



Midline Survey: Urban Component of SHEWA-B (GOB-UNICEF) Project



Prepared for

Department of Public Health Engineering (DPHE)
&
Water & Environmental Sanitation Section
United Nations Children's Fund (UNICEF), Bangladesh

Prepared by

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Human Development Research Centre

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Abbreviations

CAP	Community Action Plan
CBN	Cost of Basic Need
CHP	Community Health Promoter
CPP	Community Planning Process
DCI	Direct Calorie Intake
DFID	Department for International Development
DPHE	Department of Public Health Engineering
EMA	External Monitoring Agency
FA	Facilitating Agency
FGD	Focus Group Discussion
GOB	Government of Bangladesh
HDRC	Human Development Research Centre
HH	Household
JMP	Joint Monitoring Programme
MDG	Millennium Development Goal
NGO	Non-Government Organization
PRA	Participatory Research Appraisal
PSU	Primary Sampling Unit
QCO	Quality Control Officer
SHEWA-B	Sanitation, Hygiene Education and Water Supply in Bangladesh
SSU	Secondary Sampling Unit
UNICEF	United Nations Children's Fund
VIP	Ventilated Improved Pit
WATSAN	Water and Sanitation
WHO	World Health Organization

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EXECUTIVE SUMMARY

Background, Methodology and Implementation

The Bangladesh Government, UNICEF and DFID have been implementing the project titled “Sanitation, Hygiene Education and Water Supply in Bangladesh” (SHEWA-B) in both rural and urban areas. A Midline Surveys for this project have been carried out by Human Development Research Centre (HDRC), Dhaka as an External Monitoring Agency for the urban component of SHEWA-B. In the Midline phase of the assignment, data and information has been compared with the baseline data (2009) to understand the changes. Both quantitative data and qualitative information have been collected and triangulated in the analysis. Data and information were collected from 19 intervention pourashavas and 12 control pourashavas.

Household Characteristics

The respondents were drawn from slums and low-income settlements in urban areas of intervention and control pourashavas. Thus, households (HHs) of intervention and control areas are comparable. HH size during the midline survey in both the intervention (4.8) and control (4.6) is almost similar to the national average HH size of Bangladesh in urban area (4.8). Most of the HHs in both the intervention and control HHs are male-headed (similar to the national urban scenario). A 43% of the members in intervention HHs had no schooling, which is 49% in control.

Economic Characteristics

The respondents of the midline survey are pre-dominantly poor, as designed. The estimated average household monthly net income during midline is Tk. 8,647 in intervention and Tk. 7,782 in control pourashavas. The estimated calorie intake per person per day in intervention and control pourashavas are 1,948 kcal and 1,903 kcal respectively, which is lower than the national average calorie intake.

Water: Availability and Access

The pattern of main source of drinking water has remained almost similar since the baseline in 2009. A 81% of the intervention household report shallow tube-well as main source of drinking water, which was 79% during baseline. Use of arsenic contaminated tube-well has been reduced significantly, in both the intervention (currently 0.9% from 4.5%) and control households (currently 2.5% from 6.6%). Gap between poor and non-poor group of people has been reduced significantly in the intervention household regarding access to safe drinking water during the midline compared to the baseline.

Most of the intervention households (92%) get adequate drinking water round the year (i.e., get daily 20 liter of water for all members of household from specific source).

The self-ownership of water-points has been increased by 5 percentage-points (from 32% to 37%).

In both the period (i.e., baseline and midline), water is collected mostly by adult female member (in more than nine-tenth of the cases). Women reported that water collection from the community water-points at night is very difficult for women and there is lack of sufficient light at that place; moreover, the places, where the water-points are located, in many cases, do not provide any scope for privacy for women.

Sanitation and Defecation Practices of Households and Environmental Cleanliness of Community

In the midline survey, individual latrine users are 15%, Shared latrine users are 14.8%, and Community and Public latrine users are 70.2% in intervention areas. Currently, on an average 5.8 HHs are using each of the community/public latrines established by govt. or NGO in intervention communities. About 64% of the HHs under intervention has access to improved sanitation facilities (43% in individual and 21% in shared latrines). Community latrines are available in 34% of the intervention HHs. Latrine is user-friendly to around 80% females, 48% to physically disabled people, and 70% to old aged persons in intervention HHs. Maintenance of privacy is the major problem in females. The most common cause of not using latrine in physically disabled people is 'design – not friendly for them'. Around 85% of the intervention HHs can use latrine during rainy season or flood. Around 24% latrines in the intervention HHs appeared to be 'good/very good/clean'. Around 74% of women, 26% of physically disabled persons, and 66% of older members in the intervention HHs were consulted on type and site of latrines before its installation. Among the individual and shared latrine user intervention HHs 78% children aged 3-9 years defecate in latrine. Children reported of *fear of falling in latrine, latrine is far away, can't change habit and dirty latrine* as causes of open place defecation.

About 32% HHs have appropriate solid waste disposal system and 46% have an appropriate waste water disposal system. In 45% of the intervention HHs no garbage was found very clean. In about 71% of the intervention HHs 'no faeces' were found within the courtyards. Faeces were not visible around the courtyard in about 49% of the intervention HHs.

The characteristics of shared latrines built under SHEWA-B project is as follows: *around 94% roofs and 91% wall of latrines are made of 'CI sheet', 80% floors are made of 'brick with plaster', and 53% pan is made of 'ceramic bend like geese neck'. On average, 8.6 rings have been used in drainage pipe of latrines, 72% have soak pit, and 48% have ventilation pipe. Around 88% users are satisfied.* The characteristics of community latrines built under SHEWA-B project is as follows: *around 90% roofs of latrines is made of 'casting/concrete', 94% wall is made of 'brick', 65% floor is made of 'brick with plaster', and 73% pan is made of 'ceramic bend like geese neck'. On average, there are 1.6 usable rooms for male, 2.0 usable rooms for female in these latrines, around 77% of have water pipe, 16% have basin, and 24% have electric light in every room. Around 45% of users are not satisfied with these latrines.*

The characteristics of small scale drains built under SHEWA-B project is as follows: *average length of drain is 14 feet, width 1.5 feet and depth 1.6 feet. Around 22% of the drains are constructed by bricks and 78% by brick-cement concrete. About 89% of the drains are covered, and in 78% there are adequate advantages for users. Around 89% users reported that they are satisfied.*

Water-Sanitation-Hygiene Related Morbidity and Mortality

Percentage of household reported of any disease during three months preceding the surveys has been reduced by 12.5 percentage-points in midline compared to baseline. Percentage of household reported of water-sanitation-hygiene related diseases has been decreased by 39.4 percentage-points among the surveyed intervention household compared to baseline status. While during the baseline survey the incidences of water-sanitation-hygiene related diseases comprised of 44.5 % of all disease incidences, during the midline survey this proportion has

been reduced to 31.6%. Quite notable reduction was reported in typhoid, dysentery, and diarrhoeal diseases.

In the midline survey, the average number of suffering days and lost workdays per household due to water-sanitation-hygiene related diseases are estimated to be 6.4 days and 1.9 days (during 3 months preceding survey) respectively in the intervention area. However, during baseline survey, due to water-sanitation-hygiene related diseases the average number of suffering days and lost workdays per household were 11.4 and 3.6 days respectively. Average total cost of treatment (during 3 months preceding survey) per household due to water-sanitation-hygiene related diseases has been increased by Tk. 112 since baseline. The average total cost of treatment per household due to other diseases has been decreased by Tk. 212 since baseline.

Among the surveyed intervention households, during the midline survey (2011), water-sanitation-hygiene diseases caused death rate has been reduced to 0.73 from 1.24 (Baseline) per thousand populations.

Hygiene Issues: Knowledge Status, Source of Knowledge, and Observation

In the baseline, while only 9.5% of the community people at household level had adequate knowledge on hygiene, sanitation, and safe water message, now, at midline 70.9% of the community people have adequate knowledge on this issue. The main source of knowledge on the hygiene and sanitation related indicators have been reported as NGO workers during intervention, which was television in the baseline. This surely indicates the positive result of knowledge dissemination interventions of SHEWA-B.

From the Participatory Research Appraisal (PRA) sessions with children- it has been found that practice of washing both hands in critical times is still not satisfactory, though some improvement has been visible in the midline since the baseline. Hand washing practice among the care-giving mother with children at crucial times has been observed; it has been found that the practice level against various indicators, have been improved in last two years. After defecation, 33% mothers wash both hands with soap/ash, which was only 1% in baseline. A 33% mother washes both hands with soap/ash after cleaning baby's bottom, which was 12% during baseline. During the midline survey in 49% households water and soap/ash has been found at convenient place to use after defecation, which was 30% during the baseline (i.e., 19 percentage-points increment).

It has been observed in 28% of the intervention households that platform of the water-points are broken. In 20% cases water is logged around platform. In 79% cases drainage system exists of the water-point platforms. In 41% cases drainage system is connected to govt. drainage system. In 43% cases garbage is found in the drain. In 12% cases animal excreta is found beside the drain.

It has been observed that in 56% of the intervention households drinking water has been kept in a covered pot, which was 44% in baseline- that is, a 12 percentage-points increment has been observed.

Menstrual Hygiene: Knowledge, Source of Knowledge, and Practice

Menstrual hygiene is still a taboo to the adolescent girls in Bangladesh. Knowledge and practice regarding menstrual hygiene management depend on socio-cultural and economic status of that adolescent girl. It has been found that the status of proper knowledge and

hygienic practice of menstrual management has been improved among the adolescent girls during midline survey compared with baseline situation. A greater than 6 and 1.2 percentage point improvement was found in the knowledge and practice level of use of sanitary pad. Two, and one and half percentage point improvement in the knowledge and practice level in washing rags (new and old) with soap and water and 2 percentage point improvement in the knowledge as well as practice level in drying rags in the sun outside house was reported. The main reasons for these progresses were that the community hygiene promoters (CHPs) of the field agencies had constantly conducted campaign program with the adolescent girls through courtyard meetings and also at household level through HH visit. Though some progress is visible regarding hygienic menstrual management, but, there is still much to be achieved. It is important to disseminate relevant knowledge with more emphasis about the prevailing misconceptions in society on menstrual management among the adolescent girls.

WATSAN Scenarios of the Primary Schools

Around 19% schools still do not have any source for water supply in the intervention pourashavas. The condition of the control schools is similar to that of intervention schools. However, functionality status of water points in the school has been improved a bit. About 82% schools of the intervention pourashavas are found to have functional water point; compared to 77% in the baseline survey. Majority (88%) of the non-functional tube wells are repairable- only, efforts are required to put them into order. Round the year water supply status of water sources has improved (95% in midline and 88% in baseline). About 95% of the functional water points have platform and 80% platforms are in good condition. Drainage system of the functional water points has improved from baseline scenario (75% in midline and 40% in baseline). Around 34% schools are having at least one arsenic free tube well and no visible change in this regard has been found since the baseline. All latrines of the schools belong to improved sanitation technologies both in the intervention and control pourashavas. While a bit more latrines have been found functional in the midline survey compared to the baseline, deterioration in the provision of water and cleaning agent in or near latrine has also been noticed. Solid waste disposing arrangement found to exist in more schools in the midline survey (45%) than in the baseline (36%).

