	If "Yes," what activities did the SMC/School execute?		

Q.No	Questions	Data	Code	Verified
09	How many latrines are there?	Latrine ☐☐	Enter number or 00	☐ 1= Verified 2= Not Verified
10	How many separate latrines for boys/girls, and how many communal latrines for both boys & girls are there?	Boys ☐ Girls ☐ Com ☐	Enter number or 0	☐
11	Of these, how many latrines function properly?	Boys ☐ Girls ☐ Com ☐	Enter number or 0	☐
12	Are these latrine pit water sealed?	Boys ☐ Girls ☐ Com ☐	Enter number or 0	☐
13	Are these latrines clean?	Boys ☐ Girls ☐ Com ☐	Enter number or 0	☐
14	How many latrines are exclusively for teachers (male, female, or communal for both)?	Male ☐ Female ☐ Com ☐	Enter number or 0	☐

15	Is a cleaning brush and detergent provided for student latrine?	Brush ☐ Detergent ☐	1= Yes, 2=No	☐
16	How often(ina week/month) does the latrines get cleaned? (cleaning rota)	Week ☐ Days Month ☐ Days	Enter number of days or "9" for "irregular cleaning"	

Q.No	Questions	Data	Code	Verified
17	Is there any hand-washing facility near the student latrines (within 10~11 steps)?	Yes 1 No 2	1=Yes; 2=No;	
18	Is there any soap for pupils at the hand-washing facility or nearby easily accessible place which can be easily used without any permission?	Always 1 Sometimes 2 No 3	1=Yes Sometimes; 2=Yes Always; 3=No	
19 *M	Who provide the soap generally? (prompt each)	School 1 SMC 2 Parents 3 Others 4 NA 9	1=School; 2=SMC; 3=Parents; 4=Other (Specify); 9=NA	
20 *M	What is the main source of drinking water at school? (all applicable)	PSF 1 DTW/STW 2 TW 3 RW (cover) 4 RW (without cover) 5 Pond water 6 River/canal water 7 Others 8	1= PSF 2=Deep/ shallow tubewell; 3= Tubewell; 4= Rain water (cover) 5= Rain water (without cover) 6= Pondwater 7= River/ canal water 8= Others	
21	If you use "any Tubewell," has that tubewell been tested for arsenic?	Yes 1 No 2 DK 3 NA 9	1=Yes; 2=No; 3=DK; 9=NA	
22	What colour was the mouth of the tubewell painted after the last arsenic test? (Write code as per the last test result even if no colour now)	Green 1 Red 2 DK 3 NA 4	0=None; 1=Filtered; 2=Boiled; 3=Chlorin/alum /purifying tablet; 4=Other (Specify)	

23 *M	Is school drinking water treated for students? If so, how is it treated? (prompt each)	None Filter Boil 0 1 2 Chlorin/alum Others 3 4	0=None; 1=Filtered; 2=Boiled; 3=Chlorin/alum /purifying tablet; 4=Other (Specify)	

Q.No	Questions	Data	Code	Verified
24	Is rubbish bin provided at the school?	Yes No 1 2	1= Yes, 2= No	
25	Is rubbish bin provided in each class room?	Some Each No 1 2 3	1=Some; 2=Each (all rooms); 3=No	
26 *M	What is done with the school rubbish after collection from rubbish bin? (prompt each)	BB School Municipal Another Land 1 2 3 River/Pond Do nothing 4 0 Others NA 5 9	0=Do nothing; 1=Burn/burry at school; 2=Collected by municipality; 3=Dump in another land; 4=Dump in river/pond; 5=Other(Specify); 9=NA	
27	Are there enough brooms for all class rooms to clean those?	Yes No 1 2	1= Yes, 2=No	
28	How often (in a week/month) does a classroom get cleaned? (cleaning rota)	Week ____ Days Month ____ Days	Enter number of days or "9" for "irregular cleaning	
OBSERVATION ONLY				
29	Are class rooms and corridor clean? (Observe at the beginning of visit)	Yes No So so 1 2 3	1=Yes; 2=No; 3=Some/So so	

Note (Specify):

APPENDIX C: LIST OF PARTICIPANTS

Principal Investigator
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Co-Principal Investigator
Md. Ziaul Hasan Sikder

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Md. Majibor Rahman
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Data Entrier
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