



WASHplus Baseline Assessment of WASH in Southwestern Bangladesh

May 2014



About WASHplus:

WASHplus project supports healthy households and communities by creating and delivering interventions that lead to improvements in WASH and household air pollution (HAP). This multi-year project (2010-2016), funded through USAID's Bureau for Global Health and led by FHI 360 in partnership with CARE and Winrock International, uses at-scale programming approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under age 5 globally.

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ACRONYMS

ADP	Annual Development Plans
BDHS	Bangladesh Demographic and Health Survey
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
CSA	Community Situational Analysis
CI	Confidence Interval
DPHE	Department of Public Health Engineering
FGD	Focus Group Discussion
GAM	Global Acute Malnutrition
GCM	Global Chronic Malnutrition
GRS	Growth Reference Standard
HAZ	Height for Age Z score
HH	Household
JMP	Joint Monitoring Programme
KII	Key Informant Interview
LGED	Local Government Engineering Department
LGSP-2	Local Governance Support Project 2
MICS	Multiple Indicator Cluster Survey
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
SURCH	A House of Survey Research
UP	Union Parishad
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WAZ	Weight for Age Z score
WHO	World Health Organization
WHZ	Weight for Height Z score

TABLE OF CONTENTS

ACKNOWLEDGMENTS	Error! Bookmark not defined.
ACRONYMS.....	iii
EXECUTIVE SUMMARY	1
CHAPTER ONE: INTRODUCTION.....	2
1.1 Organization of the report.....	2
1.2 Introduction.....	2
1.3 Project area context.....	2
1.4 Goals and objectives of the study	3
CHAPTER TWO: METHODOLOGY	4
2.1 Overview of the study design	4
2.2 Quantitative Component	4
2.2.1. Sample.....	4
2.2.2 Instrument	5
2.2.3 Quality control	6
2.3 Qualitative component.....	6
2.3.1 Focus group discussions (FGDs)	7
2.3.2 Key informant interview (KII).....	7
2.3.3 Secondary data (document review).....	7
2.4 Training and data collection activities	7
2.5 Data processing and data analysis	7
CHAPTER THREE:HOUSEHOLD SOCIO-ECONOMIC CHARACTERISTICS.....	8
3.1 Respondents' profile	8
3.1.1 Age and gender of family members.....	8
3.2 Socio-economic characteristics.....	9
3.2.1 Occupational status of household members.....	9
3.2.2 Socio-economic category of the household	10
3.3 Situation of homestead during flood.....	10
CHAPTER FOUR: SAFE WATER SOURCE OF HOUSEHOLD	12
4.1 Source of water in the household.....	12
4.1.1 Source of drinking water.....	12
4.1.2 Alternative source of water	13
4.1.3 Number of users per water source based on Community Situation Analysis data obtained for WASHplus planning purposes	14
4.1.4 Availability of drinking water in the main source	15
4.2 Time and distance to fetch water and amount of water used in the household for drinking purpose.....	15
4.2.1 Time and distance to fetch water	15

4.2.2 Amount of water used for drinking purpose in the household	16
4.3 Ownership and operators of source of drinking water.....	17
4.4 Perceived drinking water quality	17
4.5 Utensils for drinking water collection and storage	18
4.6 Point of use contamination	19
4.7 Maintenance of water source in the household.....	20
4.7.1 Operation and maintenance of water source.....	20
4.7.2 Crack in tube well platform	20
CHAPTER FIVE: SANITATION AND MANAGEMENT OF HUMAN FECES	22
5.1 Toilet facility in the household	22
5.1.1 Type of toilet and place of disposal of feces of under-five children	22
5.1.2 Installation of latrine above flood level	23
5.1.3 Place of latrine in the household and sharing of latrine.....	24
5.1.4 Entrance and latrine infrastructure.....	24
5.1.5 Place of accumulating fecal sludge of latrine and perceived advantages and disadvantages of the system.....	25
5.1.6 Child friendly status of latrine	26
5.2 Installation and maintenance of latrine	27
5.2.1 Availability of materials for latrine construction.....	27
5.2.2 Latrine maintenance and repairing after installation	27
5.2.3 Cleaning of tank or pit and place to dispose of fecal sludge	28
5.3 Availability of handwashing place and availability of water and soap at the place	28
5.4 Plan to improve structure of latrine	29
5.5 Reason for not installing latrine and level dissatisfaction with the lack of a latrine	30
CHAPTER SIX: HANDWASHING AND USE OF SOAP.....	32
6.1 Handwashing behavior	32
6.2 Place and method of handwashing and type of soap in handwashing place.....	33
6.3 Availability of handwashing place inside or near kitchen.....	34
6.4 Occasions of and reasons for using soap for washing hands.....	34
6.4.1 Use of soap for different purposes	35
6.4.2 Monthly expenditure for soap.....	36
6.5 Materials used for handwashing after defecation or cleaning off child's feces.....	36
6.6 Family level decision making for sanitation and hygiene	36
CHAPTER SEVEN: CHILD HEALTH AND ANTHROPOMETRY	38
7.1 Health and nutritional status of children.....	38
7.1.1 Diarrhea prevalence and management of diarrhea episode	38
7.1.2 Breastfeeding to children aged 0-5 months in last 24 hours.....	39
7.1.3 Nutritional status of children	40
7.2 Disability among the household members.....	43
CHAPTER EIGHT: ACCESS TO HEALTH INFORMATION.....	44

8.1 Exposure to messages about handwashing and source of message	44
8.2 Exposure to message about drinking safe water and source of message.....	45
8.3 Exposure to message on need of a latrine in the household and source of message	45
8.4 Knowledge of programs to stop open defecation	46
8.5 Exposure to information about diarrhea and source of information	47
8.6 Knowledge on type of issues on diarrhea covered by mentioned sources.....	47
8.7 Mother’s knowledge on causes of diarrhea among children	48
CHAPTER NINE: WASH OPERATION AND BUDGET	50
9.1 Contribution of local government institutes	50
9.1.1 Structure and importance of Union Parishad	50
9.1.2 Activities of Union Parishad	50
9.1.3 Role of Union Parishad about WATSAN activities	51
9.1.4 Role of Upazila Parishad about WATSAN activities	52
9.2 Union Parishad Budget for WATSAN purposes	52
9.3 Role of Department of Public Health and Engineering (DPHE)	56
9.4 Structure and status of bazaar committee	56
9.5 Community development, improvement need and challenges of WASHplus Project ..	57
CHAPTER TEN: DISCUSSION AND CONCLUSION	59

EXECUTIVE SUMMARY

Background: This report summarizes the findings of a baseline survey conducted to support the implementation of a three-year WASHplus project designed to address the underlying causes of inadequate water, sanitation and hygiene (WASH) conditions in hard-to-reach areas of southwestern Bangladesh. The WASHplus implementation partner in Bangladesh is WaterAid. The project is being implemented in four *upazilas* (subdistricts) in southwestern Bangladesh: Daulatkhan and Char Fasson in the District of Bhola, and Kalapara and Golachipa in the District of Patuakhali.

Methodology: Data was collected from 1,456 randomly selected households with a child under 5 years of age. The households were randomly selected from 56 clusters with an average of 26 households per cluster. This sample is sufficient for hypothesis testing and for identifying a population parameter. This study employed both quantitative and qualitative methodology using both primary and secondary data sources, including a household survey, anthropometric measurements of eligible children, key informant interviews (KII), focus group discussions (FGD), and document review. Quantitative data was analyzed using SPSS software.

Results: Topline findings revealed 98 percent of households reported having access to the main drinking water source all year round; 9 percent reported having an improved latrine, and 33 percent of households with sanitation facilities had a handwashing device at or within five yards of the latrine. The water access data collected by this baseline survey aligns with government reports, but masks nuances uncovered in the project's Community Situational Analysis that was conducted in late 2013. This community-based analysis revealed that the average number of people using existing water points is about 102, more than twice the Bangladesh national standard (50 people per water point). At the same time, water quality tests have yet to be conducted on the water points in question. Nine percent of the household have sanitation facilities with a water seal, 82 percent have what could be considered an unimproved sanitation facility according to Joint Monitoring Programme (JMP) standards, and 4 percent practice open defecation. Over one third of sanitation facilities may be inundated during floods or tidal surges, and 38 percent of those households reported defecation in the open when their sanitation facility is flooded. Forty-nine percent (49 percent) of household dispose of child feces in a latrine or have a child use the latrine to defecate. Thirty-three percent (33 percent) of the households with sanitation facilities had a handwashing device at the latrine or within five yards of the latrine. Ninety-four percent (94 percent) of the handwashing devices had water available at this location at the time of the visit, but only 19 percent of them had soap. The rest dispose of child feces in an open pit in the ground or wash it away. Nineteen percent (19 percent) of households reported that a child under age five had diarrhea in the two weeks prior to the survey. Of the 1,339 children assessed, about 10 percent were wasted, 31 percent were underweight and 42 percent were stunted.

Conclusion: Findings help inform the project focus further, underscoring particular areas which require emphasis, such as constructing waterpoints to reduce burden on existing points; using behavior change communication to increase the use of safe water sources for cooking, cleaning, and consistent handwashing; and conducting sanitation marketing to move households up the sanitation ladder towards more hygienic and child-friendly latrines.

1. INTRODUCTION

1.1 Organization of the report

This is the baseline report for the activities of the WASHplus Project in Bangladesh, implemented by WaterAid. The report is organized as follows: Chapter one provides the background of the study, as well as the design and methodology. Chapters two through eight present topic-focused findings, for example household demographics, safe water sources, management of feces, handwashing behaviors, and child health and nutritional status. Chapter nine discusses WASH operations and budget within the context of Bangladesh. Chapter ten provides a brief discussion of findings and programmatic implications.

1.2 Introduction

WASHplus launched a comprehensive three-year project to address the underlying causes of inadequate water, sanitation and hygiene conditions in hard-to-reach areas of southwestern Bangladesh. In partnership with WaterAid Bangladesh (WAB) as the prime implementing agency and in collaboration with experienced Bangladeshi NGOs, the project supports national WASH initiatives, as well as WASH-related Millennium Development Goals.

The broad goal of the WASHplus Project is to contribute to the improvement of human well-being and dignity through context-specific and scalable water supply, sanitation, and hygiene promotion in hard-to-reach areas of southwestern Bangladesh. Using USAID's Hygiene Improvement Framework (HIF) as a conceptual reference, the project objectives are as follows:

1. To use locally appropriate technologies and approaches to reach poor and marginalized communities with comprehensive and sustainable safe water, sanitation, and hygiene promotion in the Bhola and Patuakhali Districts;
2. To build community and local government capacity to sustainably operate and maintain water and sanitation facilities by supporting increased allocations and pro-poor targeting of national and local government funds and community contributions; and
3. To strengthen the evidence base and programming guidance for coordinated WASH-nutrition programming in Bangladesh.

The project is implemented in Daulatkhan and Char Fasson in Bhola, and in Kalapara and Golachipa in Patuakhali. The total population of the four targeted upazilas is 1,224,353.

1.3 Project area context

Southwestern Bangladesh was selected as the proposed project site because of the region's high incidence of water-related diseases, poor nutrition indicators, absence of sustainable WASH service provision (according to MICS 2009 data), and a highly marginalized and environmentally vulnerable population.¹ A number of barriers need to be addressed to promote and sustain WASH coverage within this area. The project addresses each of these challenges through the mechanisms listed below:

¹ UNICEF and BBS, 2010. Multiple Indicator Cluster Survey 2009, Dhaka: UNICEF and BBS, Ministry of Planning, Government of Bangladesh.

- Inadequate capacity and organizational flexibility within the local government and service providers, remedied by building capacity at the local level and promoting public-private partnerships for WASH delivery.
- Gaps between policy and implementation, overcome through advocacy activities that target additional resources.
- Lack of demand for WASH services among poor marginalized areas, addressed by empowering communities (through mobilization, behavior change) to demand and maintain these services. The project also uses an improved understanding of consumer preferences, motivations, and willingness to pay to better activate appropriate market-based WASH options.
- Lack of institutional coordination, improved through local-level communication and collaboration, will improve the current dysfunctional coordination system.
- Poor evidence regarding effects of WASH in the proposed area, addressed by documenting and developing evidence through project experience, which may be used for advocacy purposes. While WASH donors favor more accessible areas of Bangladesh, this project will serve as a model for replication in hard-to-reach areas, promoting and providing a balance toward equitable WASH provision.
- Hydro-geological challenges in this area present difficulties in identifying viable technology for water and sanitation projects. This project intends to address this issue through the development and promotion of appropriate, innovative technologies where existing technologies are unfit for the specific context.

1.4 Goals and objectives of the study

The study was conducted:

- to obtain an overall understanding of the existing WASH situation in project areas pertinent to project objectives,
- to define project targets associated with the indicators tracked, and
- to set the basis for tracking changes that may occur because of the intervention.

The purpose of the study was:

- to know to what extent households with children under age five in the intervention area have access to safe drinking water, improved sanitation and hygiene,
- to establish nutritional status and prevalence of diarrheal diseases among children under age five in intervention area, and
- to understand the level of capacity of the local government and community in operating and maintaining WASH facilities in the locality.

2. METHODOLOGY

2.1 Overview of the study design

This study had a quantitative and a qualitative component, using a pre-post design. This report focuses on the pre-intervention measurement, henceforth referred to as the baseline.

The quantitative component required the implementation of a household survey. For this component, no suitable comparable comparison study group was identified. An analysis of the region revealed that all nearby districts in southwestern Bangladesh had a WASH intervention implemented with funding from other sources. The two districts where the project is implemented were chosen precisely because they were the only two in the area not benefiting from any other WASH program.

The qualitative component relied on KII, FGD, and a document review.

Triangulation of different methods and sources was done to maximize the validity and reliability of data and to reduce the chance of bias, while the context or the setting of data collection was always taken into consideration.

2.2 Quantitative Component

2.2.1. Sample

The household survey obtained data from 1456 households randomly selected from 56 clusters with an average of 26 households per cluster. This sample is sufficient for hypothesis testing and for identifying a population parameter as indicated below.

Hypothesis testing. This sample size is sufficiently large to detect a drop of 15 percent in diarrheal prevalence among children under age five from 35 percent to 20 percent, with a design effect of 2.0, a precision (one-half width of confidence interval) of five percentage points and a 95 percent confidence interval, and have a 10 percent safeguard for interviews interrupted or cases which for any reason may be dropped in the analysis. The initial C-Survey sample estimate indicates that 1300 cases randomly drawn from 26 households selected in 50 primary sampling units (PSU) considered as clusters were sufficient to detect the drop in diarrheal disease indicated above with the same assumptions listed.

Estimation of population parameter. The sample size is also larger than the 1275 cases required for a population estimate and represent improved sanitation coverage at 16 percent, the anticipated parameter in lower socio-economic quintile households per the 2009 MICS figures for Bhola (UNICEF and BBS 2010).²

To participate in the study, respondents had to be the primary caretakers/mothers of children under age five as they deal with WASH issues within the household and are mainly responsible for preparing food for the children and managing children's diarrhea. If a selected household had several eligible children under 5, only one was randomly selected to track nutritional outcomes. Two-stage cluster sampling design was followed for the household survey. In the first stage, a list of all potential villages was drawn. Large villages were divided into segments of an average of about 120 households each, once sketch maps were prepared. Such segments plus the smaller villages were considered as a PSU in the sampling

² UNICEF and BBS, 2010. Multiple Indicator Cluster Survey 2009, Dhaka: UNICEF and BBS, Ministry of Planning, Government of Bangladesh.

process. In this way 56 PSUs were selected randomly in a systematic fashion to meet the quota (e.g., every nth PSU) from a list of all PSUs. Then 26 households were selected through systematic sampling from each PSU. Thus the required sample size of 26 HHs×56 clusters = 1456 households was selected as the study sample.

The selection of initial village was done following standard systematic probability proportional to size (PPS) sampling method. This procedure reduced the coefficient of variation of the estimates and thus increased the reliability of the estimates.

2.2.2 Instrument

The household instrument was organized to collect socio-demographic data and data to track the following measures/indicators organized in the categories listed.