Recommendations

Water Related

- ✓ There is a misconception that safe and clean water means arsenic free water only. Thus, it is recommended to disseminate the knowledge on arsenic contamination in a wider manner.
- ✓ Women and people with disability are not adequately consulted about the water-points related issues, which needs to be taken into consideration with more emphasis in future in programme design.
- ✓ Water collection from the community water-points at night is very difficult for women and there is lack of sufficient light at that place; moreover, the places, where the water-points are located, in many cases, do not provide any scope for privacy for the women. These issues need consideration in future programme design.

Sanitation Related

- ✓ Project should give more emphasis on construction and maintenance of community latrines. For maintaining cleanliness of community latrines, people should be encouraged to form committees and be motivated and trained by the project.
- ✓ People using individual and shared latrines should be given technical cooperation for its construction and maintenance.

- ✓ People should be motivated to construct latrines which are user-friendly to females, and to physically disabled and old aged people.
- ✓ To stop open defecation of children 3-9 years the latrines to be prepared should be child friendly as well.
- ✓ Proper water supply and supply of electricity in latrines should be given emphasis by the project.
- ✓ Appropriate solid waste disposal and waste water disposal system should be given more emphasis by the project. People need to be trained for their behavioral change as well.
- ✓ More small scale drains should be built by the project, as it is extremely useful for the people in slum areas.

Hygiene Related

- ✓ Still around 30% people do not have adequate knowledge on hygiene, sanitation, and safe water messages- which needs high priority emphasis.
- ✓ Practice of washing both hands with soap at all the critical time is still not satisfactory- which should be taken care with priority basis.
- ✓ In around half of the cases drinking water is not stored properly- which should be taken into consideration with more thrust in future.

Water-Sanitation-Hygiene Related Morbidity and Mortality

- ✓ Though incidences of water-sanitation-hygiene related diseases like typhoid, dysentery, diarrhoea as percentage of all diseases incidences have been reduced quite notably, incidences of other water-sanitation-hygiene related diseases like pneumonia, malnutrition/anemia, dengue, and arsenicosis have not been changed or increased slightly. Hence, it is suggested to inquire about the plausible reasons for unchaned or slight upward rise of those water-sanitation-hygiene related diseases.
- ✓ It has been found that water-sanitation-hygiene diseases-caused death rate has been reduced to 0.73 from 1.24 (baseline) per thousand population. However, this rate of reduction is considerably less than the reduction rate of overall death rate due to all diseases. Therefore, possible intervention should be designed to reduce the water-sanitation-hygiene diseases – related death rate.

Menstrual Hygiene Management Related

- ✓ It is important to disseminate relevant knowledge with more emphasis about the prevailing misconceptions in society on menstrual management among the adolescent girls.

School Related

- ✓ Signs of improvement in WATSAN scenario were there in the intervention schools due to project demonstration effects and or advance socioeconomic conditions. It is recommended to intervene into these schools with WATSAN services for an early impact in the log-frame indicator.

Key Indicators at a Glance (*Intervention Area*)

Indicator	%	
	Baseline	Midline
Household using improved water source (<i>Goal indicator 1</i>)	96	97
Use of arsenic contaminated shallow tube-well	4.5	0.9
Hardcore poor households using adequate and safe drinking water round the year (<i>Purpose indicator 3</i>)	49	58
Self ownership of water-points	32	37
Households do not face major problem during water collection from community water points	85	75
Households having clean environment around water point (<i>Output indicator 1.4</i>)	41	55
Households keeping their drinking water stored in a covered container (<i>Output indicator 1.6</i>)	44	56
Household having access to improved sanitation facility (individual and shared) (<i>Purpose indicator 2</i>)	55	64
Household having clean latrine (<i>Output indicator 2.2a</i>)	24	12
Households who have an appropriate solid waste disposal system (<i>Output indicator 2.3</i>)	31.8	3.4
Mothers observed to wash both hands with soap after disposing of baby's faeces (<i>Purpose indicator 1</i>)	8	29
Mothers observed to wash both hands with soap after disposing of baby's bottom (<i>Purpose indicator 1</i>)	12	33
Mothers observed to wash both hands with soap before feeding baby (<i>Purpose indicator 1</i>)	2	7
Mothers observed to wash both hands with soap before taking meal (<i>Purpose indicator 1</i>)	1	7
Mothers observed to wash both hands with soap before serving meal (<i>Purpose indicator 1</i>)	1	5
Mothers observed to wash both hands with soap before preparing meal (<i>Purpose indicator 1</i>)	1	9
Mothers observed to wash both hands with soap after defecation (<i>Purpose indicator 1</i>)	1	33
Household having soap/ash and water at convenient place for hand washing after defecation (<i>Output indicator 1.3</i>)	49	30
Household reported of water-sanitation-hygiene related diseases in preceding last three months of survey	58	19
People having adequate knowledge of hygiene, sanitation, and safe water message (<i>Output indicator 1.2</i>)	9.5	70.9
Practice status on use of sanitary napkin/ pad among adolescent girls	9	18
Schools having clean latrines (<i>Output Indicator 1.1a</i>)	77	74
Schools having latrines with soap/ash at convenient place (<i>Output indicator 1.3</i>)	67	44
Schools having an appropriate solid waste disposal system (<i>Output indicator 1.5</i>)	37	45

CHAPTER 1

BACKGROUND, METHODOLOGY AND IMPLEMENTATION

1.1 Background

Bangladesh is committed to achieve the MDGs in the water and sanitation sector by 2015. As per target 10 under MDG 7, Bangladesh has to attain urban population's access to safe drinking water by 100 percent and urban population's access to sanitary latrines by 85.5 percent. Bangladesh's attainment in these regards appears to be on track.

Keeping in view the set targets for 2015, the Bangladesh Government, UNICEF and DFID have agreed to implement the project titled "Sanitation, Hygiene Education and Water Supply in Bangladesh" (SHEWA-B) both in rural and urban areas. As such, with support from UNICEF and DFID, the Department of Public Health Engineering (DPHE) of the Government of People's Republic of Bangladesh is implementing the SHEWA-B (GOB-UNICEF) Project. Under this project, specific interventions are being implemented in both rural and urban areas through SHEWA-B Rural Component and SHEWA-B Urban Component.

1.2 Goal of the SWEWA-B Urban Component

The project aims to improve the standards of hygiene practices and behaviour, within the project areas covering about 30 million people (rural and urban), by 2015 in line with GOB Sanitation and Water Supply targets on a sustainable basis, with special emphasis on ensuring adequate sanitation and safe water supply in un and under-served areas in terms of access to water supply, sanitation, and hygiene education, particularly for the poorest families. The needs of women and children have also to be prioritized in accordance with UNICEF's mandate.

1.3 Objectives of the SHEWA-B Urban Component

The major objectives of the of SHEWA-B (GoB-UNICEF) urban component project are to:

- i. reduce mortality, morbidity and malnutrition due to water and excreta related diseases, especially among poor women and children;
- ii. improve standards of hygiene behaviours on a sustainable basis e.g., hand washing with soap before taking food and with soap/ash after defecation particularly among the poor;
- iii. improve access of safe water in un-served and underserved areas, including those suffering from arsenic contamination; and
- iv. increase sanitation coverage to 100 percent in project areas by 2015 as per GOB goal.

1.4 Project Coverage of Urban Component

The Project is being implemented in 18 Pourashavas, taking one from each of the districts of Narsingdi, Sherpur, Mymensingh, Shariatpur, Comilla, Brahmanbaria, Chapai Nawabganj, Pabna, Panchagarh, Rangpur, Gaibandah, Sirajganj, Narail, Meherpur, Maulvibazar, Sunamganj, Rangamati, and Khagrachari. As per the approval of the GOB, the Pourashavas have been selected based on certain criteria devised by DPHE and demands placed by concerned Pourashava, and with full involvement of the district administration.

1.5 Project Interventions

Both software and hardware elements/activities are to be implemented/carried out under SHEWA–B Urban Component with a view to achieving the project objectives. A set of activities are to be implemented under software component of the project. Different social mobilization activities, various awareness building activities, community planning process, preparation of Community Action Plan (CAP), trainings, communication, meeting/workshop, hygiene promotional activities, monitoring activities etc. are to be implemented under the software component.

Under hardware component, both water sources and sanitation facilities have to be created in local demand and technical feasibility. Different options include: shared latrines (twin pit), community latrines, compost toilets, public toilets, drains, compost plants, and creating piped water facilities. However, the number and type of options are determined by the requirements of the community and requirement varies depending on the local conditions. The hardware requirement comes from the community and is reflected in the Community Action Plan (CAP). Pourashava enjoys flexibility in making necessary adjustment in the design and number of the hardware, based on the site situation.

1.6 Role of Different Stakeholders

Different stakeholders are expected to play specific roles in respect of planning and implementation of SHEWA-B Urban Component. Roles played by them are the vital considerations for successful planning, designing and implementation of different tasks of the Project. The major stakeholders are the ones mentioned below:

- i. Department of Public Health Engineering (DPHE)
- ii. UNICEF
- iii. Pourashava
- iv. Community
- v. Facilitating Agency
- vi. Field Agency
- vii. External Monitoring Agency (EMA).

1.6.1 Role of Department of Public Health Engineering (DPHE)

The Department of Public Health Engineering (DPHE) of the Ministry of Local Government, Rural Development and Cooperatives of the Government of Bangladesh has been implementing the Project. DPHE is responsible for overall management of the Project with the help of a full-time Project Director supported by a Deputy Project Director and the concerned Superintending Engineers, Executive Engineers, Sub-divisional Engineers and Sub-Assistant Engineers of various DPHE Circles/Districts/Pourashavas.

1.6.2 Role of UNICEF

UNICEF has to support the Project as a development partner and is to provide supervision and technical support for effective coordination among different organization at different tiers of hierarchy under DPHE, Pourashava and Field Agencies. The EMA (External Monitoring Agency) and the Facilitating Agency have been engaged by UNICEF, and these agencies would remain accountable to UNICEF for their respective activities.

1.6.3 Role of Pourashava

A pourashava bears the responsibility for operational planning (within the pourashava area), implementing the project interventions, monitoring implementation, and reporting to DPHE.

1.6.4 Role of Community

The community is the center of all activities. It has to participate in the CAP Process and ensure participation of disabled and women. It will take part in participatory monitoring of project activities, play an effective role in selecting site(s) for execution of infrastructure; provide contribution money, form WATSAN Users' Group and select Caretaker, as necessary, for operation and maintenance of the facilities. The community will also monitor the Contractor's work and ensure quality construction of WATSAN facilities.

1.6.5 Role of Facilitating Agency

The Facilitating Agency (FA) is to assist the pourashavas in preparing Integrated WATSAN plan which is the basis for seeking support from the SHEWA-B Urban Component Project. During the implementation phase, the FA is expected to help the Field Agencies and the pourashavas in capacity-building of their staff. The FA is also required to support the Field Agencies in carrying out their overall software activities under the Urban Component of the project.