Categories	Measures/Indicators
Socio-Demographic Characteristics	<ul style="list-style-type: none"> • Sex of respondent • Age of respondent • Literacy rate • Occupation of study participants • Family size • Socio-economic status • Prevalence of flooding
Water	<ul style="list-style-type: none"> • % of households using an improved drinking water source • Time and distance to drinking water source • Reliability of drinking water source all year round • Water source operator/owner • Additional sources of water for cooking and other household uses • Age and gender of water fetcher • Amount of drinking water (collected) • Number of water source users • Operation and maintenance of drinking water source • Drinking water storage utensils • Drinking water serving practices
Sanitation	<ul style="list-style-type: none"> • % of households using improved sanitation • % of household that share sanitation facilities • Installation of sanitation facility: access to materials and services • Location of sanitation facility in household • Prevalence of latrine flooding • Defecation practices when latrine floods • Maintenance of sanitation facilities • Fecal sludge management • Reasons for not constructing sanitation facilities • Child feces management

Hygiene	<ul style="list-style-type: none"> • Soap availability • % of household with functional handwashing station/device at sanitation facility • % of households with functional handwashing station/device near place of food handling/kitchen • Self-reported handwashing practices • Knowledge of critical junctures for handwashing with soap to prevent diarrheal disease
Health outcomes	<ul style="list-style-type: none"> • Diarrhea prevalence • Stunting prevalence • Wasting prevalence • Underweight prevalence

2.2.3 Quality control

- **Editing**
 - Team of editors verified that surveys had been completed correctly and the chosen sample had been surveyed
- **Data entry**
 - Data were entered twice, followed by a matching program to check for mismatched cases
 - Consistency and range checks were applied to every input variable
 - Data were processed using CS Pro and SPSS for Windows
- **Data analysis and preparation of tables**
 - A tabulation plan was prepared with dummy tables based on the objectives of the baseline.
 - SPSS was used to produce various uni- and bi-variate tables to address the study indicators
 - Supplemental tables were developed to provide demographic and contextual information about the target area
- **Survey tool and data collection**
 - The survey tool was field tested
 - Field investigators were selected after training through an examination process
 - Field supervisor directly observed field investigator's interviews
- **Confidence interval**
 - Confidence intervals (CI) were computed for the selected indicators using appropriate formulas for the two-stage sampling

2.3 Qualitative component

Generally, it becomes difficult to find the most appropriate approach for a project to become successful by exploring baseline situation only through quantitative research, as there are also a number of social and behavioral issues (i.e., knowledge and attitudes of probable beneficiaries towards support structure, ways of utilizing support structure at household and

community levels and health, education and economic service provider levels, etc.). A qualitative component was also employed in this study. The techniques in the qualitative component of the study were applied based on availability and source of information. As mentioned above, qualitative data were collected mainly through FGD with some KII.

2.3.1 Focus group discussions (FGDs)

The study team conducted eight FGDs with community members segregated by gender. FGDs with these groups provided information about their current WASH services/status, as well as their needs and challenges, among others. For proper documentation, all the FGDs were tape recorded. The study team determined sufficient and adequate information had been collected from a wide variety of stakeholders and therefore, chose not to conduct additional FDG and KII.

2.3.2 Key informant interview (KII)

The study teams conducted 15 KII to measure the views, comments and opinions regarding status of the community. For this, the participants of KII were selected from the following groups of people of the study area:

- Department of Public Health Engineering (DPHE) officials
- Union Parishad chairman
- Chairman of Bazaar committee
- Village leaders

2.3.3 Secondary data (document review)

Document review included a review of related reports and documents; a review of such documents facilitated developing appropriate study instruments.

2.4 Training and data collection activities

Training for household data collectors was started on 25 November 2013 and ended on 05 December 2013. The household listing process was conducted between 24 November and 18 December 2013 and household data collection was conducted between 06 and 24 December 2013. Qualitative information was collected during the period of 24 December 2013 to 07 January 2014. Due to political unrest in Bangladesh and the project area, these activities took more time than originally planned.

2.5 Data processing and data analysis

Data management for the household survey included editing of questionnaires, categorization and coding of responses to open-ended questions, computerization of data, and preparation of tables. The qualitative part included compilation of field information and compilation, summarization from the compiled report, and finally preparation of issue-based reports.

3. HOUSEHOLD SOCIO-ECONOMIC CHARACTERISTICS

Chapter three focuses on the demographic and social condition of the studied population of the WASHplus Project area, including gender, age distribution, religious status, sex ratio, dependency ratio, average household size, household headship, etc. The social characteristics include information on occupation of household heads and all members aged six years or above. This chapter also discusses the socio-economic status of the household and information on homestead flooding.

3.1 Respondents' profile

In this study, 1455 individuals were surveyed. Table 2.1 presents the findings related to the demographics of the survey respondents.

Table-3.1: Respondents' demographic characteristics, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Age in years					
Up to 14	0.3	0.2	0.9	0.0	0.3
15-49	99.4	99.2	97.9	99.4	99.0
50-59	0.0	0.6	0.9	0.6	0.5
60 or above	0.3	0.3	0.0	0.3	0.1
Educational status					
Illiterate	24.8	20.5	14.8	21.5	20.3
Primary	45.3	48.9	53.8	43.7	48.2
Secondary and above	29.9	30.6	31.4	34.7	31.5
Main occupation					
Housewife/ HH chore	95.2	97.6	96.2	95.5	96.3
Others	4.8	2.4	3.9	4.5	3.7
Religious status					
Islam	99.7	99.6	97.3	90.0	97.0
Hindu	0.3	0.4	2.7	10.0	0.3
N	312	494	338	311	1455

Ninety-nine percent of respondents were between the ages of 15 and 49. About half of the respondents have a primary level (I-V) of education; 20.3 percent were "illiterate," which includes those who can sign and who have non-formal education or religious education; and over 30 percent of the respondents have secondary level of education or above. The majority of respondents are housewives and practice Islam. In the project area, these demographic profiles are considered typical or expected for caretakers of children under age five.

3.1.1 Age and gender of family members

Table 3.2 summarizes the demographic information for family members of surveyed households. Data indicate the total population of all households surveyed is 7,639: 3774 (49.4 percent) are males and 3865 (50.6 percent) are females (a gender ratio of 98 males: 100 females). In addition, 46.3 percent of household members were between the ages of 15 and

49. The proportion of individuals under the age of 15 in this study (42.9 percent) is higher than in similar studies in Bangladesh.

Table-3.2: Socio-demographic characteristics of household members, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Sex of household members</i>					
Male	48.5	49.4	50.1	49.8	49.4
Female	51.5	50.6	49.9	50.2	50.6
n (number of HH members)	1679	2652	1658	1650	7639
<i>Age of household members (in years)</i>					
Up to 14	46.5	43.4	41.0	40.3	42.9
15-49	43.8	46.8	48.3	46.5	46.3
50-59	4.1	3.4	4.3	5.0	4.2
60 or above	7.1	6.4	7.1	8.0	6.6
n (number of HH members)	1679	2652	1658	1650	7639
<i>Household headship</i>					
Male	95.2	97.2	99.1	99.0	97.6
Female	4.8	2.8	0.99	1.0	2.4
n (number of households)	312	494	338	311	1455
<i>Household size</i>					
2	0	0	0	0.6	0.1
3-4	33.0	36.0	44.4	34.1	36.9
5-6	46.8	39.5	42.3	49.5	43.8
Above 6	20.2	24.5	12.7	16.4	19.1
<i>Average household size (number of HH members)</i>	5.38	5.37	4.91	5.31	5.3
n (number of households)	312	494	338	311	1455
<i>Religious status</i>					
Islam	99.7	99.6	97.3	90.0	97.0
Hindu	0.3	0.4	2.7	10.0	3.0
N (number of households)	312	494	338	311	1455

According to the DHS, 11 percent of households in Bangladesh are led by a female (BDHS 2011: 21), but only 2 percent of the households in this study were led by a female and 98 percent were led by a male. Forty-four percent of households had 5-6 members and 19.1 percent had 7 or more members. Average household size in Bangladesh is currently 4.6 but of those households included in the study, the average size was higher (5.3). The data indicate that 97 percent of the households in the study were Muslim.

3.2 Socio-economic characteristics

3.2.1 Occupational status of household members

Table 3.3 shows that among household heads, 50 percent are laborers (skilled or unskilled), 22 percent are farmers, 13 percent are small business owners, and about 7 percent are in the service sector. The majority of the female household members are housewives (61.2 percent).

Table-3.3: Occupational status of household members (>5 years) by gender, WASHplus Project 2013

Occupational status	Percent		
	HH head's main occupation	All members	
		Male	Female
Farmers	22.0	14.4	0.1
Labour (skill, unskilled, driver etc.)	50.4	33.9	0.6
Service holders	6.6	6.8	1.1
Small business owner	13.0	8.8	0.1
House wife	2.0	0.0	61.2
Student	0.0	26.5	26.9
Other (Professional, unemployed, old aged etc.)	5.9	9.6	9.8
N	1455	2864	2976

3.2.2 Socio-economic category of the household

To estimate overall socio-economic condition of the households, household structure and annual income data were considered. A scoring of these indicators ascending from extremely poor/vulnerable to less poor/vulnerable is applied. Scores from 1 to 4 are used for the structure of the household such as: 1 for thatched cottage, 2 for tin shed, 3 for half building (i.e., tin as roof, either tin or concrete as walls and any item of mud or wood or concrete floor), and 4 for full building. Similarly, 1 to 5 scores applied for household monthly income (in Taka) such as: 1 for up to 5000, 2 for 5001 to 7500, 3 for 7501 to 10000, 4 for 10001 to 15000 and 5 for more than 15000. By adding the scores for household structure and income, a total score (ranging from 2 to 9) indicates the primary solvency status of a particular household. Based on these scores, households were placed into one of four categories: first/lower quartile (2-3 score), second quartile (4-5 score), third quartile (6-7 score) and fourth/upper quartile (8-9 score) (Table 3.4).

Table-3.4: Socio-economic category of the household, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
1 st Quartile (Most poor)	3.5	7.7	14.5	3.9	7.6
2 nd quartile	47.1	42.3	49.4	51.8	47.0
3 rd Quartile	39.7	35.4	29.6	31.5	34.2
4 th Quartile (Least poor)	9.6	14.6	6.5	12.9	11.3
N	312	494	338	311	1455

Additional data on assets, electrical items, and land ownership, as it relates to the socio-economic status of the household, areas presented in Appendix A, Table A.2.8.

3.3 Situation of homestead during flood

About 22 percent reported that their homes are always flooded during the flooding season, and 43 percent reported that their homes are sometimes flooded. Over 60 percent of households reported that they have had to move during a flood or cyclone.

Table-3.5: Flooding situation in the homestead, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Condition of homestead in flood</i>					
Always affected	23.4	29.1	18.0	14.1	22.2
Sometimes affected	18.3	34.0	71.3	49.2	42.5
Never affected	58.3	36.8	10.7	36.7	35.3
N	312	494	338	311	1455
<i>Shifted to shelter/safer place due to calamities</i>					
Yes, due to flood	28.5	27.2	37.4	64.5	38.5
Yes, due to cyclone	0.0	12.2	54.3	2.0	21.9
Yes, due to tidal surge	41.5	3.2	1.3	0.0	7.2
No	30.0	57.4	7.0	33.5	32.4
N	362	206	68	305	941

Key Findings of Household Socio-Economic Characteristics, WASH Project-2013

	About one fifth (20.3%) of the respondents are illiterate.
	About 96% respondents are housewives or are performing household chores and the rest (3.7%) were involved in some income generating activities.
	About 65% of households reported being always or sometimes affected by floods.
	68% reported that they have had to move due to a weather-related calamity (floods, tidal surges or cyclones).

4. SAFE WATER SOURCE OF HOUSEHOLD

Access to safe drinking water and hygienic sanitation is essential for safeguarding health and protecting human dignity. Bangladesh's progress toward reaching two of the Millennium Development Goals—*Reduce the under-five mortality rate by two-thirds between 1990 and 2015* and *Proportion of the population without sustainable access to safe drinking water and basic sanitation halved by 2015*—will be accelerated by promoting sanitation and hygiene.³ The Government of Bangladesh (GoB) has already shown a commitment to these goals through its National “Sanitation for All by 2013” campaign.⁴

Chapter four provides an in-depth look at the availability of water in the study area, including the source of drinking water, ownership of water infrastructure, and dysfunction and maintenance of waterpoints. Moreover, the data provides a better picture of human aspects of water: how long it takes to collect water, what the perception of the water quality is, and how much it costs to repair a dysfunctional waterpoint.

4.1 Source of water in the household

4.1.1 Source of drinking water

As illustrated in Table 4.1, 98.9 percent of households surveyed use a deep tube well as a source of drinking water and 13 percent of households surveyed use tube well water for cooking or washing utensils. About 90 percent of households use surface water as a main source (where they collect water for the majority of the year) for other purposes such as bathing, washing clothes and household cleaning. Focus group discussions (FGD) and interviews uncovered that sedimentation of surface water is common when used for cooking and cleaning, as opposed to treating or purifying the water. It is unclear if the foods cooked using surface water are heated to a point that would ensure safe consumption.

It is important to note that practices where a high number of households use surface water for cooking and cleaning (81 percent) and have latrines that leach into canals and ponds (see Chapter Five), there is risk to the household at risk for contaminated water and water-related illness.

³ 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).

⁴WSP, ADP and World Bank, Dhaka. 2011. *The Economic Impacts of Inadequate Sanitation in Bangladesh*.

Table-4.1: Main sources of water in the household by water use, WASHplus Project – 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Sources of drinking water of the household					
Deep tube well	99.0	98.8	98.8	99.0	98.9
Surface water (river, canal, pond etc.)	1.0	1.2	1.2	1.0	1.1
N	312	494	338	311	1455
Sources of water for cooking and washing utensils					
Shallow tube well	34.0	3.6	7.7	12.9	13.1
Deep tube well	12.2	4.7	4.4	0.6	5.4
Protected well	0.0	0.2	0.0	0.0	0.1
Unprotected well	0.0	1.6	0.0	0.0	0.5
Rain water collection	0.0	0.0	0.0	0.0	0.0
Surface water (river/canal/pond etc.)	53.8	89.9	87.9	86.5	81.0
N	312	494	338	311	1455
Sources of water for other purposes					
Shallow tube well	9.6	2.0	9.2	10.3	7.1
Deep tube well	1.6	3.8	3.8	0.3	2.6
Unprotected well	0.0	1.2	0.0	0.0	0.4
Surface water (river, canal, pond etc.)	88.8	92.9	87.0	89.4	89.9
N	312	494	338	311	1455

4.1.2 Alternative source of water⁵

Only 3 percent households reported having an alternative source of drinking water, such as tube well, deep tube well, surface and rain water etc. (Table 4.2). These proportions are very similar across the *upazilas*.

Of the households surveyed, 79 percent have no alternative source for cooking and washing utensils, 18 percent use surface water as an alternative source and 3 percent use a tube well or deep tube well as an alternative source (Table 4.2). Similar pattern exists among the *upazilas* except Char Fasson where only 8 percent use surface water for cooking and washing.

For “other purposes,” 85 percent of households visited declared that they have no alternative source. About 13 percent declared that they use surface water and 3 percent use tube well or “deep tube well” for other purposes (Table 4.2). In Kalapara *upazila*, over one fourth of households use surface water for other purposes.

⁵ Where community members collect water when availability at their main source is low or nonexistent.

Table-4.2: Alternative sources of water in the household, WASHplus Project – 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Sources of drinking water of the household					
Deep tube well	0.3	0.2	0.6	5.8	0.8
Shallow tube well	0.0	0.6	2.4	0.0	1.5
Rain water collection	0.0	0.0	0.0	0.3	0.1
Surface water (river, canal, pond etc.)	0.3	0.4	0.6	0.6	0.5
No alternative source	99.4	99.0	96.4	93.5	97.3
N	312	494	338	310	1454*
Sources of water for cooking and washing utensils					
Shallow tube well	1.0	0.4	1.8	2.6	1.3
Deep tube well	0.3	2.2	2.7	0.3	1.5
Protected well	0.0	0.0	0.3	0.0	0.1
Unprotected well	0.0	0.0	0.2	0.0	0.1
Rain water collection	0.0	0.0	0.0	0.3	0.1
Surface water (river, canal, pond etc.)	27.9	7.7	25.7	17.4	18.3
No alternative source	71.2	89.7	70.4	79.7	79.1
N	312	494	338	311	1455
Sources of water for other purposes					
Shallow tube well	1.0	0.2	2.4	2.9	1.4
Deep tube well	0.0	2.4	3.3	0.3	1.6
Protected well	0.0	0.0	0.3	0.0	0.1
Rain water collection	0.0	0.0	0.3	0.0	0.1
Surface water (river, canal, pond etc.)	2.9	6.9	25.4	17.4	12.6
No alternative source	96.2	90.9	69.2	79.7	84.6
N	312	494	338	311	1455

*1 case missing

4.1.3 Number of users per water source based on Community Situation Analysis data obtained for WASHplus planning purposes

For comparison purposes, the following table presents water coverage data obtained through the Community Situational Analysis (CSA) conducted in more than 1300 villages where WASHplus activities are implemented.

As per national policy for safe water supply and sanitation to increase the present coverage of safe drinking water in rural areas, one should lower the average number of users per tube well from the present 105 (national average) to 50 in the near future.⁶ CSA data collected prior to intervention activities indicates that access in the targeted upazilas is similar to national-level analysis. Table 4.3 presents the CSA data, which shows that the average number of users per water source was about 102, and it was highest in Char Fasson (112).⁷

⁶ GOB (1998), National Policy for Safe Water Supply & Sanitation 1998, Local Government Division, Ministry of Local Government, Rural Development and Cooperatives, Dhaka.

⁷ Extracted from CSA data.

Table-4.3: Number of users per water source based on CSA data, WASHplus Project – 2013

	Upazila				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Total population	113012	175065	86448	96562	471087
Number of households	22787	36632	19396	21085	99900
Number of functional water source	1068	1558	842	1157	4625
Average user per water source	105.8	112.4	102.7	83.5	101.9
Average HH per water source	21.3	23.5	23.0	18.2	21.6

4.1.4 Availability of drinking water in the main source

When asked about the availability of drinking water during the year, 98.5 percent of households reported having access to water at their main source all year (12 months); in most cases, this is access to a deep hand tube well (Table 4.1). Only 1.5 percent reported having access for less than 12 months each year. In Kalapara upazila, this percentage is higher (4.4 percent) than other upazilas.

Table-4.4: Availability of drinking water in the main source round the year, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Number of months water available					
2-11 months (<12 months)	0.0	0.8	4.4	0.6	1.5
12 months	100	99.2	95.6	99.4	98.5
N	312	494	338	311	1455
Reasons for unavailability of water (multiple responses)(number)					
Water level declined	0	1	14	1	16
Non-functionality of tube well	0	1	1	0	2
Sand comes with water	0	2	0	0	2
Inundated in flood	0	0	0	1	1
N	0	4	15	2	21*

4.2 Time and distance to fetch water and amount of water used in the household for drinking purpose

4.2.1 Time and distance to fetch water

Of the households surveyed, 87 percent fetch water from a water source that is outside the vicinity of their home. The study revealed that, typically, respondents traveled an average of 124 meters to fetch water (Table 4.5). About 32 percent of the households in the study area had to travel more than 100 meters to fetch water.

The average time it takes for the respondent to fetch water (round trip) was 14 minutes; 64 percent reported that it takes them less than 15 minutes and 31 percent said it takes them 30 minutes. This pattern is more or less typical across the upazilas (Table 4.5). Keeping in mind the time taken per trip, 49 percent of respondents reported fetching water more than once per day.

Table-4.5: Distance of source of drinking water from household, WASHplus Project 2013

Indicators	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
	Household need to fetch water (%)				
Yes	82.4	89.0	95.0	80.1	87.1
N	309	493	338	311	1451
Distance of source of drinking water (in meter)					
Average distance of the source of drinking water (mean)	18.6	185.6	132.8	111.3	123.7
Median	7.1	120.0	60.0	30.5	30.5
Time required (in minutes) to fetch water					
Less than 15	59.9	67.1	73.8	49.8	63.6
15-30	37.0	27.7	22.7	39.0	30.5
31 or above	3.1	7.1	3.4	11.2	5.8
Average time required (in minutes) to fetch water	13.4	13.8	11.2	17.5	13.8
Number of times to fetch water in a day					
Once	18.7	43.3	50.8	39.0	39.3
Twice	55.6	46.2	43.9	55.4	49.4
Three or more	25.7	10.5	5.3	5.6	11.3
N	257	440	321	249	1267

When informing about the person(s) who fetched water from the facilities, 93.7 percent of the households that fetch water said this is the responsibility of adult (18+) women in the family (Table 4.6).

Table-4.6: Household member fetch water for household, WASHplus Project 2013

Person who fetch drinking water (multiple responses)	Percent/Frequency	
	Deep Tube well	Surface water*
Male member aged 18 years or above	15.7	0
Female member aged 18 years or above	92.7	13
Boys less than 18 years of age	6.5	1
Girls less than 18 years of age	18.5	4
N	1254	14

* Frequency reported due risk of misinterpretation of percentages

The key informants pointed out that since it is difficult for the women in the household to fetch water frequently during household chores, they usually fetch water once or twice in a day and that water was mainly used for drinking purpose. FGDs revealed that for cooking purposes, surface water is typically allowed to settle (sedimentation) for a long period of time, but households do not take measures to purify or treat water for cooking outside of this process.

4.2.2 Amount of water used for drinking purposes in the household

The study obtained information about how much drinking water was fetched by households to calculate the per capita amount per day. Based on the water fetched and the number of family members per household, we estimated that around 47 percent of the households

fetches 1-2 liters of water per person per day. About 26 percent of households fetches 3+ liters per person per day (Table 4.7).

Table-4.7: Amount of drinking water fetched in the household, WASHplus Project 2013

Per capita amount per day (liter)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Up to 1	35.9	23.1	46.4	1.6	26.7
1-2	46.2	55.7	47.9	35.0	47.4
3 or more	17.9	21.3	5.6	63.3	25.9
Average amount of water used per person per day (liter)	2.5	2.7	2.06	3.57	2.6
N	312	494	338	311	1449*

* missing cases =6

4.3 Ownership and operators of source of drinking water

Ownership findings are presented in Table 4.8, showing that 37.5 percent of households “jointly” own their water source (98 percent are deep tube wells percent) and 27.1 percent of water sources used by the households are owned by the government.

Table-4.8: Ownership of source of drinking water, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Ownership status</i>					
Own	2.9	3.0	5.3	1.9	3.3
Others	34.3	22.5	8.9	31.5	23.8
Joint ownership	44.6	39.7	33.7	30.9	37.5
Government	9.9	26.3	43.2	28.0	27.1
Non-government	8.3	8.5	8.9	7.7	8.4
N	312	494	338	311	1455

Ownership of a drinking water source is more typical among households in the third and fourth wealth quartiles (see Appendix A, Table A.3.1. for data table).

4.4 Perceived drinking water quality

Based on the BBS/UNICEF National Drinking Water Quality Survey (2009), salinity can be a major issue in this region, as the increase in shrimp farming and worsening climate change pushes salt water into the coastal, fresh water areas of Bangladesh. The increase in salinity has an effect on the soil and, as a result, the ground water. Within this regional context, surveyed households were asked about their perception of their drinking water. A vast majority (92 percent) reported that the drinking water was “good” and roughly 8 percent said the water was “fair” or “bad.”

Among those households which reported less than good water quality (roughly 8 percent), two thirds of them (63.2 percent) reported that their water is salty, while one third mentioned “water contains iron compound” and 26 percent mentioned “water is muddy or impure.” There is no remarkable variation among the upazilas.

Table-4.9: Perceived quality of drinking water, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Quality of drinking water</i>					
Good	94.2	90.1	87.6	97.4	92.0
Fair	5.4	7.1	10.7	1.9	7.1
Bad	0.3	3.8	1.8	0.6	1.9
N	312	494	338	311	1455
<i>Perceived reasons of not having good quality water (multiple responses)</i>					
Water is arsenic contaminated	0.0	0.0	2.4	0.0	0.9
Water contains iron compound	50.0	40.8	21.4	12.5	33.3
Water is salty	55.6	65.3	69.0	37.5	63.2
Water is muddy	0.0	20.4	38.1	50.0	25.6
Water smells bad	0.0	12.2	2.4	0.0	6.0
Water contains germs of diseases	0.0	4.1	2.4	0.0	2.6
Water is sandy	0.0	0.0	2.4	0.0	0.9
N	18	49	42	8	117

4.5 Utensils for drinking water collection and storage

Table 4.10 presents the findings related to type of container and lid used in the household to fetch water. Findings show that 99.4 percent of households reported using a pitcher as a container and only 2.2 percent reported using a bucket (with or without using a pitcher simultaneously). A comparatively higher percentage of households in Daulatkhan upazila use a bucket for fetching water. Overall, 86 percent of them always use a lid to cover container while transporting water back to the household, while 8 percent use it only sometimes. Only 7 percent reportedly do not use any lid. Further, 84 percent of respondents report that they use a plastic or melamine or aluminum lid for covering the water container and 19.5 percent use a coconut shell.

Table-4.10: Type of container and lid used to fetch water, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Type of container used to fetch water (multiple responses)</i>					
Pitcher	99.2	99.5	98.4	100	99.3
Bucket	7.4	0.9	1.6	0.0	2.2
Pot	0.0	0.0	0.3	0.0	0.1
Plastic container	1.9	0.5	0.0	0.8	0.7
Jug	2.7	2.7	3.4	0.4	2.4
N	258	4401	321	249	1268
<i>Use lid to cover container when fetching water</i>					
Yes, always	87.5	80.9	81.3	97.2	85.6
Yes, sometimes	9.3	8.4	10.3	1.6	7.7
No	3.1	10.7	8.4	1.2	6.7
N	257	440	321	249	1268
<i>Type of lid used to cover container during fetching water (multiple responses)</i>					

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Plastic/melamine/aluminum cover	86.3	73.5	88.8	91.9	83.8
Earthen cover	0.8	0.3	0.0	0.0	0.3
Stopper	0.4	0.5	0.0	0.0	0.3
Cloth	1.6	0.0	0.3	0.0	0.4
Coconut shell	18.5	29.3	15.0	10.2	19.5
Covered with mug	0.0	0.3	0.0	0.0	0.1
Covered with jug	0.0	0.0	0.3	0.0	0.2
Don't cover	0.0	0.3	0.0	0.0	0.1
N	249	393	294	246	1182

Ninety-one percent (91 percent) of households reported storing drinking water in a pitcher (Table 4.11). About 77 percent of the household reported placing it on a platform half a cubit high off the ground/floor. One fourth (23.2 percent) of them reportedly placing the container directly on the floor.

Table-4.11: Drinking water storage, WASHplus Project – 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Type of container used to preserve water (multiple responses)</i>					
Pitcher	100	97.3	85.1	100	90.9
Bucket	0.0	0.0	0.0	6.3	0.5
Pot	0.0	0.0	0.9	0.0	0.5
Plastic container	3.3	0.0	0.0	0.0	0.5
Drum	0.0	2.7	0.0	0.0	0.5
Jug	3.3	0.0	31.6	0.0	18.8
Filter	3.3	0.0	0.0	0.0	0.5
N	30	37	114	16	197
<i>Placement of containers (multiple responses)</i>					
On the floor	43.1	24.1	13.7	13.3	23.2
On a platform half a cubit high above the floor	56.9	75.9	86.6	86.7	76.9
N	255	439	321	249	1264

4.6 Point of use contamination

During the household survey, each of the respondents was asked to bring the data collector a glass of water. Data collectors observed the respondents' contact with the drinking water to see whether they dip their fingers into the water while pouring it from container into a glass or while serving it to the interviewers. Table 4.12 presents the findings. Six percent (6 percent) of respondents dipped their fingers into water while pouring it from a container or serving it to the interviewers. In Daulatkhan upazila, this percentage was higher.

Table-4.12: Dipping of fingers into water to serve water, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
While pouring water fingers dipped into water	16.5	2.2	4.7	2.6	5.9

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Took water by dipping finger in to serve water	4.8	12.4	7.1	2.3	7.4
N	310	493	338	309	1450

4.7 Maintenance of water source in the household

4.7.1 Operation and maintenance of water source

Households were asked about the functionality of water facilities during the 12 months preceding the survey; about 21 percent of households reported that their water sources (deep tube well) were out of order for some time during the year. Most (87.7 percent) reported that the water facilities were repaired by collecting money from the users even if it was under private ownership. Average expense for repairing facilities was about Bangladeshi Taka (BDT) 504.

Table-4.13: State of functionality of the water source during the last 12 months and means of maintenance of the source, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Drinking water source was out of order during last 12 months</i>					
Yes	30.8	20.6	11.5	21.0	20.8
No	69.2	79.4	88.5	79.0	79.2
N	312	494	338	309	1453*
<i>Average expense for repairing of the drinking water source/point (BDT)</i>					
	285.4	260.34	325.0	1316.77	504.21
N	96	102	39	65	302
<i>Means of financing for the maintenance of drinking water source/point</i>					
Own money	4.2	15.7	28.9	3.1	11.0
Monthly contribution of group members	0	0	2.6	1.5	0.7
Collect from users and spend money as and when required	95.8	84.3	65.8	93.8	87.7
No need to pay yet for maintenance/no money was spent	0	0	2.6	1.5	0.7
N	95	102	38	65	300*

* 2 missing cases

4.7.2 Crack in tube well platform

Tube well platforms used by households were observed to determine their physical condition, and more specifically to determine if the platform was cracked. Table 4.14 presents the findings, which indicate that in 75.1 percent of the cases, no crack was observed. However, in 23 percent of the cases a crack was observed. More or less a similar pattern exists in all upazilas. Of water facilities with cracks in the platform, 72 percent of those facilities were inundated during floods.

Table-4.14: Crack in tube well platform

Indicators	Percent
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	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Drinking water source was out of order during last 12 months					
Crack is there	16.1	17.2	37.4	21.0	22.5
No crack	82.3	80.2	58.8	77.4	75.1
No platform	0.6	1.4	2.7	0.6	1.4
Source is not tube well	1.0	1.2	1.2	1.0	1.1
N	312	494	338	311	1455

Key Findings of Safe Water Source of Household, WASH Project-2013

	Almost all of the households (98.9%) use deep tube wells as the source of drinking water but 81% of households use surface water as a main source for cooking and washing utensils.
	About 97% do not use any alternative source while only 3% reportedly have alternative source of drinking water, such as tube well, deep tube well, surface and rain water etc.
	Almost all of them (98.5%) report that water is available in their source round the year.
	Vast majority of respondents (92.0%) perceive the quality of water of their households as being “good.” The remaining 8% mentioned their water is salty, “water contains iron compound” and “water is muddy or impure.”
	About 6% of respondents used their hands or their hands came in contact with the water at some point while serving.
	87% households need to travel a distance (on average, 124 meters/14 minutes) to fetch water because the source is not in household premises.
	Majority of the cases (92.7%), “female member(s) aged 18 years or above” fetch drinking water from deep tube well.
	Overall, 86% always use a lid to cover container while fetching water to household, while 8% only use it sometimes.
	One fourth (23.2%) of households keep the water storage container on the floor.
	60% of the households reportedly use “3 or above liters per person per day.”

About 21% of the drinking water facilities (deep tube well) were out of order for some time during the preceding year. It was reported that the drinking water facilities were mostly repaired by collecting money from the users even if these were under private ownership.

5. SANITATION AND MANAGEMENT OF HUMAN FECES

Research conducted by the World Bank shows that the impact of inadequate sanitation on the Bangladeshi economy over the last few years is substantial, roughly BDT 295.5 billion or US\$4.2 billion each year.⁸ While the Government of Bangladesh (GoB) has invested in sanitation in order to reach its “Sanitation for All by 2013” goal, significant progress must still be made in order to achieve universal sanitation access. Chapter Five outlines the findings related to sanitation facilities at the household level, as well as disposal of feces, latrine installation, and maintenance and cleaning of latrines.

5.1 Toilet facility in the household

5.1.1 Type of toilet and place of disposal of feces of under-five children

According to the JMP, improved sanitation refers to a latrine/toilet/facility that hygienically separates human waste from human contact; flush toilet; connection to a piped sewer system; connection to a septic system; flush/pour-flush to a pit latrine; ventilated improved pit (VIP) latrine; and composting toilet. While this definition categorizes latrines as “improved,” to be effective, the latrines must also be properly constructed and maintained.⁹

Findings show that about 10 percent of the studied households have access to improved sanitation facilities, i.e., a water-sealed pit latrine. The rest (90 percent) do not have such facilities, 4 percent of whom practice open defecation. The distribution of sanitation facilities is quite similar among the four upazilas. Most of the improved latrines are found in the two upper wealth quartiles (see Appendix-A: Table-A.4.1). About one third of the households surveyed reported that children under five defecate in the household latrine. Over 50 percent dispose of children’s feces in open pits, wash them in tube well water or waterways or have no specific place for their disposal.

Table-5.1: Toilet facility in the household, WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Toilet facility used by the household members</i>					
Improved latrine	5.5	9.3	15.1	7.7	9.5
Unimproved latrine	94.2	88.5	79.9	84.6	86.9
Open defecation	0.3	2.2	5.0	7.7	3.6
N	311	494	338	311	1454*
<i>Place of disposal of feces of under-five children (Multiple responses)</i>					

⁸WSP, ADP and World Bank, Dhaka. 2011. The Economic Impacts of Inadequate Sanitation in Bangladesh.

⁹World Health Organization and United Nations Children's Fund, Joint Monitoring Programme (JMP)

Children use household latrine	48.4	21.5	31.4	32.8	32.0
Put/rinsed into household latrine	35.3	9.1	11.2	16.7	16.8
Disposed in an open pit	18.3	21.5	19.2	10.3	17.9
Washed off under tube well water	0.6	0.4	0.9	0.0	0.5
Washed in a pond/canal/river	7.1	13.8	18.9	17.0	14.2
No specific place or hole	10.9	45.3	31.1	38.3	33.1
N	312	494	338	311	1455

* 1 missing case

5.1.2 Installation of latrine above flood level

Households were asked if they considered the flood level when deciding the location of their latrine. Table 5.2 presents the findings. Of the respondents, 56.1 percent reported installing their latrines above the flood level; in Daulatkhan upazila, 73 percent households built their latrine above flood level.