1.6.6 Role of Field Agency

Specific responsibilities of the Local NGO/Field Agency are to:

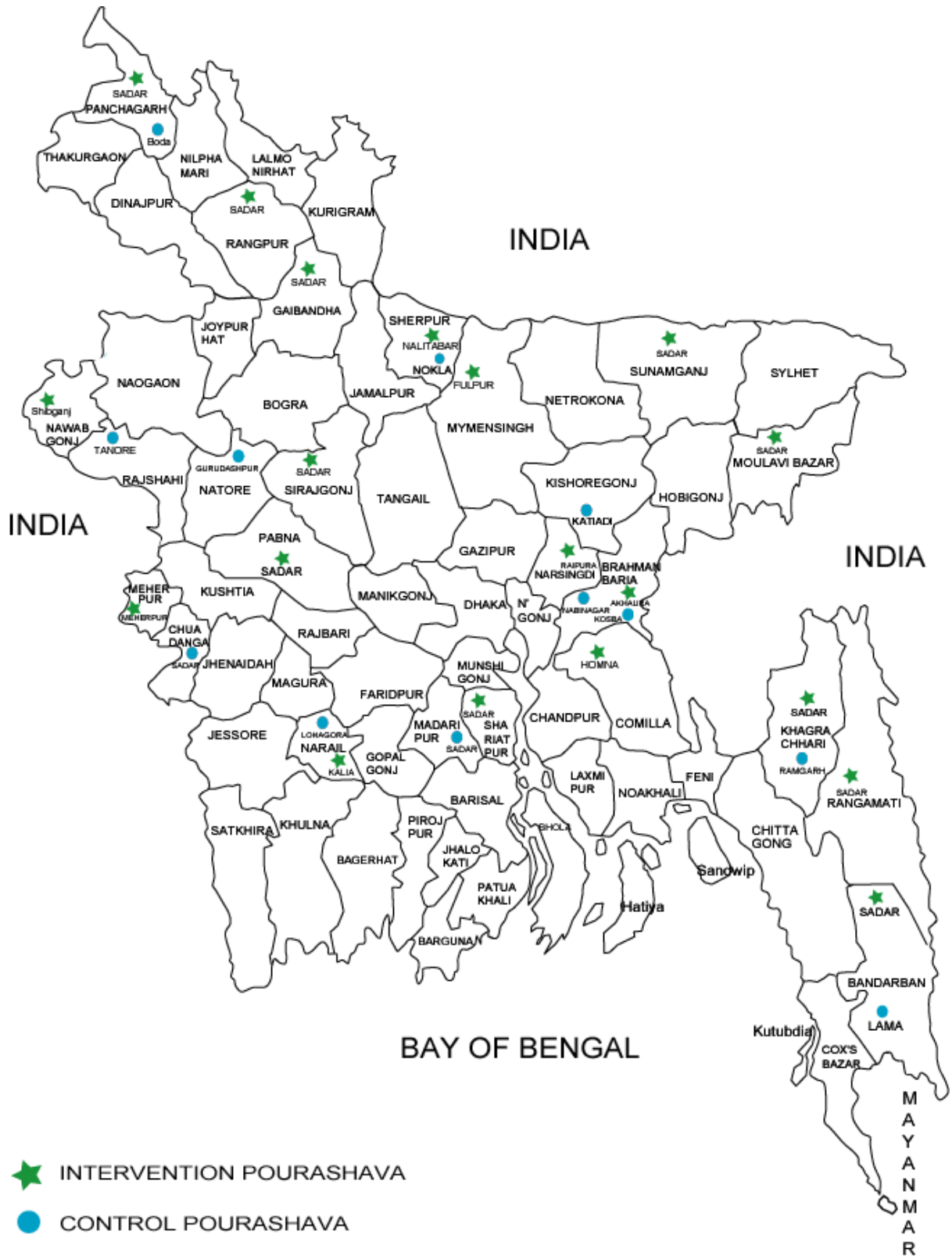
- Assist communities and the Pourashava WATSAN Committee to assess, analyze, plan, implement and monitor their own community-specific hygiene and sanitation improvements activities.
- Assist the pourashava in social mobilization and conducting the Community Planning Process and implementing the software component of the Project.
- Facilitate the Community Planning Process (CPP) and support the community to develop Community Action Plan (CAP).
- Support the pourashava in managing the software activities.
- Mobilize the community and adopt participatory, demand-driven and community-led approaches in facilitating/implementing project activities at all levels.

1.6.7 Role of External Monitoring Agency (EMA) – Human Development Research Centre (HDRC)

The specific roles of the EMA are to:

- Conduct detailed Baseline, Midline and End line Surveys linked to the Log-frame Key Results and Indicators in the project Pourashavas as well as in Control Pourashavas.
- Conduct a Process Monitoring Survey on a regular basis and report quarterly.
- Collect the filled-in monitoring formats compile and tabulate the data at the central level and provide a separate report for participatory monitoring by the community with a brief analysis and interpretation of data in Bangla and English. These reports are separate from the Quarterly Monitoring Reports.
- Provide monitoring feedback to respective Pourashavas, DPHE and UNICEF on a regular basis.

Map 1.1: SHEWAB- Urban Component Intervention Pourashava and Control Pourashava



1.7 Survey Objectives

The Baseline Survey has been conducted with the following Objectives:

- To gather data on the prevailing scenario relating to safe water availability, toilet facilities, sanitation-and-hygiene situation and waste disposal system in the Project clusters;
- To assess socio-economic profile of the targeted families covering the relevant independent variables having potential to explain changes in the dependent variables expected to be influenced by project interventions;
- To collect data from all sources linked with the Log-frame Indicators; and
- To collect data for both quantitative and qualitative assessments of the bench-mark situation.

The Midline Survey has been conducted with the objectives to collect data on the variables covered under the Baseline Survey. The very aim has been to assess the changes might have taken place in the dependent variables during the project intervention period: October 2008 and December 2010.

1.8 Methodology

1.8.1 Evaluation Design

To assess net impact of the project a “Pre-test - Post-test Intervention-Control group Design” will be applied. The True “Pre-test - Post-test Intervention-Control group Design” has been diagrammatically presented below:

Study Group	Pre test (Baseline)	T= Implementation time	Post test (End line)	Impact	Net impact
Intervention Group (E) R	Eb	X= Interventions	Ee	Ee-Eb	(Ee-Eb)- (Ce-Cb)
Control Group (C) R	Cb	-----	Ce	Ce-Cb	

Where,

- E is the Intervention Group which resides in the project clusters and would receive the project benefits through their participation in the project.
- C is the Control Group who neither resides in the project clusters nor would receive any benefit/input from SHEWA-B urban component. They will also not be exposed to any development project for any benefit.
- R refers to use of randomization in the selection process of sampling units.
- T is the implementation time during which the Intervention Group receives project input, while the Control Group does not receive any benefit from the project and nor from any other development project.
- X denotes the interventions.
- Eb is the Baseline Survey value of the Intervention Group in the Log frame Indicator, say Sanitation Knowledge (k).
- Cb is the Baseline Survey value of the Control Group in the same Log frame Indicator k
- Ee is the End line Survey value of the Intervention Group in the same indicator k

- Ce is the End line Survey value of the Control Group in the same Log frame Indicator k
- Ee-Eb is the Gross Change (Impact) in the same indicator k, that has taken place during the project implementation time T. This change includes both the impacts due to project inputs and due to other factors such as contamination, confounding and time/history
- Ce-Cb is the change in the Control Group that has taken place due to other factors, such as contamination, confounding and time/history
- (Ee-Eb) – (Ce-Cb) is the net impact that has accrued to the indicator k which can be attributed to the interventions made under SHEWA-B UC.

1.8.2 Sample Size Determination

In order to determine representative sample size of households-the following statistical formula has been adopted:

$$n = \frac{Z^2 PQ / C^2}{1 + [\frac{Z^2 PQ}{C^2} - 1] / N}$$

Where;

- n = sample size
- P = a dichotomous probability
- Q = 1-P
- N = Size of universe
- Z = Standard normal variate
- C= Precision level (6.5%).

Here, it is to be noted that an approximate value of P = 50%, satisfying normality assumption, has been used with a confidence level of 95% and an allowable precision level.

1.8.3 Sample Sizes

A two-stage random sampling procedure has been adopted for the Survey. Clusters/Slums have been selected as the Primary Sampling Units (PSUs) and then, households selected as the Secondary Sampling Units (SSUs). The whole survey research design has two broad dimensions namely, **Quantitative Survey** and **Qualitative Investigation**. The sample sizes for Quantitative Survey are shown below for Intervention and Control Pourashavas.

Pourashava	Baseline		Midline/ End-line	
	Cluster/Slum	Household	Cluster/Slum	Household
Intervention	160	4816	160	2408
Control	70	1604	70	802

A total of 7-12 clusters were randomly selected for Baseline Survey from each Intervention Pourashava for better representation of the Intervention Areas. On the other hand, 4-10 slums were taken randomly from 5-13 short listed slums for each of 12 Control Pourashavas. Around 30 households (23-34) for each of the Intervention Pourashavas and 23 households (20-26) for each of Control Pourashava were selected randomly for Baseline Survey.

For the Midline Survey same approach has been followed for sampling clusters from intervention and control Pourashavas and the cluster size also remained same as that of Baseline Survey. Only household sample size chosen for the Midline Survey was 50% of that of the Baseline Survey. The cluster and household have been selected with the same random approach as followed for Baseline Survey.

1.8.4 Need for Impressionistic Survey

An Impressionistic Survey was undertaken for the Control Group of clusters as a result of enhancement of the number of Sample Intervention Clusters to 100%. Due to this enhancement of sample size in the Intervention Group, similar enhancement of sample size in the Control Group got necessitated, which could normally be near-impossible to accomplish within the budgeted time and funds available. In this context and in order to complete the survey in a sound manner, familiarity to existing WATSAN Interventions in the Control Group was also necessary. As DPHE, UNICEF and HDRC were not familiar to all such interventions in the Control Clusters, an Impressionistic Survey over there was conducted in addition to the subsequent Questionnaire-based Survey in the Control Clusters.

1.8.5 Objectives of the Impressionistic Survey

The Impressionistic Survey aims to help identify Control Pourashavas similar, if not identical, to the Intervention ones. The ideal situation is that both the Intervention Pourashavas and Control Pourashavas are similar in respect of the key socioeconomic and cultural conditions of their residents as well as in the environmental/external variables that may influence the dependent variables, in which changes are expected because of interventions. As such, the Impressionistic Survey was planned with the following specific objectives:

- To select such pourashavas which are/were/will remain free from confounding effects due to implementation of similar projects in the same pourashavas in present and/or past;
- To select such pourashavas where the control households are not likely to be exposed to contamination effects due to control households' exposure to such places where similar/same projects are being implemented;
- To select control households from similar socioeconomic background so that history/time effects remain similar to both intervention and control households;
- To ascertain that sufficient number of slums/low settlement areas exist in the Pourashavas permitting use of randomization; and
- To ascertain that sufficient number of poor households, similar to those of the Intervention Pourashavas, exist in the Control Pourashavas allowing random selection of households.

1.8.6 Methods Followed in Conducting the Impressionistic Survey

The Impressionistic Survey, given the situation of present and past WATSAN interventions in the urban areas of Bangladesh and cost consideration, required to follow at least the following methodical steps:

- Review of documents and formation of Zones for Intervention Pourashavas
- Review of documents and formation of comparable Zones for Control Pourashavas

- Conducting in-depth interviews with resourceful persons at pourashavas
- Conducting quick count surveys at the slums.

1.8.7 Recruitment and Training of Field Staff

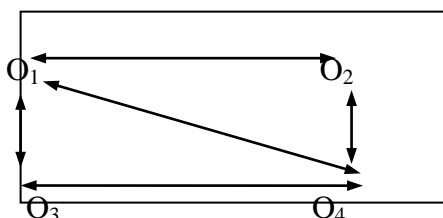
The Field Interviewers, Field Supervisors, Quality Control Officers (QCOs), Coders, Editors, Registration Assistants and Data Entry Operators were recruited through competition and trained centrally at HDRC. All these personnel had been recruited based on predetermined recruitment rules and policy. In selecting these personnel, ‘gender equality’ has been honoured. Special preference was given to those candidates having past experience in field data collection for socio-economic baseline surveys and impact evaluation studies of development programmes in Bangladesh. The selected candidates had been provided intensive training on the relevant methods and on the contents of the DCIs. The candidates also got detailed training on how to administer the DCIs. The survey staff got training both before baseline and midline surveys.

1.8.8 Quality Control Strategy

With a view to ensuring the highest quality of field work for the Baseline and Midline Surveys, supervision has been planned and executed at three tiers: constant supervision at the field level by Field Supervisors, frequent supervisory visits by Quality Control Officers, and telephonic control by senior professionals at the HDRC office. The field operations programs in 30s Pourashavas were stratified in 9 different Zones based on geographic contiguity and prevailing communication network for smooth completion of work in a timely manner both in the Baseline and in the Midline Surveys.

1.8.9 Technical Definitions of Certain Terms

- **Intervention Households** are the ones residing in the project clusters constituted with the poor households living in the most un-served/underserved areas having very limited access to services relating to hygiene, water supply and sanitation. Households meeting at least four of the five conditions (predominantly very poor housing, limited access to water, limited access to sanitary latrines, very low socio-economic status, and high incidence of diarrhea) are chosen as Intervention Households.
- **Control Households** are the ones residing in slums or low settlement areas of the Control Pourashavas. In fact, both Intervention Households and Control Households are the urban poor households living in such situations where sanitation, hygiene and water supply issues are of a very high concern.
- **The Evaluation Design** described under section 1.4.1 permitted measurement of inter and intra-category changes over time, both in the framework of before-after and with-without intervention scenarios, as depicted below (the arrows show possible paired comparison groups). All the possible paired comparisons carried certain specific meanings. However, actual comparison groups were carefully designed in consultation with the design team (HDRC, UNICEF, DFID, DPHE) after in-depth discussion about the relative merits and demerits of each in congruence with the objective of the study.



The four samples: Intervention Baseline (4816), Control Baseline (1604), Intervention End-line (2408) and Control End-line (802)—all were adequate enough to represent their respective population; and the values in the indicators generated by them could be tested for detection of significant differences. As such, the sample sizes allowed detection of significant differences between:

- Intervention and Control Groups at Baseline level.
 - Intervention Group Baseline level and Intervention Group End-line level.
 - Control group Baseline level and Control Group End-line level
 - Change between Baseline and End-line for Intervention Group VS Change between Baseline and End-line for Control Group.
- **Improved Sanitation Facilities** were the latrines of following types used as *Individual facilities only by single families*:
 - Flush or pour-flush toilet/latrine to Piped sewer system
 - Flush or pour-flush toilet/latrine to Septic tank
 - Pit latrine with slab and water seal
 - Pit latrine with slab and lid, no water seal
 - Pit latrine with slab and flap, no water seal
 - Pit latrine with slab but no lid nor water seal
 - Ventilated Improved Pit (VIP) latrine
 - Composting latrine.
 - **Unimproved sanitation facilities** included following types and the above mentioned ones if used by more than one family:
 - If above latrines directly discharge to an open drain, river, lake, pond, canal, open field
 - Latrine with open pit, no slab
 - Hanging latrine
 - Bucket latrine

Open defecation referred to:

- No facility/ Bush/ Field.
- **Direct Calorie Intake (DCI) Method** had been used for estimating **absolute poverty** based on intake of less than 2,122 Kilo Calorie of energy per day per person; and **hardcore poverty** based on per day per capita intake of less than 1805 Kilo Calorie of energy. Calorie intake has been measured for the following food items: rice, ata (wheat flour), puffed rice, fish, meat, egg, milk, pulses, vegetables, potato, edible oil, spices, fruits, sugar and molasses. The calorie values used were as provided by the Food & Nutrition Institute (University of Dhaka) and approved by the Bangladesh National Nutrition Council.
 - **Cost of Basic Needs (CBN) Method** had also been applied for estimating the poverty incidences. The CBN method included the household expenditure on basic need items such as food, clothing, housing, medicine (health care expenses), and education. Household income and expenditure survey -2005 provided the CBN upper and lower poverty lines for the rural and urban areas of the six administrative divisions of Bangladesh. In estimating the CBN upper and lower poverty lines in the survey of 31 Pourashavas, the CBN poverty lines of the concerned divisions have been taken as proxies for the respective pourashava. Since the survey has been

conducted in 2009, the upper poverty lines for the surveyed pourashavas have been estimated, considering 35% inflation rate between 2005 and 2009.

- **Convenient hand-washing place means** inside the latrine and near/closed to the latrine.
- **Adequate knowledge means** knowledge about at least 5 out of the following 11 hygiene

Knowledge:

- Washing both hands with soap before eating
 - Washing both hands with soap/ash after defecation
 - Washing both hands with soap/ash after cleaning child's anus
 - Confirming excreta in pit/water sealed/low cost latrines
 - Using sanitary latrine by all family members including children
 - Disposal of children's feces into sanitary latrines
 - Maintaining sanitary latrines properly by men and women
 - Safe collection and storage of drinking water
 - Drawing drinking water from arsenic safe tube wells
 - Washing fruits and vegetable with tube well water before eating and cover food properly
 - Maintaining proper hygiene during menstruation.
- **Appropriate feces disposal** is used as a proxy of hygienic disposal, which is defined as "disposed in toilet" or "in specific pit" which is either sealed or covered with sand after dumping.
 - **Appropriate menstrual hygiene** is defined as the use of pad or clean cloth, change of the padding material at least 3 times/day, and storing the cloth in a clean place.
 - **Appropriate waste disposal system** refers to an arrangement where a household has a drum or a specific pit, and the waste is disposed in such a way that no waste is observed outside the pit or drum.
 - **Appropriate water drainage** means that a household has either a *drain (constructed with or without concrete and cement)* or a soak pit in order to dump household water waste therein.
 - "If latrine is useable/operational" means whether the latrine is functional.
 - Absence of feces in the pan and platform used as a proxy of **appropriate cleanliness**.
 - **Covered container** means if all the container found in a house is fully covered than the households is considered to store water in a covered container.

Bottle or other narrow mouthed container excluded from the analysis.

1.9 Implementation of the Project and its Baseline and Midline Surveys.

1.9.1 Implementation Plan of SHEWABUC Project

Implementation targets of hardware activities by time references have been presented below. These follow activity targets mentioned in the Project Proposal.

Work item name	Total works to be completed during 5years (2006-2010)	% of item to be completed in					
		Year-1 (Jan-Jun 06)	Year-2 (2006-07)	Year-3 (2007-08)	Year-4 (2008-09)	Year-5 (2009-10)	Year-6 (July-Dec.2010)
i) Pipe water supply	720	0	30.3	30.3	19.4	20	0
ii) Community rain water harvester	32	0	29.7	29.7	21.9	18.7	0
iii) Construction of latrines:							
a) Shared latrine(twin pit)	3600	0	30.3	30.3	19.4	19.4	.6
b) Community latrine(twin pit)	720	0	30.3	30.3	19.4	19.4	.6
c) Compost toilet	360	0	30.3	30.3	19.4	19.4	.6
iv) Construction of public toilet	64	0	29.7	29.7	21.9	18.7	0
v) Construction of drain	32	0	29.7	29.7	21.9	18.7	0
vi) Construction of compost plant	32	0	29.7	29.7	21.9	18.7	0
vii) Tri-cycle van	128	0	29.7	29.7	21.9	18.7	0
viii) Barrel for composting	3200	0	29.7	29.7	21.9	18.7	0
Primary school sanitation and hygiene education:							
i) Construction of WATSAN facilities in primary schools	3776						
ii) Repair of WATSAN facilities in primary schools	3776						
iii) Software activities in primary school	18878						

The above implementation plan has first been changed to 2007-2011 and again changed to 2007- 2012, because of delayed start of the Project as per DFID-UNICEF agreement.

1.9.2 Expected Output/Outcome in the Log-frame Indicators

The expected changes as mentioned in the Log-frame Indicators have been presented below against specific indicators by time reference.

Log-frame Indicators	Expected change	To attain desired change by
(1) Percentage of people preparing food in programme areas practicing hand washing:		
(a) With both hands and soap before preparing food and eating	10 %	2009
(b) With both hands and soap or ash after defecation	50 %	2009
(2) Percentage of all household members using their own or shared improved latrines	90 %	2009
(3) Number of people benefiting from newly installed/renovated improved latrines	3 million	2011
(4) Proportion of poorest household members using their own or shared improved latrines	90 %	2009
(5) Percentage of household using adequate and safe drinking water [arsenic level <50 ppb] all year round	80 %	90 %
(6) Number of people benefiting from newly installed water points	2.1 million	2011
(7) Percentage of people having adequate knowledge of the hygiene and safe water messages	80 %	2008
(8) Percentage of caretakers demonstrating skills to operate and maintain the water points	80 %	2009

Midline Survey: Urban Component of SHEWA-B (GOB-UNICEF) Project

(9)	Percentages of households having soap/ash and water at convenient hand washing place after defecation event	80 %	2009
(10)	Percentages of caretakers of children under five practicing hand washing with both hands and soap before feeding children	10 %	2009
(11)	Percentages of caretakers of children under five practicing hand washing with both hands and soap or ash after cleaning children bottom and disposing their faeces	50 %	2009
(12)	Percentage of adolescent girls practicing appropriate menstrual hygiene	75 %	2008
(13)	Percentage of WATSAN or similar committees functional in development, management and implementation of action plans for hygiene water sanitation behavior	80 %	2008
(14)	Percentage of children under age of five whose faeces are disposed of in a hygiene manner	20 %	2009
(15)	Percentage of open defecation in programme areas	0 %	2009
(16)	Percentage of latrines maintained appropriately (functional and clean)	90 %	2009
(17)	Percentage of households having an appropriate solid waste disposal system (on-site garbage pit or collection) and an appropriate waste water disposal system	70 %	2009
(18)	Number of targeted primary schools having at least two latrines, one for boys and one for girls, which are open, used, functional and clean	To be estimated	2011
(19)	Percentage of targeted primary schools having an appropriate solid waste disposal system	90 %	2009
(20)	Percentage of households keeping their drinking water stored in a covered container	50 %	2009
(21)	New public water points provided to schools and communities conformed to the agreed standard of construction and water quality	90 %	2009
(22)	Existing public and private water points in schools and communities will be monitored for compliance of standard of construction and water quality	5 %	2009

1.9.3 Launching Status of the SHEWABUC Project

Implementation status of the project at the time of Baseline Survey and at the time of Midline survey are shown in the following table.