Table-5.2: Installation of latrine above flood level and alternative place to defecate during flood and tidal surge WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Latrine installed above flood level on higher ground</i>					
Yes	73.4	62.7	40.2	40.8	56.1
No	25.6	31.8	54.3	58.0	40.3
Don't know	1.0	5.5	5.5	1.3	3.6
N	289	421	256	238	1204*
<i>Latrine is inundated in flood or tidal surge</i>					
Yes	18.7	30.4	66.4	26.5	34.5
No	81.3	69.6	33.6	73.5	65.5
N	289	421	256	238	1204*
<i>Place to defecate if latrine is inundated in flood and tidal surge (Multiple responses)</i>					
Other's latrine	38.9	29.1	20.0	25.4	26.1
Community latrine	5.6	0.0	23.5	0.0	10.9
Here and there/bushes/no specific place	48.1	40.2	41.2	15.9	37.9
Use own latrine	9.3	30.7	18.8	65.1	28.3
Others (tidal water, relative's house, nearby school latrine)	3.8	0.8	0.0	0.0	0.6
n (number of households)	54	127	170	63	414

* Exclude: use of others latrine and no latrine etc.

Households were also asked whether their latrines are submerged during floods or tidal surges; 35 percent reported that their latrines are inundated during floods, whether or not they had made the conscious effort to install them above the known flood levels. Among those who did not install their latrines above flood level, 55 percent reported that their latrines become submerged during floods. However, 80 percent of households that did install their latrines above the flood level reported that their latrines are dry or do not become inundated during floods. (Appendix-A: Table-A.4.2)

Of those respondents who reported submerged latrines during floods, 38 percent reported no alternative place for defecation or practiced open defecation. About 26 percent reported using someone else's latrine or continuing to use their own, despite it being submerged. When analyzed against those households which become flooded, 50 percent of households that are

flooded all the time chose to build their latrine above the flood level. However, 47 percent of those households which are flooded year round chose to build their latrine at or below flood level. (Appendix-A: Table-A.4.3).

5.1.3 Place of latrine in the household and sharing of latrine

Households with latrines were asked if they share it, and if so, how many households share the latrine (Table 5.3). Findings indicate that 25.3 percent of households share the latrine with 2-3 households and about 3 percent share their latrine with 4 households or more. A similar pattern was found across upazilas. Findings in Table 5.3 also indicate that 54 percent of households installed their latrine within their courtyard and 10 percent installed their latrine inside or adjacent to a dwelling room. There is no remarkable finding with regard to the flooding situation and place of latrine; 30 percent to 40 percent latrines are submerged whether it is situated near or within courtyard and outside of the courtyard (Appendix-A: Table-A.4.4). A comparatively lower proportion of extreme poor households installed latrine near or within the courtyard while a higher proportion installed outside the courtyard (Appendix-A: Table-A.4.5).

Table-5.3 Place of latrine in the household and sharing of latrine

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Sharing of latrine					
Do not share	71.8	65.0	73.6	78.5	71.4
Share with 2-3 household	24.7	30.1	24.3	19.3	25.3
Share with 4 household or above	3.5	4.9	2.1	2.3	3.4
N	312	489	337	311	1449
Place of latrine					
Inside dwelling room	3.1	3.1	0.4	0.8	2.1
Adjacent to the dwelling room	12.5	3.1	18.0	2.5	8.4
Courtyard	45.3	69.1	21.5	69.7	53.4
Outside the courtyard	38.7	24.2	59.8	26.9	35.8
Community latrine	0.3	0.5	0.0	0.0	0.1
N	289	421	256	238	1204

Latrine flooding is inversely related to socio-economic status. Whereas 38 percent of households in the second poorest quartile reported latrine flooding, this percentage increased to 52 percent among the lowest quartile households. These differences are statistically significant (p= 0.00).

5.1.4 Entrance and latrine infrastructure

Households reported on the physical characteristics of their latrine superstructure. The distribution of these characteristics may be found in Table 5.4 and they reveal that 93 percent of latrines have a clear entrance (i.e., small trees/shrubs was removed from the entrance road), 78.9 percent have an entrance that allows for privacy due to the presence of a curtain or a door, 85 percent have surrounding fence wall and 50 percent have a roof above the pit. Besides, one fourth of study participants mentioned that they use insecticides or chemicals to eliminate bad smell or flies etc., while some reported having a brush handy to clean the toilet (11.6 percent). The pattern is mostly similar across the upazilas. About 2 percent respondents reported that they keep the latrine under lock and key. While asked for the reasons, they explained that, preventing other people from use, preventing spoiling by children and falling of leaves from nearby trees in the latrine etc. are the main reasons (Table 5.4).

Table-5.4: Latrine access and superstructure WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Entrance and latrine infrastructure (Multiple questions and answers)</i>					
Clear access	92.4	97.9	93.0	85.3	93.0
Has curtain/door	86.9	73.9	77.3	79.8	78.9
Surrounded by fence/wall	86.2	77.4	83.2	97.9	84.8
Roof intact	50.9	41.1	54.3	91.8	50.3
Has brush to clean fecal sludge	7.6	12.6	13.7	12.2	11.6
Insecticides/chemicals used	16.3	27.3	19.1	35.3	24.5
Remain under lock and key	2.1	2.1	1.2	1.3	1.7
N	289	421	256	238	1204
<i>Reasons for keeping latrine under lock and key (Multiple responses)(#)</i>					
To avoid other people's use	5	7	3	2	16
Only guests are allowed to use	0	0	0	1	1
To prevent spoiling by children	0	2	0	0	2
To prevent falling of leaves of nearby trees on the latrine	0	1	0	0	1
To prevent making dirty by poultry	1	0	0	0	1
N	6	9	3	3	21

5.1.5 Place of accumulating fecal sludge of latrine and perceived advantages and disadvantages of the system

The respondents were asked to report on where latrine fecal sludge accumulates. In over 40 percent of the households the sludge goes into an unsafe pit or tank, and for 34 percent the sludge goes into a hygienic pit or septic tank (Table 5.5). However, for 10 percent of the households it goes to a nearby river or canal.

The respondents were further asked to state the perceived advantages and disadvantages of using the existing mechanism. Of the surveyed population, 49.2 percent perceive no benefit (Table 5.5). Yet, the rest report perceived benefits like preventing environmental pollution and using it for fertilizer. About 55 percent of respondents mentioned that they do not perceive any disadvantages from allowing fecal sludge to accumulate but 42 percent mentioned bad smells and 19.4 percent mentioned the spread of disease/germs as disadvantages (Table 5.5).

Table-5.5: Fecal sludge accumulation site, perceived advantages and disadvantages WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Place of disposal of fecal sludge of latrine (Multiple responses)</i>					
Septic tank	4.8	10.2	9.0	8.4	8.3
Hygienic pit or hole/latrine	26.6	31.8	40.0	47.7	34.2
Unsafe pit/tank	61.2	29.2	47.7	30.7	41.1

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
River/canal	2.1	22.1	4.3	4.6	10.0
Pond/ditch	4.8	6.4	3.5	10.9	6.3
Field/cropland	0.3	0.7	3.9	1.7	1.5
Fecal sludge goes to canal water through pipe	0.0	0.2	0.0	0.0	0.1
N	289	421	256	238	1204
<i>Perceived advantages of the procedure (Multiple responses)</i>					
No benefit	55.9	46.4	47.7	47.5	49.2
Pit or hole/tank can be cleaned off easily	35.8	36.2	43.4	45.4	39.4
Environmental pollution can be prevented	8.3	23.3	23.0	16.4	18.3
Become composed fertilizer	3.1	1.2	0.8	1.7	1.7
Do not become dirty	0.0	0.0	0.0	0.4	0.1
Bad smell do not spread out	0.0	0.0	0.4	0.0	0.2
Not require to clean the pit or hole	0.0	6.2	0.0	0.0	2.2
Fecal sludge is washed away by tidal water	0.0	0.2	0.0	0.0	0.1
N	288	420	256	238	1202*
<i>Perceived disadvantages of the system (Multiple responses)</i>					
No problem/no disadvantage	58.2	50.5	67.2	47.1	55.2
Water is contaminated/polluted	2.4	12.6	5.9	10.9	8.4
Bad smell spreads out	40.1	44.3	32.0	52.5	42.3
Germs of diseases spreads out	3.5	28.3	26.2	15.5	19.4
Diarrhea	0.0	0.2	0.0	0.4	0.2
Poultry moves across	0.3	0.5	0.0	0.0	0.2

* missing=1 case, missing = 3 cases

5.1.6 Child friendly status of latrine

Table 5.6 presents the findings child-friendly latrines; one half of the latrines were reported to be “child-friendly” or accessible by children. The remaining unsafe latrines have high foot stands (46 percent) or large pit openings (38 percent) which make them dangerous for children.

Table-5.6: Child friendly status of latrine, WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Children get easy access to latrine</i>					
Yes	75.8	45.4	64.1	54.2	58.4
No	24.2	54.6	35.9	45.8	41.6
N	289	421	256	238	1204
<i>Reasons of inaccessibility for the children (Multiple responses)</i>					
Pit mouth hole is big	10.4	41.7	56.5	33.0	38.3
Foot stand is high	46.3	53.9	43.5	29.4	45.6
Latrine is installed with a piece of wood that is risky	19.4	8.8	10.9	37.6	16.9
Floor/inside space of the latrine is slippery	22.4	11.4	9.8	8.3	11.9
Slab is broken	7.5	11.0	7.6	4.6	8.5

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Nobody takes child to latrine	17.9	0.0	1.1	7.3	4.2
Child do not feel secure to go the latrine	1.5	0.9	4.3	2.8	2.0
No approach road to latrine	0.0	0.0	0.0	6.4	1.4
N	67	228	92	109	496*

*missing cases =5

5.2 Installation and maintenance of latrine

5.2.1 Availability of materials for latrine construction

The majority of respondents (91.0 percent) reportedly had access and ability to use necessary materials for latrine construction. Households who reported installing latrines reported needing about BDT 2300 (roughly \$30 USD) on average including the purchase of raw materials. Respondents were asked if they took a loan or help from others to install the latrines. Only a few (7 percent) received assistance in the form of a loan or help from others, while the vast majority (93.2 percent) did not take any loan or help of others for this purpose (Table 5.7).

Table-5.7: Availability of materials and access to loan for latrine installation, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Availability of materials					
Yes	92.0	91.6	87.1	92.9	91.0
No	2.4	1.9	2.3	0.8	1.9
Did not install personally	4.8	6.2	9.8	6.3	6.7
Don't know	0.7	0.2	0.8	0.0	0.4
N	289	419	256	238	1202*
Average cost for latrine installation (Mean) BDT					
Median	1500	1200	1450	1500	1500
N	142	381	186	198	1007**
Loan or help taken to install household latrine (multiple responses)					
Yes took help	1.7	2.4	2.3	5.0	2.7
Yes took loan	5.2	4.0	2.3	5.9	4.3
No	93.1	93.8	95.7	89.5	93.2
N	289	421	256	238	1204

* 2 missing cases, ** excludes 197 cases for "don't know"

5.2.2 Latrine maintenance and repairing after installation

Findings presented in Table 5.8 show that 32.6 percent of respondents reported needing maintenance on their latrine since installation, while 67.4 percent did not require maintenance. Households which reported repairs or maintenance were asked about the type of work required. The majority of them (61.0 percent) report repairing the wall or roof of their latrines, followed by "fitted slab or pan" (33.7 percent) and "has set ring" (25.3 percent). Few did other things, e.g., dug a new pit" (10.7 percent) and "has set a new pipe" (0.3 percent).

The survey revealed that the latrines installed in the study areas were relatively new as 60 percent of those were installed within the last three years. About 19 percent latrines were installed between four and five years ago. About 20 percent of the “new” latrines (installed in the last 3 years) required repairs, where as 46 percent of the older latrines (installed 4-5 years ago) required repairs. Repairs mostly consisted of maintenance on the walls and roofs.

Table-5.8: Maintenance or repairing since latrine has been installed, WASHplus Project–2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Maintenance/repairing work done</i>					
Yes	25.6	41.8	26.2	31.5	32.6
No	74.4	58.2	73.8	68.5	67.4
n*	289	421	256	238	1204
<i>Type of repairing/maintenance work done (Multiple responses)</i>					
Slab/pan fitted	51.4	29.0	26.9	33.3	33.7
New pit dug	2.7	8.0	29.9	8.0	10.7
Ring has been set	51.4	17.6	28.4	14.7	25.3
Repaired wall/roof of latrine	32.4	72.7	53.7	68.0	61.0
New pipe has been set	0.0	0.0	0.0	1.3	0.3
N	74	176	67	75	392

* Excluded: use of others latrine and no latrine etc.

5.2.3 Cleaning of tank or pit and place to dispose of fecal sludge

Those households that reported installing latrines were asked if they had ever cleaned the tank or pit (removed the fecal sludge). Table 5.9 shows that 46 percent of the households had cleaned out the tank/pit and 54 percent had not. About 2/3 of those who had cleaned out the latrine buried the sludge and 20 percent put the fecal matter in a ditch or hole (exposed to the environment, and not covered).

Table-5.9: Cleaning of tank or pit of latrine since installation and place of disposal of latrine fecal sludge, WASHplus project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Tank/pit of latrine cleaned</i>					
Yes	58.1	37.8	45.3	44.5	45.6
No	41.9	62.2	54.7	55.5	54.4
N	289	421	256	238	1204
<i>Place to dispose of the fecal sludge (Multiple responses)</i>					
Canal/river	7.1	17.6	7.8	17.0	12.2
Ditch/hole	17.9	12.6	32.8	23.6	20.6
Open field/place	0.6	4.4	7.8	8.4	4.7
Buried under earth	76.2	69.8	56.0	56.6	66.3
Used as compost	0.0	1.3	0.0	0.0	0.4
N	168	159	116	106	549

5.3 Availability of handwashing place and availability of water and soap at the place

Interviewers checked for the presence of a handwashing device inside or near (up to 5 yards) the latrine and whether clean water and soap were available. Table 5.10 shows that one-third of households have handwashing facilities either inside or within 5 yards of their latrine while the other two-thirds do not. A majority of the households with handwashing facilities (93.8 percent) used clean water for these facilities but 82.6 percent of the households did not have

soap available. Of those households who did have handwashing facilities with soap, 15 percent had a bar of soap while 3 percent used detergent or powdered soap. However only 5 percent households have a handwashing place with water and soap available. (Appendix-A: Table-A.4.6).

Table-5.10: Availability of a handwashing place, water and soap in handwashing place, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Availability of handwashing point					
Yes	30.8	37.8	35.9	27.1	33.4
No	69.2	62.2	64.1	73.9	66.6
N	289	421	256	238	1204
Availability water into the handwashing place					
Yes	94.4	96.9	87.0	95.2	93.8
No	5.6	3.1	13.0	4.8	6.2
N	89	159	92	62	402
Types of soap available into the handwashing place					
Nothing	91.0	86.8	78.3	67.1	82.6
Soap	7.9	11.9	19.6	27.4	15.2
Detergent/powder soap	1.1	1.3	2.2	11.3	3.0
Liquid soap	0.0	1.3	0.0	1.6	0.7
Ash	0.0	0.6	1.1	3.2	1.0
N	89	159	92	62	402

5.4 Plan to improve structure of latrine

The households with latrines were asked about plans to improve the structure of their latrines during next six months and if yes, what type of improvement they have planned to implement. Table 5.11 shows that 46 percent of households plan to improve their latrines in the next 6 months. Of those households who planned to improve their latrines, 77.2 percent reported they planned to repair the wall/roof and 54.1 percent planned to install a ring, 51.4 percent planned to set a slab or pan. Roughly 37 percent of households with plans to improve their latrines planned to dig a new pit of hole.

Table-5.11: Plan to improve structure of latrine in next six months, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Plan to improve structure of latrine in next 6 months					
Yes	37.4	46.4	46.5	55.0	45.9
No	62.6	53.6	53.5	45.0	54.1
N	289	420	256	238	1203*
Type of plan of improvement (Multiple responses)					
Setting of slab/pan	38.9	66.2	63.0	29.0	51.4
Digging new pit	32.4	45.6	52.9	13.7	37.1
Installing of ring	48.1	57.9	61.3	46.6	54.1
Repairing walls/roof of latrine	66.7	82.1	72.3	83.2	77.2
Fecal sludge will be carried to a distant place through the pipe	0.0	0.5	0.0	0.8	0.4
Separate latrine will be installed	0.0	0.5	0.0	0.8	0.4

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
N	108	195	119	131	553

5.5 Reason for not installing latrine and level dissatisfaction with the lack of a latrine

Of the households without a latrine and that practice open defecation (n=53), 38 reported lack of money as the reason why they did not build their own latrine, while 9 cited lack of sufficient land and 9 cited not owning the land on which their household is built (Table 5.12). Of the same households that did not have a latrine (n= 53), 30 reported being very displeased with their lack of a latrine facility.