Launching levels	Baseline Launching status	Midline Launching status
Level 1: WATSAN committee reconstituted	Gaibandha, Sunamganj, Khagrachari,	-----
Level 2: NGO recruited	Meherpur, Shibganj, Shirajganj, Rangpur, Pabna Moulavibazar, Kalia	-----
Level 3: CAP process continues	Panchagarh, Akhaura, Raipura, Nalitabari, Phulpur, Rangamati, Homna, Shariatpur	Sunamganj
Level 4: CAP process complete	-----	-----
Level 5: Hardware and Software implementation Going on	-----	Meherpur, Pabna, Rangpur, Sirajganj, Moulavibazar, Panchagarh, Shibganj, Nalitabari, Shariatpur, Phulpur, Raipura, Rangamati, Homna, Sirajganj, Kalia, Moulavibazar and Khagrachari

Baseline Launching Status

At the time of Baseline survey, Planning and Preparatory activities were continuing for recruiting NGOs in four Pourashavas (Level-1). Besides, NGOs were recruited and the process for recruiting CHP, PF and PC was progressing in seven pourashavas (Level-2). CAP process was going on in eight pourashavas Level-3.

Though as per log-frame targets intensive intervention was planned to be made during 2010, but in reality progress was far from satisfaction. From monitoring it could be known that Community Health Promoters (CHPs) were recruited, trained and they started working at the community level in 17 pourashavas, which was the implementation status of the project. CHPs had first started working in Rangpur Pourashava with effect from 22/03/2009 and last in Gaibandha with effect from 14/01/2010. The other 15 Pourashava authorities recruited NGOs /CHPs in between March 2009 and January 2010. Sunamganj Pourashava was very recently brought under the project and NGO recruited for Sunamganj and The NGO recruited CHPs and trained them for undertaking planning tasks.. Project activities were planned to be implemented during two years time. But for delay in implementation of project activities its implementation period has been extended up to late 2012.s

Midline level implementation Status of project ss

Hardware and Software activities have been implemented in all the 18 project pourashavas. Bandarban Pourashava has been dropped from the project. In fact, installation of water points, sanitation facilities and drains under first work order were nearing completion in some of the Pourashavas while other Pourashavas were also at the last leg of implementation of specific activities under first work order excepting Sunamganj. Processing of second work order is continuing in some Pourashavas. New clusters are also included in the project and CAP preparations for the new clusters are going on.

1.9.4 Implementation Status of the Study by HDRC

As per initial contract between HDRC and UNICEF, HDRC as EMA was mandated to continue monitoring tasks and conduct the End-line Survey within 25 months with effect from October 2008. In fact EMA had completed its first assignment under first contract and continued its monitoring activities up to May 2011 under a second contract. Under the second contract HDRC has also completed Midline Survey. In this situation, specific tasks performed by HDRC during the contract periods are as under:

Specific tasks	Deliverable/end products	Status
Preparation of inception report	Draft inception report	Accepted
Preparation of impressionistic report	Impressionistic report	Accepted
Preparation of draft baseline survey report	Draft baseline survey report	Accepted
Modified baseline survey report	Final baseline survey report	Accepted
Submit 1 st quarter monitoring report	First quarter monitoring report	Accepted
Submit 2 nd quarter monitoring report	Second quarter monitoring report	Accepted
Submit 3 rd quarter monitoring report	Third quarter monitoring report	Accepted
Submit 4 th quarter monitoring report	Fourth quarter monitoring report	Accepted
Submit 5 th quarter monitoring report	Fifth quarter monitoring report	Accepted
Submit 6 th quarter monitoring report	Sixth quarter monitoring report	Submitted, awaiting feedbacks.
Submit 7 th quarter monitoring report	Seventh quarter monitoring report is under preparation	Programmed to submit report by 1 st week of July 2011
Midline report	Midline survey report	Submitted.

1.10 Data Collection for the Midline Survey

Data were collected from 18 Project and 12 control Pourashavas during February-March 2011. A total of 52 Field Interviewers, 9 Field Supervisors and 3 Quality Control Officers were deployed in the field for data collection.

Highlights
<ul style="list-style-type: none"> ✓ Bangladesh is committed to achieve the MDGs in the water and sanitation sector by 2015. Keeping in view the set targets for 2015, the Bangladesh Government, UNICEF and DFID have been implementing a project titled “Sanitation, Hygiene Education and Water Supply in Bangladesh” (SHEWA-B) in both rural and urban areas. A Midline and Baseline Surveys for this project have been carried out by Human Development Research Centre (HDRC), Dhaka as an External Monitoring Agency. ✓ The Baseline Survey has been conducted with the objectives to: 1) Gather data on the prevailing scenario relating to safe water availability, toilet facilities, sanitation-and-hygiene situation and waste disposal system in the Project clusters; 2) Assess socio-economic profile of the targeted families covering the relevant independent variables having potential to explain changes in the dependent variables expected to be influenced by project interventions; 3) Collect data from all sources linked with the Log-frame Indicators; and 4) Collect data for both quantitative and qualitative assessments of the bench-mark situation. ✓ The Midline Survey has been conducted, parallel to Baseline Survey, to collect data from different relevant sources relating to both the dependent/explanatory variables and the linked independent socioeconomic, programme and environmental variable likely to have influence on the dependent variables. ✓ The objective has been to measure the changes in the values of the dependent variables. ✓ Quantitative Survey and Qualitative Investigation have been used in the Baseline Survey. Data were collected from 19 Intervention Pourashavas and 12 Control Pourashavas during 01 June-26 July 2009. A total of 52 Field Interviewers, 10 Field Supervisors and 3 Quality Control Officers were deployed in the field for data collection.

CHAPTER 2

HOUSEHOLD CHARACTERISTICS

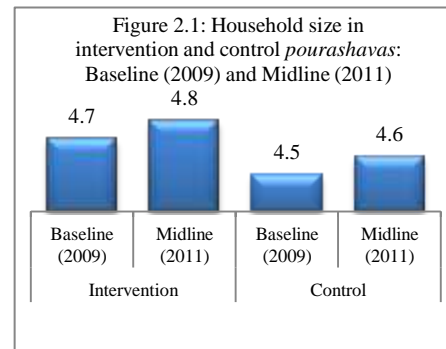
2.1 Introduction

The current chapter depicts characteristics of the midline survey participant households. A HH is defined as a dwelling unit where one or more non-guest persons eat together under a common cooking arrangement (same hearth) and lived (generally slept at night) under the same roof for at least once in last six months; guests are not included). Matrimonial or blood-connected relatives exist among most of the persons who reside in the dwelling.

In the accompanying study, there are two different groups of households surveyed: (i) households in SHEWA-B intervention pourashavas (intervention), and (ii) comparable households in non-intervention pourashavas (control). Pertinent issues like, household size, composition by age, sex of household members, marital status, educational status, occupation, disability status of the household members and household headship by sex are presented in this chapter.

2.2 Household Size and Composition

The midline survey revealed that household size in intervention and control *pourashavas* are almost identical. The intervention *pourashavas* an average household constitutes of 4.8 members, while in control *pourashava* a household on average comprises of 4.6 members (Figure 2.1). It is observed that during time gap between baseline and midline (around 2 years), household size in irrespective of intervention and control *pourashavas* has on average increased by 0.1 persons (i.e., one person increased per 10 households).



Analysis shows that the average number of male and female members per household in intervention and control *pourashavas* is identical. In intervention area there are about 2.4 male members and same number of female members in an average surveyed household (Table 2.1). In control areas a household comprises of 2.3 male persons and same number of female persons. At present in the intervention areas there are 1.7 adult persons and 3.1 children living in a household, while in control areas the respective figures are 2.5 adult persons and 2.1 children. The analysis of male female composition is presented below.

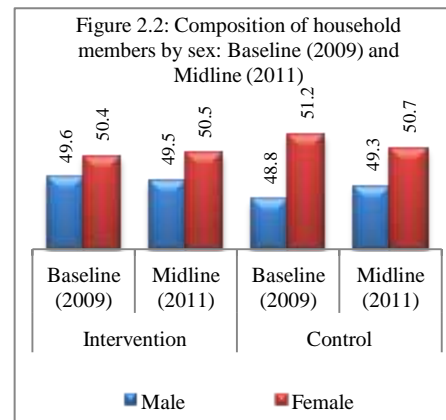
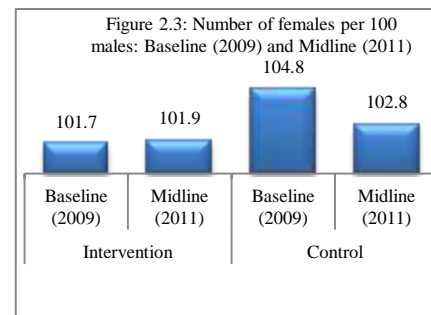


Table 2.1: Composition of household members: Baseline (2009) and Midline (2011)

Selected demographic characteristics	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Household size	4.7	4.8	4.5	4.6
Gender composition				
Male (persons)	2.3	2.4	2.2	2.3
Female (persons)	2.4	2.4	2.3	2.3
Adult-children composition				
Adult (persons)	2.5	1.7	2.5	2.5
Children (persons)	2.2	3.1	2	2.1

Estimates on sexual composition of surveyed population during midline survey shows that there are about 102 females per 100 males in intervention *pourashavas*, where as in control *pourashavas* there are 103 women per 100 males. It is to note that during the baseline the same was 102 and 105 females respectively.



2.3 Age Distribution

The average age of household members during midline irrespective of intervention and control areas has been reported as about 24 years (Table 2.2). However, around 56% of population in both the areas is over 18 years. About 14% of intervention area surveyed population is under 5 years and in control areas the same is about 16%. The detailed age distribution of intervention and control areas during baseline and midline is presented in Figure 2.4 in the form of population pyramid. It is revealed that about 12% of surveyed population in intervention areas is of age between 0 to 4 years and the same is slightly higher in control. Similarly about 5% populations irrespective of intervention and control areas are over 60 years.