Table-5.12: Reasons for unavailability of latrine in household and level of displeasure with non-existence of latrine, WASHplus Project 2013

Indicators	Number				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Reasons for not installing latrine (Multiple responses)					
Lack of money	1	9	14	14	38
Not having sufficient land for latrine installation	1	2	5	1	9
Live on other's land	0	2	3	4	9
Don't feel the necessity	0	1	1	0	2
N	1	12	16	17	46
Level of displeasure for not having latrine					
Very much displeased	0	9	9	12	30
Somewhat displeased	0	2	2	1	5
No comments	0	0	1	0	1
Very much satisfied	1	0	3	0	4
Not applicable	0	1	1	4	6
N	1	12	16	17	46

Key Findings of Sanitation and Management of Human Feces, WASH Project-2013

	9.5% of households surveyed have hygienic sanitation facilities. Of those households without a hygienic latrine, 63.4% use latrines with broken water seals and 4% practice open defecation.
	While 56% of households reported constructing their latrines above the flood level, 20% of these latrines are submerged during periods of flooding.
	25.3% of households share their latrines with 2-3 other households.
	Roughly 10% of households reported that their latrine fecal sludge leaks into a nearby river or canal; in Daulatkhan, this increases to 22%. 42.5% of the households surveyed have a septic tank or hygienic pit.
	On average, households reported requiring BDT 2,300 to build a household latrine and 91% of households reported having access and ability to use the necessary materials to build a latrine.

	<p>33.4% of households had handwashing facilities within 5 steps of their latrines and of these households, 94% used clean water in their handwashing facilities. 15% had a bar of soap and 3% used detergent or powdered soap.</p>
	<p>Households that reported not having a latrine cited lack of money, lack of sufficient land, or not owning the land on which their house is built.</p>

6. HANDWASHING AND USE OF SOAP

Good sanitation and hygiene practices can have positive effects on a community's health, education and socio-economic development; it increases life expectancy, reduces morbidity, lowers healthcare costs, and increases productivity and school attendance, among others¹⁰. There is clear evidence that shows the importance of hygienic behavior, in particular handwashing with soap at critical times, e.g., after defecating and before eating or preparing food. It can significantly reduce the incidence of diarrhea, which is the second leading cause of death among children under five years. Recent studies also suggest that regular handwashing with soap at critical times can reduce the number of diarrhea episodes by almost 50 percent.¹¹

This study has attempted to assess the current status of the sample households regarding relevant issues, i.e., handwashing behavior of household members, and place and procedure of handwashing and type of soap available in the handwashing place and whether the same or separate soap is used by the household for different purposes, etc. Chapter Six discusses these issues along with other related issues, i.e., monthly household expenditure for soap (in Bangladeshi Taka), availability of a handwashing place inside or near the kitchen, type of soap available in this place, critical time and reasons for using soap for washing hands, materials used for handwashing after own defecation or cleaning off the child and level of family decision making for some selected issues related to sanitation and hygiene practice.

6.1 Handwashing behavior

Household respondents were asked how frequently they wash hands with soap at critical times. The responses can be found in Table 6.1. Only 3 percent of respondents reported “always” washing their face and hands with soap after waking up in the morning and 2 percent reported “often” doing so. Only 20 percent of respondents reported “always” washing their hands after defecation and 13 percent reported they “never” do so. Other key findings include 17 percent of respondents never wash their hands after cleaning a child's bottom and 61.3 percent never wash their hands before eating and show a similar pattern for washing hands before cooking. About 52 percent reported “never” washing their hands before feeding a child and only 2.7 percent “always” washed their hands before doing so. Table 6.2 presents the data from those who reported “never” washing their hands before/after a critical time, broken out by upazila. There are differences by upazila based on the juncture considered, but no clear pattern emerges for any specific upazila. Clearly though, the higher frequency of never washing hands after contact with fecal matter were detected in Kalapara, and the higher frequency of never doing so before handling food were detected in Char Fasson.

Table-6.1: Handwashing behavior of respondents, WASHplus Project 2013

Occasion of handwashing by respondents	How frequently wash hands (%)			
	Never	Sometimes	Often	Always
Washing hand and face after get off from bed in the morning	67.4	27.1	2.4	3.0
While bathing	0.4	8.8	40.5	50.2
After defecation	13.0	37.4	29.9	19.7
After cleaning child's bottom	17.0	38.1	28.7	16.2

¹⁰ <http://who.int/ceh/risks/cehwater/en>

¹¹ <http://who.int/ceh/risks/cehwater/en>

Before eating	61.3	32.6	4.5	1.5
Before cooking	75.1	21.4	3.1	0.5
Before feeding child	51.9	37.1	8.3	2.7
After work	35.4	45.8	12.7	6.2
After cleaning latrine *	20.2	17.3	13.9	48.5
n = 1455				

* Excluding 491 cases (respondent mother never cleaned latrine)

Table-6.2: Respondents indicating never to wash their hands at different junctures by upazila, WASHplus Project 2013

Occasion of handwashing by respondents	Never wash hands (%)				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Washing hand and face after get off from bed in the morning	63.1	75.5	82.8	42.1	67.4
While bathing	0.0	0.0	1.8	0.0	0.4
After defecation	1.9	13.2	30.2	5.1	13.0
After cleaning child's bottom	3.5	21.1	31.7	8.0	17.0
Before eating	57.1	71.1	63.9	47.3	61.3
Before cooking	93.9	84.8	66.6	49.8	75.1
Before feeding child	38.1	68.6	60.5	29.9	51.9
After work	47.1	38.7	40.5	12.9	35.4
N	312	494	338	311	1455

6.2 Place and method of handwashing and type of soap in handwashing place

Table 6.3 presents the findings related to the location and method of handwashing, as well as type of soap (as observed by the interviewer). The majority of respondents (86.3 percent) reported washing their hands in pond or river water. As many households have canals or rivers adjacent to their homes, households will often use this surface water for handwashing, despite having devices at the household level. However, data shows that about 28 percent households had handwashing devices. The situation is more or less similar in all upazilas. In most cases (93.5 percent), interviewers did not observe any soap at the location of handwashing and only in a few cases, 5.6 percent and 1.2 percent respectively, did they find bar soap or detergent.

Table-6.3: Place and methods of handwashing and type of soap available in handwashing place, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Place and methods of hand-washing in the household (Multiple responses)</i>					
At tube well	21.9	8.3	20.1	24.8	17.5
At tap with running water	0.6	1.0	0.0	0.1	0.7
In the basin with running water	0.0	0.4	0.0	0.3	0.2
Taking water from the bucket/pitcher/jug	8.4	4.7	12.7	12.9	9.1
In pond/river/canal	81.0	92.5	84.3	84.2	86.3
N	311	494	338	310	1453*
<i>Type of soap available in the handwashing point (Multiple responses)</i>					
Nothing	96.8	93.9	90.2	93.2	93.5
Bar soap	3.2	5.3	8.6	5.1	5.6

Powder soap	0.6	0.6	1.2	2.6	1.2
Liquid soap	0.0	0.2	0.0	0.3	0.1
Ash	0.	0.8	2.7	1.0	1.1
N	312	494	338	311	1455

* 2 missing cases

6.3 Availability of handwashing place inside or near kitchen

One-third of households reported having a handwashing facility/device near or inside their kitchen. Of those households, a majority (87.2 percent) did not have soap at the time of observation. The interviewers observed that 11 percent of households with a handwashing facility had a bar of soap present and 5 percent had detergent or ash. Those households without a handwashing facility reported using the nearby pond or canal to wash their hands. Typically, those households with handwashing facilities collect water from a tube well and dispense it from a bucket at the household level. Only 3 percent households have a handwashing device with available water and soap. The situation is almost similar in all upazilas (Table 6.4).

Table-6.4: Availability of handwashing place inside/near kitchen, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Availability of handwashing place inside or near kitchen</i>					
Yes	21.5	35.8	47.6	24.1	33.0
No	78.5	64.2	52.4	75.9	67.0
N	312	494	338	311	1455
<i>Type of handwashing place and availability of water</i>					
At tube well	11.9	9.1	15.6	24.0	14.0
At tap with running water	0.0	2.8	0.0	4.0	1.7
Taking water from the bucket/pitcher/jug	13.4	4.5	70.0	40.0	33.3
In pond/river/canal	77.1	85.2	24.4	54.7	58.8
N					
<i>Type of soap in the handwashing place</i>					
Nothing	95.5	90.9	82.0	82.7	87.2
Soap	3.0	8.0	14.9	16.0	10.9
Detergent/powder soap	3.0	0.6	0.6	6.7	1.9
Ash	0.0	0.6	6.8	2.7	2.9
N	67	176	161	75	479
<i>Handwashing place with availability of water and soap near kitchen</i>					
Yes	1.0	1.8	6.5	2.6	2.9
N	312	494	338	311	1455

6.4 Occasions of and reasons for using soap for washing hands

Table 6.5 presents the findings related to knowledge about occasions and reasons for using soap. Almost all the households (98-99 percent) mentioned using soap when “washing cloths” or “bathing”, followed by “cleaning hand after own defecation” (40.9 percent) and “after rinsing child excreta” (33.4 percent). Regarding perceived reason for washing hands with soap, 73 percent mentioned “to remain neat and clean” followed by “to remove dirt” (69.1 percent) and “to remain free from germs of diseases” (19.5 percent).

Table-6.5: Occasions of and reasons for using soap for washing hands, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Occasions when household members use soap (Multiple responses)</i>					
When washing clothes	98.1	99.2	99.7	98.7	99.0
Bathing/cleaning body	95.5	97.2	100	99.7	98.0
Cleaning own hand after defecation	33.2	28.5	27.2	48.2	40.9
Cleaning own hand after cleaning child's excreta	2.3	5.1	2.7	28.0	33.4
Cleaning own hand before feeding child	2.3	5.1	2.7	28.0	8.8
Cleaning own hand before eating	1.6	2.0	3.6	7.7	3.5
Cleaning own hand before cooking	0.6	2.2	3.6	4.5	2.7
Cleaning own hand after cooking	3.2	11.3	4.1	29.9	11.9
Cleaning own hand after completing domestic chore	7.7	22.1	39.1	21.2	22.8
Plastering floor of room or courtyard with cow dung	0.0	0.0	1.2	0.0	0.3
After cleaning utensils	2.9	6.3	9.2	10.9	7.2
N	312	494	338	311	1455
<i>Perceived reasons for washing hands with soap (Multiple responses)</i>					
To remain neat and clean	66.0	77.5	86.4	58.2	73.0
To remove dirt	57.7	62.1	75.7	84.6	69.1
To prevent diarrhea/stomach upset	11.9	14.8	19.2	6.8	13.5
To remain healthy	17.6	18.4	15.7	14.1	16.7
To remain free from germs of diseases	12.5	24.3	24.3	13.5	19.5
To remove bad smell developed in hand/palm	0.3	0.0	1.2	0.6	0.5
N	312	494	338	311	1455

6.4.1 Use of soap for different purposes

Table 6.6 presents the findings related to the query about whether households use same or different soaps for different purposes. Only 7 percent reportedly use same soap for all purposes. On the other hand, 48.8 percent use one type of soap for cleaning of body or bathing and another for all other purposes, while 44 percent use separate soap for each purposes.

Table-6.6: Use of soap for different purposes, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Use of soap for different purposes</i>					
Same soap use for all purposes	13.6	6.5	4.5	3.9	7.0
One soap for cleaning bathing/another for all other purposes	47.7	59.7	59.7	20.8	48.8
Separate soap for each purposes	38.7	33.7	35.8	75.2	44.2
N	302	489	335	307	1433*

* missing 22 cases

6.4.2 Monthly expenditure for soap

Table 6.7 presents the findings related to household monthly expenditure for soap. 65 percent reportedly spend more than Taka 100 per month (roughly \$1.30 USD), followed by 26-100 (34.7 percent). Their average expenditure for this purpose stands at Taka 133 per month (roughly \$1.70 USD). Majority of the households spend more than Taka 100 for soap in Golachipa, as compared to other upazilas.

Table-6.7: Monthly expenditure for using soap in the household, WASHplus Project 2013

Household monthly expenditure for soap	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Up to Taka 25	0.0	0.0	0.3	0.0	0.1
Taka 26 – 100	42.8	33.7	45.0	17.4	34.7
Taka 101 and above	57.2	66.3	54.7	82.6	65.2
Average monthly expenditure on soap (in taka)	122.8	134.8	118.8	157.2	133.3
N	311	493	331	310	1445

6.5 Materials used for handwashing after defecation or cleaning off child's feces

Table 6.8 presents the findings related to items used for handwashing after defecation or cleaning off the child's feces. 70 percent reportedly use water and soap for this purpose, followed by "only water" (43.8 percent) and "water and soil" (37 percent) and "water and ash" (23.2 percent). The higher percentages of respondent (mother/caregiver of under five children) in Kalapara and Char Fasson reported that they wash their hand with only water after defecation or cleaning of the child's feces compared to other upazilas, which is a health concern. The practice of handwashing with water and soil is another health concern that was reported by more than one third of the respondents.

Table-6.8: Materials used for handwashing after defecation or cleaning of the child's feces, WASHplus Project 2013

Materials used for handwashing after defecation	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Only water	11.2	60.7	73.1	18.0	43.8
Water and soil	38.1	47.2	20.7	37.3	37.0
Water and ash	21.8	23.1	15.7	32.8	23.2
Water and soap	84.0	68.0	48.5	84.2	70.4
N	312	494	338	311	1455

6.6 Family level decision making for sanitation and hygiene

Studies conducted by the World Bank suggest rural women in Bangladesh have limited access to household decision making as well as physical and financial assets (Sebstad and Cohen, 2000). They have a very low level of individual assets; but they are heavily loaded with work, and are restricted in their scope of mobility. The women possess inadequate levels of skills and knowledge, thus they are very vulnerable to male dominance in any social

sphere (Sebstad and Cohen, 2000, p. 44)¹². Table 6.9 presents the findings related to family level decision making for household sanitation and hygiene. Findings show that the husband takes decisions on such issues (81.2-91.5 percent) e.g., for purchasing of soap, installation of latrine, selection of place for installation of latrine or renovation of the same.

Table-6.9: Family level decision making for sanitation and hygiene, WASHplus Project–2013

Indicators					
	Husband	Wife	Daughter	Son	
Purchase of soap (n=1455)	86.2	48.4	1.4	3.6	5.9
Installation of latrine (n=1455)	91.5	29.0	0.3	3.1	10.9
Selection of place for installation of latrine	91.5	26.6	0.3	3.5	12.3
Renovation of latrine (n=1455)	81.2	25.7	0.1	3.4	22.8

Key Findings of Handwashing and Use of Soap, WASH Project-2013

	Handwashing practices at the four critical times were alarmingly low.
	<ul style="list-style-type: none"> • One third of the households have handwashing places inside or near their kitchen. • Among those who have such a place, about 60% of the households generally go to the pond, canal or river for handwashing purposes as they have no handwashing device. • Only 3% households have handwashing devices with available water and soap. The situation is almost similar in all upazilas.
	70% reportedly use water and soap for handwashing after defecation or cleaning off the child feces, followed by “only water” (43.8%) and “water and soil” (37%) and “water and ash” (23.2%).

¹²Sebstad, J. and Cohen, M. (2000). *Microfinance, Risk Management, and Poverty*, AIMS Paper, Management Systems International, Washington, D.C.

7. CHILD HEALTH AND ANTHROPOMETRY

Chapter Six discusses health and nutritional status of the children in the WASHplus Project area. It includes discussions about prevalence and management of diarrhea episodes, exclusive breastfeeding for children (0-5 months) and results of anthropometric measurement of children under age five. Also, this chapter discusses disability of household members.

7.1 Health and nutritional status of children

7.1.1 Diarrhea prevalence and management of diarrhea episode

Although Bangladesh has achieved significant progress in increasing access to safe drinking water and sanitation, every year more than 51,000 children under age 5 die of diarrhoeal diseases.¹³ To assess prevalence of diarrhea among children 0-59 months in the study area during two weeks prior to the survey and its management, the respondents (mothers) were asked about it. Findings in Table 7.1 show that diarrhea reportedly occurred in 19 percent of the children overall during the mentioned time period; there is no difference between boys and girls in this regard. However compared to BDHS (2011), the situation in study area (19 percent) was worse than the national level situation (4.6 percent)

Table-7.1: Prevalence and management of diarrhea among children (0-59 months) in two weeks prior to survey, by gender, WASHplus Project–2013

Diarrhea among children in two weeks prior to survey	Percent									
	Daulatkhan		Char Fasson		Kalapara		Golachipa		All	
	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
Yes	27.0	20.6	19.7	22.7	16.5	13.5	14.9	16.2	19.3	19.0
Don't know	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1
N	152	160	239	255	182	156	175	136	748	707

For management and treatment of diarrhea, medicine was given to 76 percent of affected children: Orsaline to 60 percent and baby zinc to 11 percent, and ayurvedic treatment or home fluid was given to a few of them (6.1 percent and 3.2 percent respectively). However, others (5.4 percent) were reportedly not given anything. No difference is found in management and treatment of diarrhea across the studied upazilas (Table 7.2).

Table-7.2: Treatment type given to children during diarrhea, WASHplus Project–2013

Treatment type given to children during diarrhea (Multiple responses)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Nothing	5.4	5.7	6.0	4.2	5.4
Orsaline	64.9	59.0	58.0	58.3	60.3
Saline made of rice dust	1.4	1.9	0.0	2.1	1.4
Juice made with water, molases and salt	1.4	0.0	8.0	2.1	2.2
Home fluid	1.4	5.7	2.0	2.1	3.2
Baby zinc	13.5	8.6	6.0	14.6	10.5
Medicine	78.4	81.9	64.0	72.9	76.2

¹³ UNICEF/WHO. (2009). *Diarrhoea: why children are still dying and what can be done*. Retrieved from http://whqlibdoc.who.int/publications/2009/9789241598415_eng.pdf.

Treatment type given to children during diarrhea (Multiple responses)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Ayurvedic/Kabiraji treatment	2.7	7.6	4.0	6.3	6.1
Fed rice with boiled green banana	1.4	0.0	0.0	0.0	0.35
Dottled up drink	0.0	0.0	2.0	0.0	0.5
N	74	105	50	48	277

Table 7.3 presents the findings related to feeding practices by the caregivers to the affected children (0-59 months) during diarrhea. It shows that both usual amount and less than the usual amount of breastmilk was given to about 43 percent each of the children aged 0-23 months, while more than the usual amount of breast milk was given to only 15 percent as well.

Less than the usual amount of liquid food was given to about 35 percent of the children aged 6-23 months, while the usual amount was given to 25 percent of them. More than the usual amount of such food was given to about 40 percent of them as well.

Table-7.3: Feeding to children (0-59 months) during diarrhea, WASHplus Project–2013

Feeding to children during diarrhea episode	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Breast milk to children aged 0-23 months</i>					
More than usual	25.0	16.0	14.3	0.0	15.0
Usual amount	56.3	30.0	71.4	25.0	42.5
Less than usual	18.8	54.0	14.3	75.0	42.5
N	32	50	21	24	127
<i>Liquid food to children aged 6-23 months</i>					
More than usual	35.0	41.0	41.2	40.0	39.6
Usual amount	30.0	20.5	52.9	5.0	25.0
Less than usual	35.0	38.5	5.9	55.0	35.4
N	20	37	17	20	96
<i>Solid food to children aged 24 months and above</i>					
More than usual	7.5	3.9	0.0	0.0	3.8
Usual amount	25.0	15.7	42.1	14.3	22.1
Less than usual	67.5	80.4	57.9	85.7	74.0
N	40	51	19	21	131

7.1.2 Breastfeeding to children aged 0-5 months in last 24 hours

Table 7.4 presents the occurrence of breastfeeding children 0-5 months, 24 hours before the survey. About 85 percent were breastfed exclusively while the rest (15 percent) were not exclusively breastfed during the previous 24 hours.

Table-7.4: Breastfeeding to children aged 0-5 months in last 24 hours, WASHplus Project 2013

Breastfeeding to children aged 0-5 months	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Yes	100.0	97.4	90.0	94.7	95.8
N	17	39	20	19	96

7.1.3 Nutritional status of children

Nutritional status is the consequence of complex interaction between food consumption, overall health status and care practice. Young children and women of reproductive age are more vulnerable to nutritional and micronutrient deficiencies. Different socio-economic and cultural factors influence the feeding patterns and nutritional status. Growth patterns of the healthy and well-fed children reflect the positive changes in their height and weight outcome. On the other hand, inadequate food supply along with other factors often causes malnutrition.

In this baseline study, a total of 1455 children (0-59 months) were targeted and eligible for collecting anthropometric data. Out of these, measurement of 1339 children were completed; measurement of remaining children could not be taken either due to their unavailability at the time of interview or the parents did not allow taking measurement.

The anthropometric status of children 0-59 month is measured and the prevalence of three indices [WAZ (Weight for Age Z score) or underweight, HAZ (Height for Age Z score) or stunting and WHZ (Weight for Height Z score) or wasting] by gender is calculated using WHO recommended ANTHRO version 2.0, 2005 GRS¹⁴.

When the data on anthropometric indices is analyzed, the Z score values are regrouped to find the actual proportion of global acute or global chronic malnutrition (<-2SD) along with moderate and severe under-nutritional status.

The findings related to nutritional status of the children (0-59 months) are described below.

• 7.1.3.1 Prevalence of wasting (WHZ)

The anthropometric index of WHZ or wasting reflects recent acute nutritional deficit in a child. A child whose weight-for-height Z score is below -2SD from the median value of the WHO reference population is considered to be wasted.

Table-7.5: Wasting status of children (0-59 months) by gender, WASHplus Project 2013

Wasting status of children	Percent		
	Boy	Girl	Both
Severely wasted (<-3 SD)	1.6	2.4	2.0
Moderately wasted (-3SD to <-2SD)	8.8	6.3	7.6
GAM*: Total wasted (Up to<-2SD)	10.4	8.7	9.6
Not wasted (\geq -2SD)	89.6	91.3	90.4
Average Z score	-0.76	-0.78	-0.77
N	692	655	1347

*GAM: Global Acute Malnutrition,

Table-7.6: Wasting status of children (0-59 months) by gender by upazila, WASHplus Project 2013

Wasting status of children	Percent									
	Daulatkhan		Char Fasson		Kalapara		Golachipa		All	
	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
Severely wasted	1.5	2.0	1.8	2.5	2.2	2.0	0.6	3.4	1.6	2.4
Moderately wasted	10.9	8.6	8.5	6.8	9.0	7.4	8.4	4.3	8.8	6.3
GAM: Total wasted	11.7	9.2	9.9	8.4	11.2	9.4	9.0	7.7	10.4	8.7
Not wasted	87.6	89.5	89.7	90.7	88.8	90.6	91.0	92.3	89.6	91.3

¹⁴Growth Reference Standard

Average Z score	-0.83	-0.79	-0.85	-0.85	-0.74	-0.77	-0.60	-0.65	-0.76	-0.79
N	137	152	224	237	178	149	141	108	694	655

Prevalence of wasting (Weight for Height Z score) among children is presented in Table 6.5. It shows that 90 percent are not wasted. About 10 percent overall are wasted (<-2SD), with about 8 percent are moderately wasted and 2 percent severely wasted. By gender, boys constitute a slightly higher proportion (8.8 percent) of moderate wasting than girls (6.3 percent). Severe cases of wasting for boys and girls are also similar (1.6-2.4). The same situations are found in all study upazilas. (Table 7.6) However, this overall situation is better than the national estimate of children severely wasted at 4.0 percent and for the GAM: Total wasted at 15.6 percent (BDHS-2011:164).

• 7.1.3.2 Prevalence of stunting (HAZ)

The anthropometric index of height-for-age (HAZ) is a measure of a child's linear growth for age. A child with below -2SD HAZ is considered as short or stunted. Stunting condition indicates to the cumulative effect of chronic malnutrition of the child.

Table 7.7 below presents the stunting status (height for age Z) of children and it shows that, about 59 percent of them are found to be not-stunted or with their usual height compared to their age. The prevalence among the girls and boys are very close (girl: 60.2 percent, boy: 56.9 percent). Contrary to this, 28 percent of them are found to be chronically malnourished or stunted (<-2 SD), where the proportion is almost same (girls: 26.6 percent, boys: 29.3 percent). Almost equal proportion of both boys and girls are found to be severely stunted (13.2-13.8 percent). The situation is almost similar to national status with 15.3 percent children being severely stunted and 26.0 percent stunted nationally (BDHS-2011:164). The situation of non-stunting of boys and girls in Kalapara upazila is better compared to other study upazilas. However, the status of severe stunting in children is worse in Daulatkhan upazila. (Table 7.8)

Table-7.7: Stunting status of children (0-59 months) by gender, WASHplus Project 2013

Stunting status of children	Percent		
	Boy	Girl	Both
Severely stunted (<-3 SD)	13.8	13.2	13.5
Moderately stunted (-3SD to <-2SD)	29.3	26.6	28.0
GAM*: Total stunted (Up to<-2SD)	43.1	39.8	41.5
Not stunted (\geq -2SD)	56.9	60.2	58.5
Average Z score	-1.71	-1.70	-1.71
N	689	655	1339

* GCM=Global Chronic Malnutrition

Table-7.8: Stunting status of children (0-59 months) by gender by upazila, WASHplus Project 2013

Stunting status of children	Percent									
	Daulatkhan		Char Fasson		Kalapara		Golachipa		All	
	Boy	Girl								
Severely stunted	18.7	23.2	16.6	14.0	6.2	5.3	14.8	8.5	13.8	13.2
Moderately stunted	29.9	24.5	33.6	29.4	26.6	26.3	26.5	27.4	29.3	26.6
GAM: Total stunted	48.1	47.7	49.3	42.1	33.1	31.8	41.3	35.3	43.1	39.8
Not stunted	51.5	52.3	49.8	56.6	67.2	68.4	58.7	64.1	56.9	60.2
Average Z score	-1.8	-2.0	-1.9	-1.7	-1.4	-1.4	-1.7	-1.6	1.71	1.70

N	134	151	223	235	177	152	155	117	689	655
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• **7.1.3.3 Prevalence of underweight (WAZ)**

Weight-for-age (WAZ) is a composite index of WHZ and HAZ for a child. This index does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting) of the child.

Findings (in Table 7.9) show that about 70 percent children are found to be not-underweight ($\geq -2SD$). No gender variation is found in this regard (girls: 69.4 percent, boys: 69.7 percent). Contrary to this, 30 percent of them are malnourished or underweight ($< -2SD$); almost equal for girls and boys (30.6-30.3 percent). In case of severely underweight there is little difference between boys (6.9 percent) and girls (8.6 percent). The situation of underweight seems slightly better compared to national estimates of severely underweight (10.4 percent) and moderately underweight (36.4 percent). (BDHS-2011:164). There is no remarkable difference in status of underweight between the study upazilas. (Table 7.10)

Table-7.9: Underweight status of children (0-59 months) by gender, WASHplus Project 2013

Underweight status of children	Percent		
	Boy	Girl	Both
Severely Underweight ($< -3 SD$)	6.9	8.6	7.7
Moderately Underweight ($-3SD$ to $< -2SD$)	23.4	21.9	22.7
GAM*: Total Underweight (Up to $< -2SD$)	30.3	30.6	30.4
Not Underweight ($\geq -2SD$)	69.7	69.4	69.6
Average Z score	-1.43	-1.51	-1.47
N	725	684	1409

Table-7.10: Underweight status of children (0-59 months) by gender by upazila, WASHplus Project 2013

Underweight status of children	Percent									
	Daulatkhan		Char Fasson		Kalapara		Golachipa		All	
	Boy	Girl								
Severely Underweight	9.5	11.4	8.2	10.4	3.3	5.9	6.6	4.8	6.9	8.6
Moderately Underweight	25.2	28.5	27.6	19.7	20.0	19.7	19.9	20.8	23.4	21.9
GAM: Total Underweight	34.1	39.9	35.8	30.1	23.3	25.7	26.5	25.6	30.3	30.6
Not Underweight	65.3	60.1	64.2	69.9	76.7	74.3	73.5	74.4	69.7	69.4
Average Z score	-1.5	-1.7	-1.6	-1.6	-1.3	-1.4	-1.3	-1.3	1.43	1.51
N	147	158	232	249	180	152	166	125	725	684

In various other studies, it is found that there is a linkage with diarrhea and nutritional status of children under age five. Some analyses have been done on the use of water for drinking as well as cooking or washing utensil purposes with diarrhea and nutritional status; use of sanitation with diarrhea and nutritional status; handwashing practices with diarrhea and nutritional status. An insignificant relationship is found only in handwashing behavior (before eating, after cleaning child's feces, before feeding child) and nutritional

status of children. Number of diarrhea cases found was very small in all study upazilas, which could not show any precise relationship.

7.2 Disability among the household members

Regarding disability of any kind in the household members only one percent of the respondents provided some positive response, while 99 percent did not provide such report (Table 7.11). Nature of disability includes visual impairment, hearing impairment, physically handicap, intellectual retardation and speech impairment.

Table-7.11: Status of disability in the household member, WASHplus Project 2013

Status of disability	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
No disability	99.5	98.8	99.4	98.6	99.0
Visually impaired (problem in eye)	0.1	0.1	0.2	0.2	0.1
Hearing impaired (problem in hearing)	0.1	0.3	0.0	0.1	0.2
Speech impairment	0.0	0.1	0.0	0.1	0.2
Physically handicapped	0.2	0.5	0.3	0.8	0.5
Intellectually retarded	0.0	0.1	0.1	0.1	0.1
Mentally retarded	0.1	0.2	0.1	0.1	0.1
n (number of household members)	1679	2652	1658	1650	7639

Key Findings of Child Health and Anthropometry, WASH Project-2013

The prevalence of diarrhea among children age 0-59 month in the study area during two weeks prior to the survey is 19%. (Boy: 19.3 percent, Girl: 19.0%). The prevalence is higher in Daulatkhan and Char Fasson upazilas compared to others.

- About 10% overall are wasted (<-2SD), whereas about 8% are moderately wasted and 2% are severely wasted. The same situations are found in all study upazilas.
- About 42% of them are found to be stunted or short with their usual height compared to their age. This proportion is comparatively lower in Kalapara upazila.
- About 30% of the children were malnourished or underweight (<-2SD); the situation was almost similar among girls and boys (30.6-30.3%) There was no remarkable difference was found among the study upazilas.

8.ACCESS TO HEALTH INFORMATION

Chapter Eight discusses access of household respondents and community people to information related to health and hygiene. As part of the discussion, this chapter discusses exposure of household respondent to messages and the source of messages about handwashing, drinking safe water, need of a latrine in the household. All references are to the period three months prior to the survey. Also, this chapter sheds light on the findings related to respondents' knowledge about activities taking place in the area on stopping open defecation in the three months prior to survey and the source and type of information about diarrhea during the same three-month period (prior to the survey), knowledge of the type of issues on diarrhea that the media covered and respondent mother's knowledge about causes of diarrhea among children.

8.1 Exposure to messages about handwashing and source of message

Household respondents (mother or caregiver of children under five) were asked about whether they came to know any information or received any messages on handwashing during the three months prior to the survey and from which source(s). The responses are placed in Table 8.1. Findings reveal that over one fourth of them (27.1 percent) have received such messages. Among those who received messages, most received them from "Govt. health worker" (39.5 percent), followed by "NGO health worker" (20.8 percent). About 14 percent received it from radio and/or TV. However, a few of them mentioned other sources, such as, "health center," "community clinic" and "school children" (4.6 percent each). The proportion exposed to of handwashing messages are more or less similar by upazila.

Table-8.1: Exposure to messages about handwashing in three months prior to survey and its source, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Exposed to information/messages about handwashing during three months</i>					
Yes	23.7	27.3	25.7	31.8	27.1
N	76.3	72.7	74.3	68.2	1455
<i>Source of information/messages (multiple responses)</i>					
Govt. health worker	45.9	52.6	21.8	32.3	39.5
NGO health worker	1.4	10.4	48.3	25.3	20.8
NGO worker	6.8	13.3	16.1	23.2	15.2
Radio/TV	25.7	10.4	10.3	12.1	13.7
Health center	2.7	4.4	2.3	8.1	4.6
Community clinic	6.8	6.7	1.1	3.0	4.6
School children	2.7	7.4	3.4	3.0	4.6
Others*	10.8	2.2	1.1	0.0	3.0
N	74	135	87	99	395

Others*: Union Parishad, village theater, meeting, neighbor, school teacher, courtyard meeting

8.2 Exposure to messages about drinking safe water and source of message

Household respondents were also asked whether they learned about drinking safe water (e.g., “drink safe water” or “drink water after making it free from germs”) during the three months prior to the survey, and if any, from which source(s). Their responses in Table 8.2 show that over one fourth of them (26.7 percent) have received such messages. Among those who received such messages, it was primarily from “Govt. health worker” (39.9 percent), followed by “NGO health worker” (20.9 percent). Further, 17 percent and 14 percent respectively received such messages from radio/TV and NGO worker. However, few mentioned other sources, such as, “health center,” “community clinic,” and “school children,” and “others” with the range from 2.3 percent to 4.9 percent. All upazilas were found to be similar, except Golachipa where the proportion getting messages about drinking safe water was higher compared to the other upazilas.