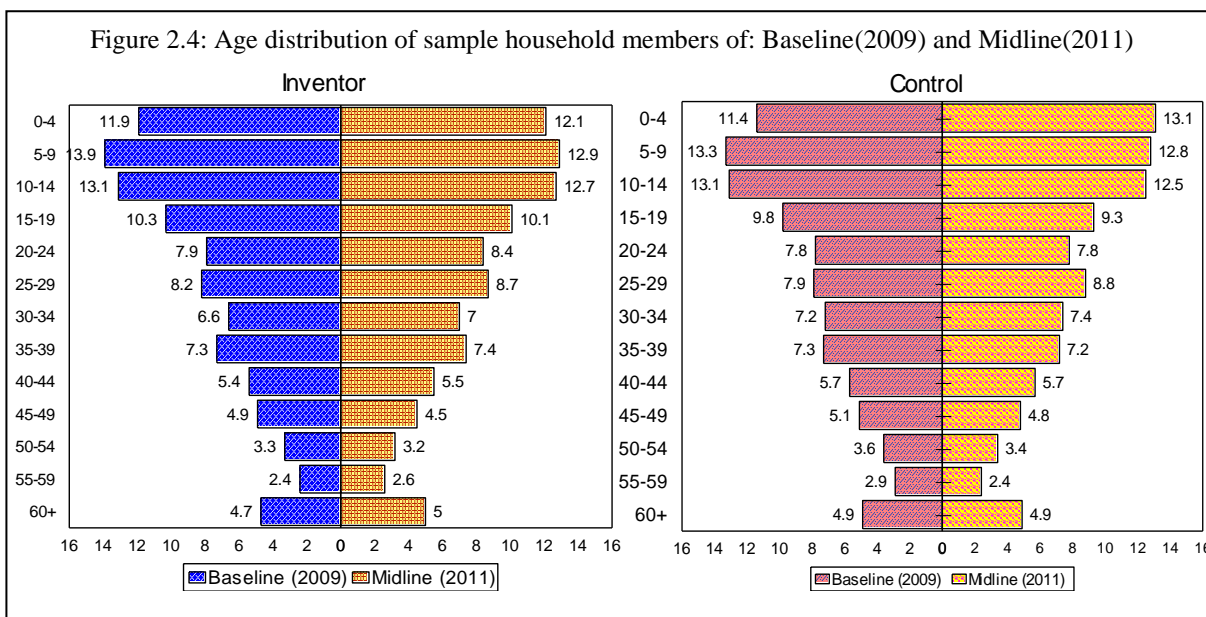


Table 2.2: Composition of household members age categories (%): Baseline (2009) and Midline (2011)

Selected demographic characteristics	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Adult	52.0	56.1	53.1	55.7
Children	47.9	43.9	46.8	44.3
Under5 children	14.5	14.5	13.9	15.9
Mean age of HH population (in yrs)	23.2	24.1	24.4	24.0

2.4 Marital Status

Irrespective of intervention and control *pourashavas* the midline survey found 11 married women per 10 households (1.1/households). During the baseline the same was 10 per 10 households. However, there are one married women of reproductive age in each household regardless of the fact that be it in intervention *pourashavas* or in control (Table 2.3)

It is further revealed that in intervention *pourashavas* about 45% of household members are married; about 6% is widow/widowers and about 1% separated/divorced/abandoned (Table 2.4). The marital status scenario in control *pourashavas* is almost similar. About 47% members married; 5% widowed/widowers and about 2% separated/divorced/abandoned. It is to note that during the baseline survey the scenario was close to that of midline findings.

Table 2.3: Number of married women and women of reproductive age per household: Baseline (2009) and Midline (2011)

Selected demographic characteristics	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
# of married women per household	1.0	1.1	1.0	1.1
women of reproductive age per household	0.9	1.0	0.9	1.0

Table 2.4: Marital status of sample household members: Baseline (2009) and Midline (2011)

Marital status	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Married	43.7	45.4	45.8	46.8
Unmarried	51.9	47.0	49.2	46.1
Widow/widower	0.6	6.3	0.8	5.5
Separated/Divorced/Abandoned	3.8	1.2	4.2	1.6

2.5 Schooling Status of Household Members

The midline survey has identified on the basis of the findings that on average a household member over 6 years in intervention area is almost 4 years, and the same of a household member in control area is little more than 3 years of schooling (Table 2.5). At the time of Baseline the same for both intervention and control *pourashavas* was slightly less.

About 43% and 49% of surveyed population respectively in intervention and control *pourashavas* have no schooling background at time of midline survey. This proportion was higher during the baseline. However, about 53% and 49% household members respectively in intervention and control *pourashavas* have reportedly read up to tenth grade. It is to note that the proportion of the same during the baseline was reportedly much lower. Furthermore,

about 6% of the members of surveyed households in intervention *pourashavas* have at least secondary level of education. The same in control *pourashavas* is almost half of that in intervention *pourashavas*. The same proportion in both the areas during the baseline was reportedly less.

Table 2.5: Schooling status of household members: Baseline (2009) and Midline (2011)

Selected educational indicators	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Educational Status				
No schooling	51.4	43.4	54.7	49.1
Up to primary level (class 5)	29.9	31.9	29.2	30.3
Up to junior secondary level (class 8)	39.7	44.2	38.1	41.6
Up to class 10	45.7	53.0	43.0	48.6
Secondary and above	4.1	6.2	2.6	3.5
Mean years. of schooling (for those 7 years and above)	2.9	3.8	2.6	3.3
Male	3.0	3.9	2.6	3.4
Female	2.8	3.7	2.6	3.2

2.6 Occupation, Sex of Household Heads and Dependency Ratio

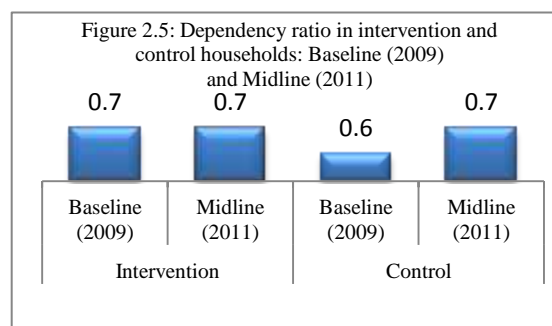
The midline survey has revealed that most of the household heads have their occupation related to non-farm activities and proportion of household heads involved in any agriculture related occupation is substantially low (Table 2.6). Plausible explanation of such scenario is related to the fact that the survey has been conducted in urban areas.

The survey also reveals that about only about one in twelve household heads are females. This scenario is close to national.

Table 2.6: Primary occupation of household head (%): Baseline (2009) and Midline (2011)

Broader field of primary occupation	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Agriculture	10.8	11.4	19.3	16.3
Non-farm activities	81.4	88.6	71.6	83.8
Household heads by sex				
Male	91.3	91.5	89.6	92.1
Female	8.7	8.5	10.4	7.9

The survey further reveals irrespective of intervention and control *pourashavas* the dependency ratio is as high as 0.7 which implies a large proportion of people are in the age group of 0 to 14 years (as it is delineated in the age related section) compared to proportion of people in the age group of 15 to 64 years. The scenario was identical during the baseline survey (Figure 2.5).



Highlights
<ul style="list-style-type: none"> ✓ Likewise in the baseline, the respondents in the current survey were drawn from slums and low-income settlements in urban areas of intervention and control <i>pourashavas</i>. Thus, households of intervention and control areas are comparable. ✓ HH size during the midline survey in both the intervention (4.8) and control (4.6) is almost similar to the national average HH size of Bangladesh in urban area (4.8). ✓ Most of the HHs in both the intervention HHs and control HHs are headed by male members (similar to the national urban scenario). ✓ The sex ratio (number of males per 100 females) varies significantly from the national sex ratio of Bangladesh (urban area: 117.2) in both the intervention HHs (101.9) and control HHs (102.8). ✓ The portion of under five population is 12% in intervention and 13% in control HHs, whereas proportion of 60+ population in both intervention and control areas is about 5%. ✓ There is 1.0 women of reproductive age in each household irrespective of intervention and control areas. ✓ A 43.4% of the members in intervention HHs had no schooling, which is 49.1% in control. ✓ The primary occupation pattern is similar in intervention and control HHs.

CHAPTER 3 ECONOMIC CHARACTERISTICS

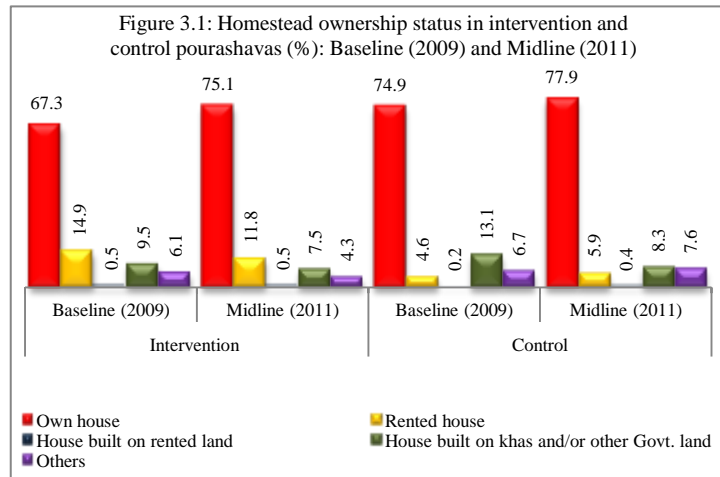
3.1 Introduction

This chapter presents analyses of the economic characteristics (i.e., ownership status of homestead, ownership status of land, HH income, etc.) of the intervention and baseline survey findings are given for better understanding. The accompanying chapter also includes some pertinent issues on food consumption and food security status the status.

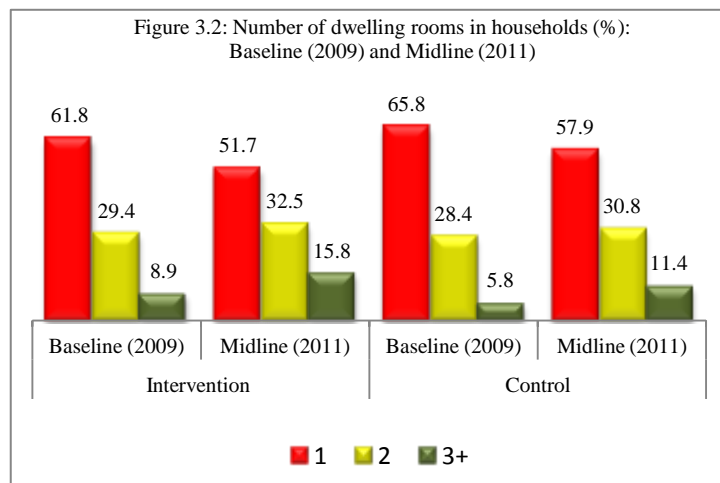
3.2 Ownership Status of Land, Homestead and Assets

The midline survey explored the issues related to homestead ownership, number of rooms used as main dwelling, construction materials of roof, wall and floor of the main dwelling, ownership of agricultural land, ownership of movable assets and household electrification.

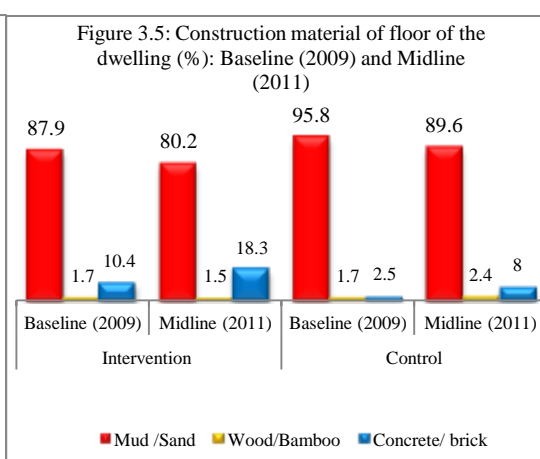
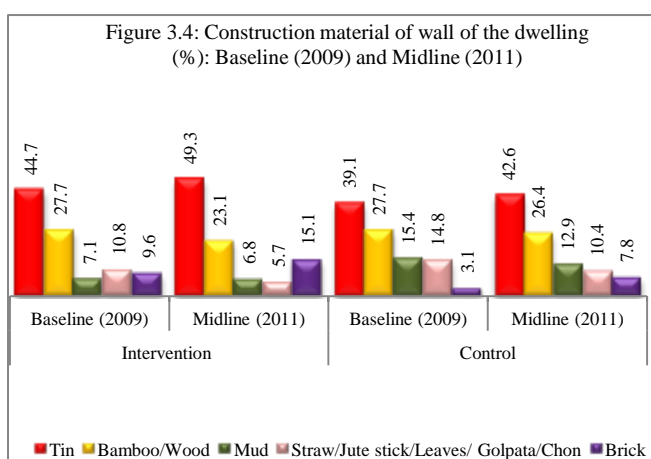
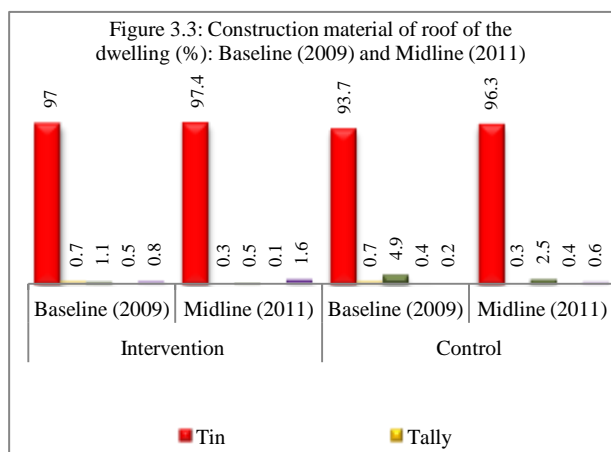
It is revealed that about 75% and 78% household respectively in intervention and control *pourashavas* have house in own homesteads (Figure 3.1). About 12% households in intervention and 6% in control *pourashavas* do not have their own homestead and live in rented houses; while around 7% houses irrespective of intervention and control *pourashavas* are located on khas land and/or land owned by different government agencies. The baseline scenario is also presented in Figure 3.1.



About 52% households in intervention and 58% in control *pourashavas* during midline have only one dwelling room, around 32% households have 2 dwelling rooms (32% in intervention and 31% in control *pourashavas*). During the baseline, proportion of households having more than one dwelling room was less compared to that in current time.

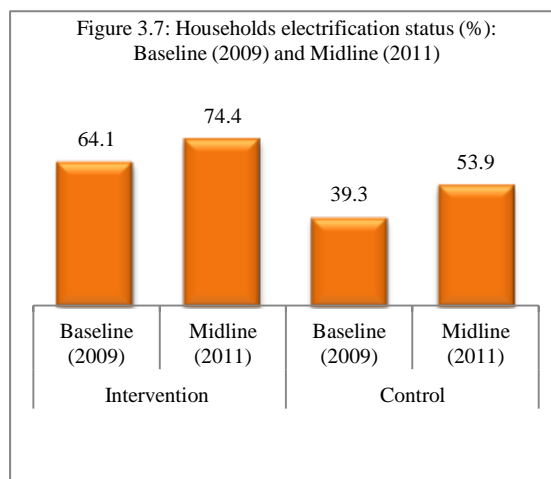
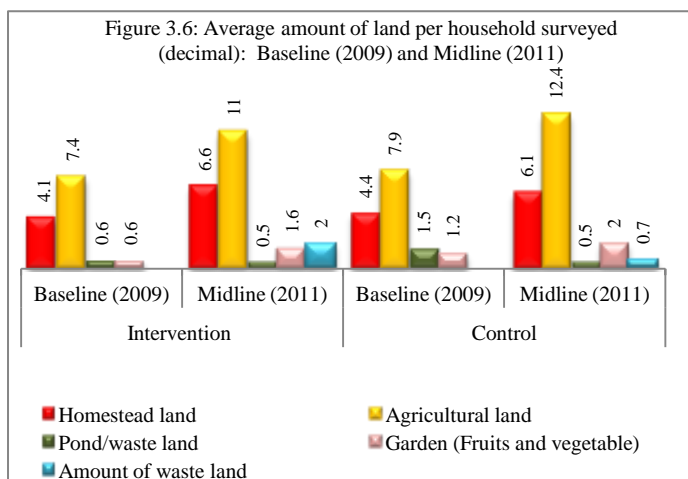


Midline survey reveals that roofs of almost all the households, both intervention and control *pourashavas* are made of tin. The situation was almost similar during the baseline survey. The walls of 49% households in intervention and 43% in control *pourashavas* are made of tin. Around one-fourth of households in both the type of locations have constructed wall with bamboo/wood materials. It is to note that about 15% households in intervention area and 8% in control area have brick walls, while other materials reportedly used for wall construction are mud, straw, jute sticks, golpata or chon. The floor of about 80% households in intervention and 90% in control *pourashavas* are made of mud (i.e., *kacha floors*).

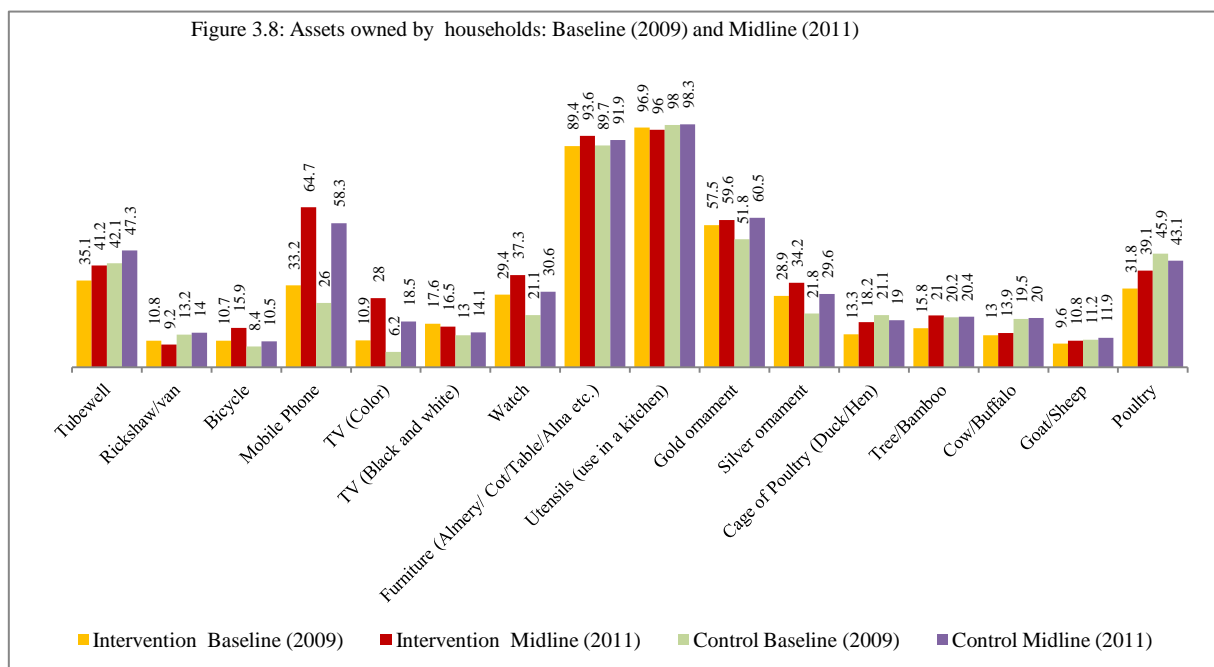


The midline survey has revealed that on average the surveyed households own about 22 decimals of land in both intervention and control *pourashavas*. Both types of households own around 6 decimals of homestead, and agricultural land between 11 decimals and 12 decimals. The average amount of land holding among the sampled households during the baseline survey was less compared to current findings.

The findings show that about 74% households in intervention and 54% households in control households have electricity connections during the midline survey; however the same was much lower at the time of baseline.



The midline survey likewise the baseline has explored the asset ownership scenario of the sampled households. Households altogether have reported about 48 different items (please see Annex Table 3.8). However, irrespective of intervention and control *pourashavas* about 16 type assets have been mentioned by 10% or more percent of households (Figure 3.8). Two most common items that has been reported by almost all the surveyed households during both the surveys (midline and baseline) are (i) utensils and (ii) furniture. About 60% households in both intervention and control areas have reported of owning ornament made of gold.



It is to note that about 42% households in intervention areas and 33% in control areas have either coloured or black and white televisions. The proportion at the time of baseline was substantially low. At the time of midline, about 65% households in intervention area and 58% in the control reportedly have mobile phone, which during midline was 33% and 26% respectively.

About 41% households in intervention and 47% control *pourashavas* during the midline reportedly have tube-wells; while at the time of baseline the same was 35% and 42% respectively.

Around 40% households in both intervention and control *pourashavas* (39% and 43% respectively) have reported of having poultry. At the same time 25% households in intervention and 35% in control *pourashavas* have either cattle or goat.

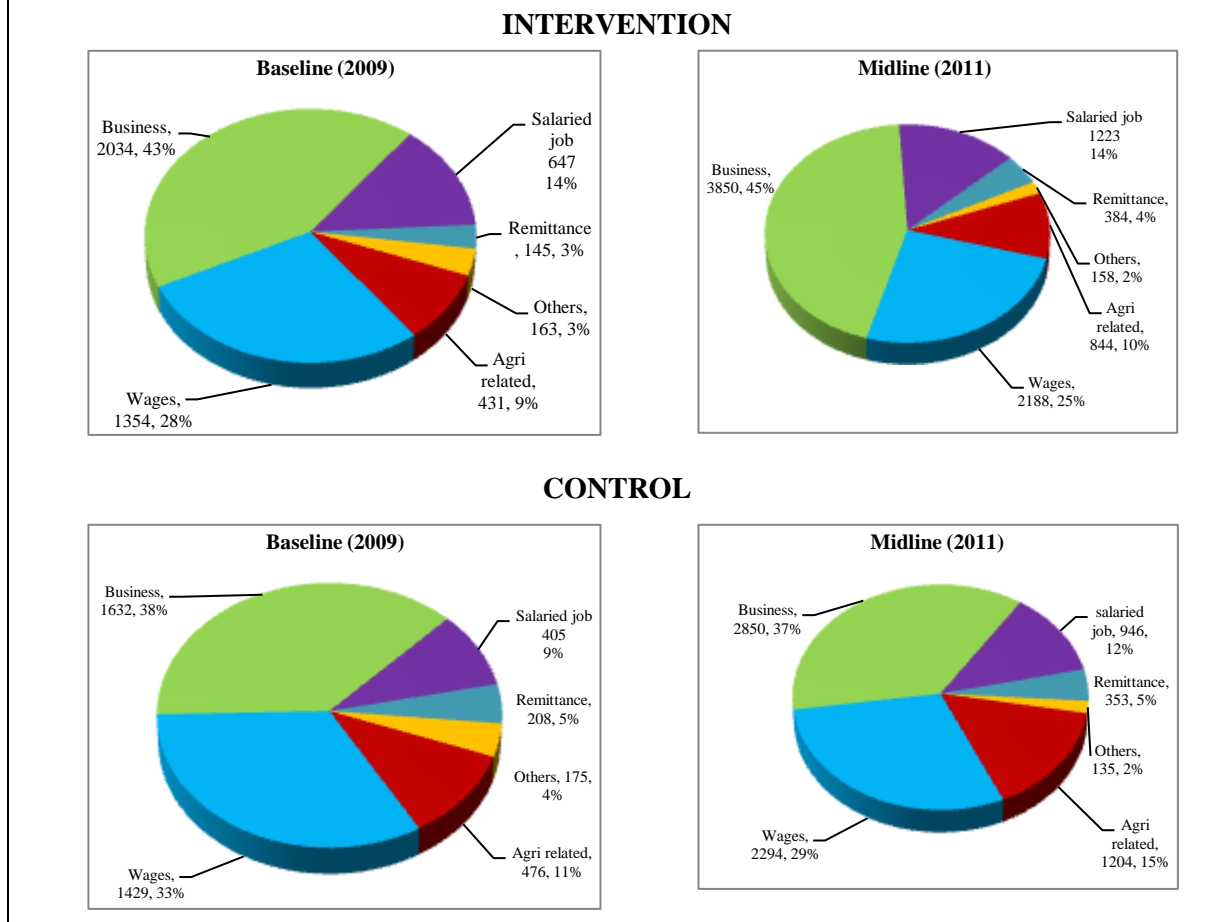
3.3 Household Income, Savings and Credit