Table-8.2: Exposure to message about drinking safe water in three months prior to survey and its source, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Exposed to information/message about drinking safe water during three months</i>					
Yes	24.7	23.1	25.4	35.7	26.7
No	75.3	76.9	74.6	64.3	73.3
N	312	494	338	311	1455
<i>Source of information/message (multiple responses)</i>					
Govt. health worker	46.8	59.6	20.9	29.7	39.9
NGO health worker	1.3	9.6	52.3	21.6	20.9
Radio/TV	31.2	9.6	11.6	18.9	17.0
NGO worker	6.5	11.4	11.6	22.5	13.7
Health center	0.0	7.0	2.3	8.1	4.9
Community clinic	5.2	3.5	2.3	2.7	3.4
School children	6.5	1.8	4.7	2.7	3.6
Others*	7.8	2.6	0.0	0.0	2.3
N	77	114	86	111	388

Others*: Union parishad, village theater, neighbor, school teacher, courtyard meeting

8.3 Exposure to message on need of a latrine in the household and source of message

Household respondents were also asked about whether they received any message on need and usefulness of a latrine in the household during the three months prior to the survey along with its source(s). Their responses are presented in Table 8.3, which shows that slightly less than one fourth of them (23.8 percent) have received such messages. Among those who received the messages, about 43 percent received such messages from “Govt. health worker,” while 22 percent from “NGO health worker,” and 15 percent from NGO worker. Further, 11 percent received such messages from radio/TV and 7 percent from a health center. Some respondents mentioned other sources, e.g., “community clinic” and “school children” and “others,” which ranged from 1.7 percent to 3.5 percent. More or less similar findings are obtained for all upazilas except Golachipa where receiving any message on need and usefulness of a latrine in the household is slightly higher.

Table-8.3: Exposure to message about need of latrine in the household in three months prior to survey and its source, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Exposed to information/message about need of a latrine in the household</i>					
Yes	22.4	20.0	22.8	32.2	23.8
N	312	494	338	311	1455
<i>Source of information/message (multiple responses)</i>					
Govt. health worker	45.7	66.7	18.2	35.0	42.5
NGO health worker	1.4	8.1	51.9	26.0	21.7
NGO worker	7.1	11.1	15.6	24.0	15.0
Radio/TV	28.6	7.1	6.5	8.0	11.3
Health center	4.3	9.1	2.6	9.0	6.6
Community clinic	7.1	3.0	3.9	1.0	3.5
School children	5.7	2.0	2.6	2.0	2.9
Others*	7.1	1.0	0.0	0.0	1.7
N	70	99	77	100	346

Others*: Union parishad, village theater, neighbor, school teacher, courtyard meeting

8.4 Knowledge of programs to stop open defecation

Household respondents were asked about whether any program was arranged in the village or area with an aim to stop open defecation during the three months prior to the survey and whether the village has ever been granted “open defecation free” status. About 16 percent reported that such a program or activities were arranged during the mentioned time period, and slightly over half (50.9 percent) of them mentioned “courtyard meeting” as the activities arranged under the program, followed by “meeting” (30.2 percent). Some mentioned “radio/TV performance” (9.1 percent) and “rally” (8.2 percent) or “street drama,” “meeting in the tea stall” and “video show in the hat/market/tea stall (1.3-3.4 percent each). The findings are more or less the same in all study upazilas. Though some activities regarding “open defecation free” were carried out in the study areas, the effect of such activities is not very evident.

Table-8.4: Knowledge on program on stopping open defecation in three months prior to survey, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Program on stopping open defecation arranged in the area during three months</i>					
Yes	11.9	15.6	16.3	20.3	15.9
N	312	494	338	311	1455
<i>Type of activities under the program arranged (multiple responses)</i>					
Courtyard meeting	78.4	37.7	36.4	63.5	50.9
Meeting	13.5	28.6	50.9	23.8	30.2
Radio or television performance	2.7	10.4	7.3	12.7	9.1
Rally	0.0	18.2	7.3	1.6	8.2
Meeting in the tea-stall	0.0	2.6	10.9	0.0	3.4
Street drama	5.4	5.2	0.0	1.6	3.0
Video show in the hat/market/tea-stall	2.7	1.3	1.8	0.0	1.3
Others (training course of ANSAR/VDP and discussion with school teacher or school children)	0.0	2.6	0.0	0.0	0.8
N	37	77	55	63	232

8.5 Exposure to information about diarrhea and source of information

Household respondents were also asked whether they received any message or any information about diarrhea during the three months prior to the survey along with its source. Over one fourth of respondents (27.4 percent) said they have received such messages. Among those who received messages, about 45 percent of them have received it from “Govt. health worker,” while 15 percent each from “radio/TV,” “NGO worker” and NGO health worker. About 3.3-7.8 percent have received such messages from a health center, community clinic, school children etc. All upazilas were found to be more or less similar in receiving such message, except Golachipa where it is higher.

Table-8.5: Exposure to information about diarrhea during three months prior to survey and its source, WASHplus Project 2013

Indicators	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
<i>Exposed to information about diarrhea during three months</i>					
Yes	27.9	24.5	23.1	36.0	27.4
N	312	494	338	311	1455
<i>Source of information about diarrhea (multiple responses)</i>					
Govt. health worker	51.7	58.7	24.4	38.4	44.7
NGO worker	5.7	13.2	9.0	29.5	15.3
Radio/TV	23.0	9.1	12.8	17.0	15.1
NGO health worker	1.1	9.1	44.9	9.8	14.6
Health center	3.4	12.4	3.8	8.9	7.8
Community clinic	6.9	7.4	1.3	3.6	5.0
School children	3.4	1.7	5.1	0.9	2.5
Others*	8.0	0.8	5.1	0.9	3.3
N	87	121	78	112	398

Others*: Union Parishad, meeting, neighbor, training course of ANSAR/VDP, school teacher, courtyard meeting

8.6 Knowledge on type of issues on diarrhea covered by mentioned sources

The respondents were asked about type of issues covered by the media or sources. Around half mentioned that, “handwashing is necessary before feeding a child or before preparing food for a child,” “handwashing after rinsing child’s excreta” and “treatment of diarrhea.” About 30 percent mentioned “mother to wash hand after own defecation,” while about 17 percent mentioned “dangers of diarrhea” and 13 percent mentioned “when to seek treatment at health facility.”

Table-8.6: Knowledge on type of issues on diarrhea covered by the sources during three months prior to survey, WASHplus Project 2013

Type of issues on diarrhea media covered during three months (multiple responses)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Handwashing before feeding child/before preparing food for child	67.8	58.7	66.7	42.9	57.8
Handwashing after rinsing child’s excreta	48.3	40.5	61.5	62.5	52.5
Treatment of diarrhea	60.9	37.2	53.8	46.4	48.2
Mother to wash hand after own defecation	21.8	34.7	39.7	24.1	29.9
The dangers of diarrhea	10.3	14.0	16.7	17.0	17.1
When to seek treatment at health facility	3.4	12.4	16.7	17.0	12.6

Type of issues on diarrhea media covered during three months (multiple responses)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Others*	3.4	3.3	1.3	6.3	4.4
Don't know	0.0	0.8	1.3	0.0	0.5
N	87	121	78	112	398

Others*: open defecation is a cause of diarrhea, taking of spoiled/stale food is a cause of diarrhea, ailment, not to take uncovered food, pneumonia, not to use latrine without wearing shoes

8.7 Mother's knowledge on causes of diarrhea among children

The respondent mothers were asked about causes of diarrhea among children to assess their knowledge about it; their responses are presented in Table 8.7. Findings indicate that about two thirds of them mentioned that, "eating spoiled or contaminated food items" is a cause of diarrhea, followed by "not washing hands with soap before feeding a child" (44.4 percent) and "drinking impure or contaminated water" (35.0 percent). Also, 25 percent of them mentioned the "not washing hands with soap after rinsing child's excreta," while 16 percent mentioned "not washing hands with soap before preparing food for child." Mother's knowledge about major causes of diarrhea is low in all upazilas.

Table-8.7: Mother's knowledge about causes of diarrhea among children, WASHplus Project 2013

Mother's knowledge about causes of diarrhea among children (multiple responses)	Percent				
	Daulatkhan	Char Fasson	Kalapara	Golachipa	All
Eating spoiled or contaminated food items	72.8	55.6	72.5	62.1	64.6
Not washing hands with soap before feeding a child	25.6	57.0	57.4	29.3	44.4
Drinking impure or contaminated water	21.8	31.6	55.3	31.5	35.0
Not washing hands with soap after rinsing child's excreta	32.1	24.9	23.7	20.6	25.2
Not washing hands with soap before preparing food for child	8.7	20.7	15.1	16.4	15.9
Remaining unclean	8.7	0.6	1.8	5.5	3.6
Eating food polluted by flies/mosquitoes	0.3	0.6	0.9	11.9	3.0
Others (severe hot weather, by using unhygienic latrine, influence of evil spirit)	0.3	1.0	0.9	7.0	1.9
Don't know	3.2	1.0	0.0	0.3	1.1
N	312	494	338	311	1454

Key Findings of Access to Health Information, WASH Project-2013

	<ul style="list-style-type: none"> • Mother's/caregiver's exposure to message about handwashing: 27.1% • Mother's/caregiver's exposure to message about drinking safe water: 26.7% • Mother's/caregiver's exposure to message on need of a latrine in the household: 23.8%
	<p>16% report that any program was arranged in the village or area with an aim to stop open defecation during the three months prior to study. The findings are more or less the same in all study upazilas.</p>
	<p>27.4% of respondents/mothers have received any message or any information about diarrhea during three months prior to study. Among those who have received messages, they have received it from Govt. health worker, NGO health worker, radio/TV, NGO worker. Some proportion of them also received it from health center, community clinic, school children, etc.</p>
	<p>Mother's knowledge about causes of diarrhea among children</p> <ul style="list-style-type: none"> • Eating spoiled or contaminated food items: 64.6% • Not washing hands with soap before feeding a child: 44.4% • Drinking impure or contaminated water: 35.0% • Not washing hands with soap after rinsing child's excreta: 25.2% • Not washing hands with soap before preparing food for child: 15.9%

9. WASH OPERATION AND BUDGET

Numerous ministries in Bangladesh have responsibilities related to water and sanitation services. The Ministry of Local Government, Rural Development and Cooperatives have overall responsibility for monitoring and governing the sector, including policy formulation through its Local Government Division. The DPHE assists municipalities and communities in building water supply infrastructure in all parts of the country, except Dhaka, Khulna and Chittagong city corporation areas.¹⁵

9.1 Contribution of local government institutes

9.1.1 Structure and importance of Union Parishad

A Union Parishad (also referred to as a Union Council or simply Union) is the lowest rural administrative and local government unit in Bangladesh.¹⁶ Each Union is made up of nine Wards. Usually one village is designated as a Ward. There are 4,451 Unions in Bangladesh.¹⁷ A Union Parishad (UP) consists of a chairman and twelve members including three members exclusively reserved for women. UP are formed under the *Local Government (Union Parishads) Act, 2009*.¹⁸ The boundary of each UP is demarcated by the Deputy Commissioner of the District. A UP is the local government body primarily responsible for agricultural, industrial and community development within the area of the union.

Every UP is a body corporate, having perpetual succession and a common seal, with power to acquire and hold property. The functions, with which the UP are entrusted by law, include the following:

- Maintenance of law and order and assistance to administration for this purpose,
- Adoption and implementation of development schemes in the fields of local economy and society,
- Performing administrative and establishment functions, and
- Providing public welfare services.

9.1.2 Activities of Union Parishad

As part of the study, IDIs were conducted with four UP chairmen and information on annual planning and budget were collected through consultation with the secretaries of 22 UP in the study area. IDI were also conducted with DPHE personnel in the respective upazilas. Findings are arranged according to issues addressed to highlight the overall contribution of UP and DPHE to facilitating the use of safe drinking water and hygienic latrines, including awareness of hygienic behaviors by the rural poor in the study area.

Annual Development Plans (ADP)

Annual Development Plans of UPs are prepared to develop infrastructure facilities and services with regard to health, education, water, sanitation, drainage, roads, natural calamity and environment in each ward or village. At ward level meetings with elite and common persons, UP members establish the developmental proposal of their ward. They submit

¹⁵http://en.wikipedia.org/wiki/Water_supply_and_sanitation_in_Bangladesh

¹⁶Khan, Dr. Mohammad Mohabbat (2012) Functioning of Local Government (Union Parishad): Legal and Practical Constraints. Democracywatch.

¹⁷Country paper: Bangladesh (2012). UN Economic and Social Commission for Asia Pacific.

¹⁸Local Government (Union Parishads) Act, 2009 (in Bangla) (2009). Ministry of Law, Government of Bangladesh

respective proposals to the UP Chairman, who brings the proposals of all the wards to the extended UP development meeting that he chairs, and which is attended by all UP members, elite persons of each ward, and representatives of NGOs, family planning offices, teachers, imams of mosques, and all groups and levels of people. After detailed discussion in this meeting, the final development plan of the UP with a preliminary budget is prepared.

Problem identification

Problems to be resolved come up through discussion and from the community people at ward level meetings. UP Chairman and members visit the problem sites and on the basis of their observations and the opinions of the community people, the problems to be addressed are identified.

Priority determination

In preparing project or plans to address the identified problems, priority is given to problem-ridden and neglected localities or communities, to internal problems as well as to problems linking communication systems, safe water, sanitation, agriculture, health and financial assistance. Through discussions with community people and on the basis of their opinions, priorities are determined and plans are prepared. In the case of specific problems or issues where there are definite instructions, guidelines, or circulars issued by the government, priority is determined by following these instructions and Local Governance Support Project 2 (LGSP-2) instructions. In cases where there are no such instructions but only indications, priority is determined accordingly.

Budget preparation

The budget of a UP is open to the community, and it is finalized with their participation in the extended budget meeting chaired by the UP Chairman and participated in by all UP members, elite persons of all wards, and representatives of common people from all walks of life from each ward, NGO and Family Planning Office. All the people mentioned above are invited to attend the budget meeting. Female UP members as well as some female household members attend the budget meeting. They raise the problems of their respective locality or community and participate in discussions. Their problems and opinions are considered, and priority problems are determined. Their opinions regarding budget are also considered. Representatives of common people of all professions and groups attend the monthly ward level meetings for problem identification. They also attend extended budget meetings of the UP, raise problems, and discuss and express their opinion. Their opinions are duly considered in preparing the budget.

Beneficiary Selection

In selecting beneficiaries to receive water and sanitation (WATSAN) assistance from the UP, members of Ward WATSAN Committees visit every household and prepare a list of poor, deprived and disadvantaged households, including those that cannot afford to install tube wells and hygienic latrines, particularly in the areas or locations where water and sanitation problems are serious or acute. The beneficiary households are finally selected from the list at Ward WATSAN Committee meetings.

9.1.3 Role of Union Parishad with WATSAN activities

UPs work on WATSAN activities through WATSAN committees at Union and ward level. The UP chairman is the chairman of the Union Committee, and UP members are chairmen of ward committees. Local elite and non-elite persons are members of these committees. At monthly meetings, these committees select a place for installation of community deep-tube

wells or tube wells, as well as households to which tube wells and hygienic latrine materials will be distributed. They also resolve problems related to water and sanitation. Sometimes Union WATSAN committees make community people aware of the use of safe drinking water and hygienic latrines through meetings and discussions.

Though there are WATSAN committees in each union and ward, many committees do not function well because committee members are not aware of WATSAN activities, do not give importance to them, and do not attend meetings regularly. They should be provided further training on WATSAN matters.

9.1.4 Role of Upazila Parishad about WATSAN activities

Upazila Parishad performs WATSAN activities through the Upazila WATSAN Committee with the Upazila Chairman as the Chairman, the Upazila Nirbahi Officer as the Vice-Chairman, and the Woman Vice-Chair and the Chair of all unions as members. With a view to improving the water and sanitation situation for the upazila, this committee identifies water and sanitation problems and problematic areas or locations through inspection, and allocates funds to Union Parishads to improve the water and sanitation situation. Funds are allocated to the UPs through the Upazila WATSAN Committee meeting on the basis of population and the need of the respective unions. The committee distributes rings and slabs for installation of hygienic latrines to the poor households free of cost. It also improves the latrine and drainage systems.

In addition, Upazila WATSAN Committees provide water and sanitation-related training to the members of Union and Ward WATSAN Committees. The committees also perform awareness raising activities on water and sanitation issues.

9.2 Union Parishad Budget for WATSAN purposes

The study aims to collect data on the annual plan and budget of all the 22 UPs in the study area. Table 9.1 states that most of the UPs (12 UPs) have no annual plan nor developmental plan for water and sanitation purposes. They develop schemes for different development works (e.g., road/culvert construction, drainage, school infrastructure, water and sanitation etc.) after getting confirmation of availability of LGSP fund. However, 3 UPs facilitated DPHE's activities in this regard, and as such those UPs didn't prepare any plan on the WATSAN sector in their annual development plans. Thus, a total of 15 Union Parishads have no proper annual plan for WASH schemes with their own funds. The remaining 7 UPs prepared some plan for safe water and sanitation purposes in their annual or three-year or five-year developmental plans, and they have also allocated some budget with their own funds. DPHE and some NGOs have implemented water and sanitation activities with or without UP's schemes.

UPs have implemented different developmental plans with their own funds, as well as funds received from Upazila Parishad allocation, the government lump sum allocation and LGSP. On the basis of those funds, UPs decided and revised annual plans in their open budget meetings. Table 9.1 shows that six Union Parishads spent 20.6 percent to 26.9 percent of total budget on water and sanitation activities in fiscal year (FY) 2012-13. Less than 10 percent of the total budget was spent in nine UPs last year for this purpose.

Last year, in the budgets of 11 UPs, costs for water and sanitation work were borne from LGSP-2's allocated fund. Among those, four UPs spent more than 20 percent of their planned budget for water and sanitation purposes. However, seven UPs spent the allocated funds

received from LGSP, UP's own fund, the Upazila Parishad fund and the government lump sum allocation. In most cases, UPs spent allotted funds for distribution of rings and slabs for hygienic latrine and installation of tube wells, and LGSP provided a major portion of the funds. It found that 100 percent of the funds provided from LGSP to 12 UPs was for spending on WASH-related schemes and a minimum 33 percent was provided in Dhakhinkhali UP of Kalapara Upazila. However, overall 86 percent of the funds came from LGSP and 14 percent from U's own fund, including Upazila Parishad fund and government-allotted lump sum.

Table 9.1: UP budget and expenditure on WASH activities in the study area for fiscal year 2012-13

Upazila	Name of Union Parishad	Total Budget (Tk.)	WASH plan	Expenditure		Source	Remark
				WASH	% of Total Budget		
Daulatkhan	Madanpur	1477457	-	-	None	ADP	No activities carried on by UP on water and sanitation. DPHE directly implemented these type of activities.
Daulatkhan	Syedpur	3417621	-	-	None	ADP	No specific description available under infrastructure development.
Daulatkhan	Charpata	4205000	√	269000	6.40	ADP & LGSP-2	Cost borne from LGSP fund (87.14%), Union Parishad's own fund (12.86) including Upazila Parishad fund and government lump sum.
Daulatkhan	Dakhhin Joynagar	3361122	-	200000	5.95	LGSP-2	Spent on sanitation purpose only. Entire cost was borne from LGSP fund.
Char Fashion	Char Manika	2682720	-	270000	10.06	LGSP-2	Entire cost was borne from LGSP fund for sanitation purpose.
Char Fashion	Osmanganj	3328800	-	198000	5.94	LGSP-2	Spent on health and sanitation purpose. Entire cost was borne from LGSP fund.
Char Fashion	Char Khalifa	3671332	-	205000	5.58	LGSP-2	Spent on sanitation purpose only. Entire cost was borne from LGSP fund.
Char Fashion	Hazariganj	2013828	-	541000	26.86	LGSP-2	Spent on sanitation purpose only. Entire cost was borne from LGSP fund.
Char Fashion	Kukri Mukri	2071299	-	500000	24.14	LGSP-2	Entire cost was borne from LGSP fund.
Char Fashion	Aminabad	3043500	-	643721	21.15	LGSP-2	Entire cost was borne from LGSP fund.
Char Fashion	Rasulpur	3100000	-	564542	18.21	LGSP-2	Spent on tube well and sanitation purposes.

Upazila	Name of Union Parishad	Total Budget (Tk.)	WASH plan	Expenditure		Source	Remark
				WASH	% of Total Budget		
Char Fashion	Dhalchar	1889900	-	500000	26.45	LGSP-2	Spent on sanitation purpose only.
Char Fashion	Eajpur	2778600	-	185750	6.70	LGSP-2	Spent on sanitation purpose only.
Kalapara	Dhankhali	5548358	√	787691	14.20	ADP & LGSP-2	Cost borne from LGSP fund (33.0%), Union Parishad's own fund (67.0%) including Upazila Parishad fund and government lump sum.
Kalapara	Champapur	4205962	√	960000	22.83	ADP & LGSP-2	Cost borne from LGSP fund (29.86%), Union Parishad's own fund (70.14%) including Upazila Parishad fund and government lump sum.
Kalapara	Chakamaiya	4705938	√	287445	7.11	ADP & LGSP-2	Cost borne from LGSP fund (31.6%%), Union Parishad's own fund (68.4%%) including Upazila Parishad fund and government lump sum.
Kalapara	Dhulasor	3590691	√	740000	20.61	ADP & LGSP-2	Cost borne from LGSP fund (84.5%), Union Parishad's own fund (15.5%).
Kalapara	Laluya	5261593	√	70000	1.33	ADP & LGSP-2	Cost borne from LGSP fund (90%), Union Parishad's own fund (10%), including Upazila Parishad fund and government lump sum.
Golachipa	Rotondi Taltoli	3301442	-	210000	6.36	LGSP-2	Entire allocated fund for infrastructural development was spent for sanitation purposes.
Golachipa	Golkhali	6049998	√	762000	12.60	ADP & LGSP-2	Cost borne from LGSP fund (78.7%), Union Parishad's own fund (21.3%) including Upazila Parishad fund and government lump sum.
Golachipa	Bakulbariya	7440000	-	292000	3.92	LGSP-2	Entire cost was borne from LGSP fund.
Golachipa	Kolagachhiya	7500000	-	-	None	ADP	No water and sanitation cost done in last two FYs. DPHE carried some activities on water and sanitation purposes.

9.3 Role of Department of Public Health and Engineering (DPHE)

DPHE implements program activities to provide safe water and sanitation facilities to the people of this area. At community level, it installs deep tube well as per need of the community and performs maintenance work as and when required. At the household level, it distributes tube wells, rings and slabs for hygienic latrines at reduced cost or free of cost through the UP and installs tube wells and hygienic latrines. Field workers gather information regarding installation of hygienic latrine and tube wells; select sites for installation of community deep tube wells as well as household tube wells and provide technical support in their installation. They prepare a list of out-of-order and broken down tube wells and assist in maintenance.

The DPHE also performs awareness raising activities on the use of safe drinking water and hygienic latrines, and uses meetings at union level to highlight washing hands in a hygienic way. The DPHE provides awareness training to beneficiaries on hygiene and sanitation issues and conducts a sanitation rally every year. In addition DPHE attends WATSAN committee meetings and assists NGOs in their WASH activities.

9.4 Structure and status of bazaar committee

One year after formation, market committees incur expenditures for the salary of night guards and the purchase of furniture for the meeting room. Water management, tube wells, waste disposal and drainage systems at the market places have been installed by different NGOs. The market committees should not bear any financial burden for these expenditures. However, they are responsible for expenditures for the maintenance of the markets. For example, Khayerhat market in South Joynagar UP of Daulatkhan Upazila of Bhola district spends Tk. 15000/month (\$193 USD) for the maintenance of the market. Collection of monthly/weekly contributions from the traders and shop owners is the only financial source for the market committees.

Formation of Market Committee

Market Committees in this area are formed with the representatives of shop owners, local elites, imams of local mosques, representatives of the labor class, and UP chairmen and members through election. In many cases, the UP Chairman becomes ex-officio chairman of the Market Committee. The total number of Market Committee members including chairman and secretary varies (11- 20 people). The tenure of the committees also varies between 1 to 3 years. The UNO approves the elected Market Committees.

Market Committees perform the following activities:

1. Maintaining law and order
2. Development of internal roads
3. Safe water facility
4. Cleaning of market place
5. Appointment of cleaners and night guards
6. Development of drainage system
7. Place allocation to new traders/businessman
8. Proper utilization of funds received from government and non-government organizations for development of market

Condition of the water and drainage system of the markets

The number of tube wells varies according to the size of the market. The hygienic latrine in the market is not cleaned regularly and so it remains unfit to use. The drainage systems in the markets are also in bad condition.

Maintenance of water and drainage system

For want of adequate funds, market committees do not take any initiatives to regularly maintain the existing tube wells, latrines and drainage systems. They do not clean or improve the latrines and drains. Broken down or out-of-order tube wells are repaired by collecting contributions from the shop owners.

A large number of people including permanent shop owners, small traders and purchasers gather in the observed markets, i.e., four unions of four upazilas of Patuakhali and Bhola districts. Well maintenance of the market places and well planned, adequate and up-to-date water management, waste disposal and drainage systems are of prime necessity. Some tube wells, hygienic latrines and drains have been installed in these markets by LGED (government institution) and NGOs. Generally there are five tube wells in a big market, two in a medium market, and one in a small market. But the number of tube wells is insufficient compared to the need; drains are filled up with garbage and wastes. Drain water filled with garbage and filth falls into nearby canals causing contamination of canal water also. The latrines are unclean, unhygienic and unfit to use. There are no cleaners to clean them regularly. In spite of such an unwholesome situation, the market committees, for want of funds, do not take any initiative to develop, improve and maintain the water management, sanitation and drainage systems of the market places. As suggested by the members of the market committees, it would be possible to overcome the problems/impediments if the government provided funds through Upazila Parishad and NGOs came forward to implement the market infrastructure development activities.

9.5 Community development, improvement need and challenges of the WASHplus Project

Community people in the study area, chairman of UP and personnel of DPHE reported some major areas of knowledge and practices/behaviors for safe water, sanitation and hygienic behavior during the study period. The findings are presented below.

Development of the community

- If a household tube well goes out of order, members of the household drink pond water after boiling it to be safe from germs of diseases.
- The out-of-order tube well is repaired with money collected through contribution of all the households using it.
- At present, community people, through media publicity or discussions and rallies organized by different government and NGOs, have learned that it is necessary to wash hands with soap or ash before and after eating and after defecation.
- Community people maintain and repair household tube wells according to the knowledge acquired through a WATSAN committee.

Needs improvement

- Majority of the people of the area use unhygienic latrines.
- Community people do not know how to repair the broken down or out-of-order slab of the latrine.
- Community people often do not want to repair the broken down ring or slab of the latrine.
- Many of the mothers do not wash hands properly before cooking.
- Despite knowing that one should wash hands properly with soap or ash, many of the community people do not practice it, due to lack of behavior change, inability to buy soap or non-availability of sufficient water at the household.
- During the dry season, there is scarcity of safe drinking water and consequently outbreaks of diarrhea occur in the study area.
- During dry season, most of the ponds in the area dry up and pond water becomes salty and spoiled. Thus, many people develop diarrhea or various other diseases when drinking pond water.
- Community people do not get their broken down or out-of-order tube wells repaired by DPHE mechanics because they demand high charges.
- Most of the pit latrines built with rings and slabs are fenced with scrapped tins, leaves or sacks and are not hygienic.
- Community people define “hygienic latrine” as one that is well constructed with pucca construction, well fenced by pucca wall and well covered with pucca or semi-pucca roof.
- Most of the latrines of the area are not water-seal pit latrines, as people are not aware of this type of hygienic latrine.
- Performance of WATSAN committees is not noticeable in the area.

Barriers or challenges to favorable WASH conditions

- One has to remain standing on a queue for a long time and has to waste much time to fetch water from tube wells far away.
- Water seal systems set at the time of installation of hygienic latrine are ultimately broken down by the household head, due to lack of sufficient supply of water into the latrine.
- Members of other households become annoyed with or make disgraceful remarks to a person who goes to fetch water from that household.
- Most of the household latrines are constructed with fewer number of quality rings and slabs. Consequently within a short period of time, the pit is filled up with filth, rings are broken down and filth comes out. But poor families cannot renovate or reconstruct the latrine.
- As rice cannot be boiled well with tube well water, most people of the area use pond water in cooking.
- If a mother goes to fetch water from the tube well of another household leaving her child at home, accidents may occur to the child due to her absence.
- If a mother goes to fetch water from the tube well of another household during cooking, a fire accident may occur during her absence.
- Government allocation of funding is much less than the need.

10. DISCUSSION AND CONCLUSION

The data collected under this baseline survey documents the existing situation in the project area, as it relates to project objectives, and from which WASHplus and USAID will measure progress over the life of the project. This baseline successfully captured measures in all key socio-demographic and WASH areas, and allows the project to set needed targets within our USAID monitoring and evaluation plan.

The targets have been set as follows:

Indicator	Unit of Measure	Baseline Year	Baseline Value	2014 Target	2015 Target
Project Objective: Improved WASHplus Status					
% of children under age five who had diarrhea in the prior two weeks	Percent	2013	19.1	No household measure planned	14.25
Prevalence of wasted children under five years of age	Percent	2013	9.6	No household measure planned	7.23
Prevalence of underweight children under five years of age	Percent	2013	30.4	No household measure planned	27.0
Intermediate Result 1: Increased use of WASH services in marginalized communities					
% of households using improved drinking water source	Percent	2013	98.9	No household measure planned	99.33
% of households using improved sanitation facilities	Percent	2013	63.5	No household measure planned	79.83
% of households practicing safe disposal of child feces	Percent	2013	61.8	No household measure planned	75.55
% of households with a functional handwashing device/station with water and soap	Percent	2013	5.0	No household measure planned	30.50
# of people gaining access to improved drinking water source	Number	2013	NA	39281	16497

Indicator	Unit of Measure	Baseline Year	Baseline Value	2014 Target	2015 Target
# of people gaining access to improved sanitation facilities	Number	2013	NA	10643	5431
# of communities attaining ODF status	Number	2013	NA	230	282
# of households with installed handwashing device /station	Number	2013	NA	28035	13818
Intermediate Result 2: Sustainability of WASH facilities improved					
% of UPs that developed an integrated WASH plan with necessary budget allocation	Percent	2013	68.1	80.0	90.0
# of WARD generated WASH funds	Number	2013	0	179	10
Proportion of allocation for WASH increased in UP annual budget	Percent	2013	0	10	0
Cross-cutting Issue: Improved coordination of WASH – Nutrition Programming					
# of villages targeted by USAID nutrition implementation partners with increased water or sanitation access	Number	2013	0	TBD	TBD
# of materials modified to facilitate water, sanitation and hygiene promotional efforts	Number	2013	0	TBD	TBD
# of people reached with integrated WASH/Nutrition messages	Number	2013	0	TBD	TBD

Many of the baseline findings were foreseeable, as WASH and nutrition conditions in the project area had already been identified by multiple development actors operating there. However, additional nuances in some of the findings serve to sharpen the project focus further, underscoring particular gaps which need to be addressed going forward.

Notwithstanding nearly universal access to tube wells, for instance (98.9 percent), 19 percent of respondents reported their child under the age of five had diarrhea in the last two weeks, and based on anthropometric measures, 28 percent of children were chronically malnourished or stunted. In addition, when “access” data was triangulated with data from the project’s Community Situation Analysis, this secondary analysis revealed that access to tube wells fell far short of national standards. Access averaged over 100 people per well, more than double the Bangladesh national standard of 50 people per water point. Moreover, despite 98.9 percent access to tube wells, 81 percent of respondents reported using surface water as their main source for cooking and cleaning utensils, which calls into question issues of water quality and food preparation practices.

The evidence collected by the baseline survey points the programming toward a number of interventions that will work to both reduce the large burden on existing waterpoints and reduce the health burden potentially caused by both lack of access and use of surface water sources. As a result, project activities are designed to increase the number of tube wells, which will help reduce the average number of people per well, and to implement behavior change communication to address ingrained behaviors relating to use of alternative water sources for cooking and cleaning.

The evidence of diarrheal disease and stunting further underscores the need for sanitation and hygiene improvement in the targeted communities. Baseline findings indicate the poor quality of, and accessibility of latrines, despite high coverage and inconsistent handwashing practices. The baseline survey found that only about 10 percent of the surveyed households have access to improved sanitation facilities, i.e., a water-sealed pit latrine. In addition, 63 percent have a pit latrine with a slab (which may have a broken water seal), and about 19 percent used a “hanging latrine” over the nearby canal or pond, followed by a pit latrine without slab (4.5 percent). The remaining 4 percent defecate in the open or bushes. Further, more than half of those households have latrines that leak into the surrounding area and flood periodically throughout the year. And, only about half of the latrines at households surveyed were “child-accessible”.

Despite the existence of handwashing facilities in more than one-third of households, 86.3 percent of the respondents reported washing their hands in a river or pond adjacent to their homes. These findings point to the fact that latrine promotion alone and emphasis on fixed defecation will not adequately address the issues within the project context. The project must address gaps in latrine quality and handwashing behavior, encouraging households to move up the sanitation ladder towards more hygienic substructures and conducting behavior change communication to encourage proper handwashing at critical times.

In addition, focusing on hygienic latrine promotion through sanitation marketing along with child-accessible latrines will allow WASHplus to strengthen linkages where the project integrates with USAID Feed the Future and nutrition implementing partners. WASHplus intends to conduct a study to help develop appropriate technical solutions to resolve fecal sludge seepage issues. This study will investigate the scientific validity and technical feasibility of sand/earthen envelopment to reduce pathogen loading from pit latrines in the context of the Coastal Belt. This will be done by designing and carrying out a series of field experiments at demonstration plots in project zones.