The midline survey likewise the baseline explored some pertinent issues related to monthly household net income, current savings and credit received during last two years. It is revealed that on average monthly household net income of the surveyed households comprises of 21 different sources of income. The sources of income have been grouped into six broader categories.

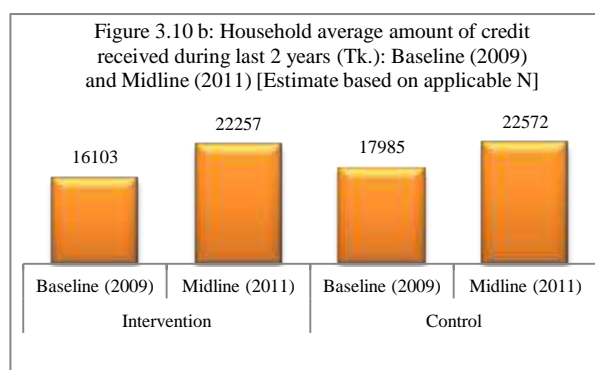
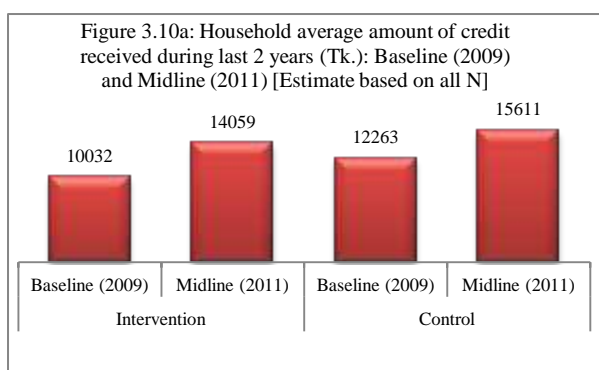
Broader sources	Detailed sources of income
Agriculture related source	Agriculture crops, home garden, fruits, trees/nursery, poultry, livestock, pisciculture, and leased out land
Wages	Agri-labour, Non agri-labour
Business	Grocery, business, house/shop rent, transport, cottage industry
Salaried job	Monthly salary
Remittance	Remittance from abroad
Others	Gift, gratuity/pension, social security, source not yet mentioned

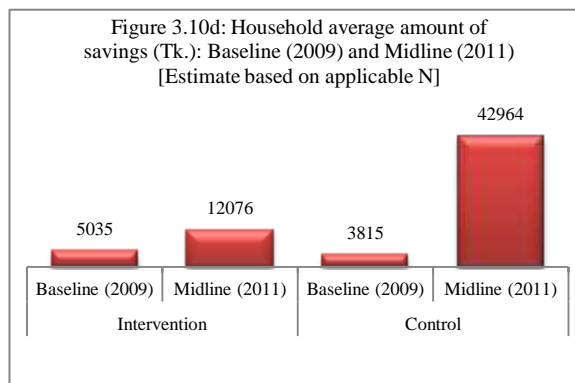
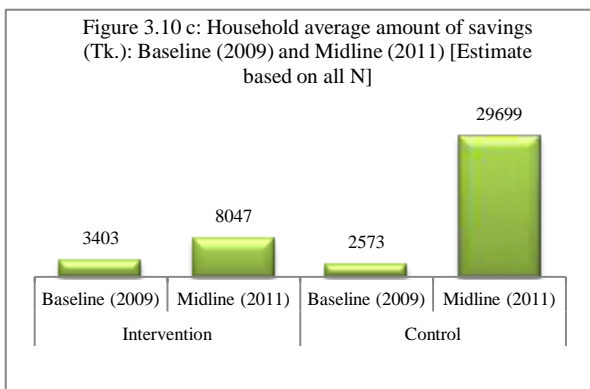
It is revealed that at present (at the time of midline) the average household monthly net income (in current price 2011) in intervention and control *pourashavas* are Tk. 8,647 and Tk. 7,782 respectively (Annex Table 3.9). At the time of baseline the same (in current price 2009) were Tk. 4,774 and Tk. 4,325 respectively. It is found that across the highest amount is contributed from business related activities and is followed by wages (Figure 3.9). Household monthly net income in both intervention and control *pourashavas* has increased during the midline survey compared to baseline. However their composition by sources remained almost same. Moreover, the relative difference between monthly net income of intervention and control *pourashavas* at two survey points also remained almost similar.

Figure 3.9: Average household monthly net income by different income source (Tk.): Baseline (2009) and Midline (2011)



The accompanying survey has revealed that not all the household has availed credit during last two years. However, on average a household (assuming all households received credit) in intervention *pourashavas* has received about Tk. 14,000 as credit and the same for a control *pourashava* household is almost about Tk. 16,000. It is worth to note that for those households who actually received credit the average amount is about Tk. 22,000 in intervention *pourashava* and for control *pourashava* the same is close to Tk. 23,000. It appears that the loaned amount during the baseline survey was about Tk. 6,000 less for an average household in both types of *pourashavas*.





Similarly it has been found not every household had savings. The midline survey has revealed that on average household posses Tk. 8,000 as savings (assuming all the households have savings) in intervention *pourashavas*, for control the same is almost close to Tk. 30,000. However, estimates based on the applicable households show those who reported of having savings on average have about Tk. 12,000 in intervention *pourashavas* the same in control *pourashavas* is about Tk. 43,000.

3.4 Food Consumption Pattern

Like the baseline survey the midline survey has also explored some areas relevant to food consumption. The most relevant person in each household who has the respective information has been interviewed to gather information for this section. The respondents have been requested to share details about food consumption during a representative week (underfeed days and festival days are requested to be excluded).

The estimates thus prepared show that a member of an average household in intervention *pourashavas* uses to take daily altogether 797 gm of different kinds of food item. Almost half of the total intake is rice (48%) and close to one-third (29%) is various types of vegetable (including potato). Only about 1% of daily per person food intake constitute fruit items. In control *pourashavas* the total intake per person per day for an average household is little less (778 gm). However the composition of food items by quantity is almost similar to that of intervention *pourashavas*.

It is to note that although during the baseline per person per day intake was lower than that of current survey in both intervention and control *pourashavas*, but in terms the composition of food items and quantity of consumption by item it was quite similar. However, it is note worthy to mention that the total amount of food intake by an average person is much lower than the recommended 934 gm (Dhaka University, Nutrition and Food Science Institute, Council, 1992), and similar is the situation with composition of the diet.

Table 3.1: Household member's average food consumption per person per day by different food items (gram): Baseline (2009) and Midline (2011)

Income source	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Rice	417.7	384.1	428.1	395.2
Atta	23.6	33.0	10.8	19.5
Puffed rice	5.1	7.6	5.1	7.6
Fish	28.7	43.7	24.9	34.8
Dry fish	3.0	3.1	2.7	2.8
Meat	8.2	10.5	7.0	7.6
Egg	0.1	0.2	0.1	0.1
Milk	14.7	17.9	11.5	16.0
Pulse	11.0	11.0	10.0	11.6
Onion	17.0	24.0	16.1	21.5
Vegetables	131.1	109.7	134.4	121.3
Bamboo shoot	1.7	1.3	1.1	1.2
Potato	47.7	96.8	42.5	89.1
Edible oil	14.3	18.1	13.3	17.3
Spices	3.8	4.8	3.6	4.3
Fruits	20.4	7.5	19.7	5.8
Salt	12.8	13.0	13.5	12.6
Sugar	4.9	6.7	4.3	5.5
Molasses	0.8	1.2	0.9	1.1
Sweetmeat	1.5	2.6	1.5	2.5
Total food	768.0	796.8	751.1	777.6
N	4819	2425	1603	800

The estimates of per capita food-energy intake have been made for both the population groups (intervention and control *pourashavas*) at two points: baseline (2009) and midline (2011). It is revealed that average per capita food-energy intake during both the points of time was much below than the recommended intake required for balanced nutrition (2624 kilocalorie) [Dhaka University, Nutrition and Food Science Institute, Council, *Deshio Khadyadrobyar Pustiman* 1992, 2-33]. Moreover, the average per person per day food-energy intake during both the time period has been observed as much below absolute poverty line and is close to hardcore poverty line.

It is worth mentioning that over two-thirds of the food-energy intake in both intervention and control *pourashavas* is provided from rice. The pattern energy source was similar during the baseline. Furthermore, the protein energy mal-nutrition that was observed during baseline, have also remained unchanged during the midline survey.

Table 3.2: Household members average daily food energy intake from different food items per person per day (kilo calorie): Baseline (2009) and Midline (2011)

Income source	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Rice	1445.2	1328.8	1481.3	1367.5
Atta	81.2	113.5	37.1	67.0
Puffed rice	17.8	26.5	17.6	26.3
Fish	32.2	49.0	27.9	39.0
Dry fish	10.5	10.8	9.5	9.8
Meat	9.3	12.0	7.9	8.6
Egg	14.8	28.6	14.5	25.2
Milk	9.9	12.0	7.7	10.7
Pulse	7.4	7.4	6.7	7.8
Onion	8.5	12.0	8.1	10.7
Vegetables	46.1	38.6	47.3	42.7
Bamboo shoot	3.2	2.4	2.1	2.3
Potato	46.2	93.9	41.2	86.4
Edible oil	128.4	163.3	120.0	156.0
Spices	2.8	3.5	2.6	3.2
Fruits	11.9	4.4	11.5	3.4
Salt	0.0	0.0	0.0	0.0
Sugar	19.5	26.6	17.1	21.9
Molasses	3.1	4.7	3.7	4.5
Sweetmeat	5.8	10.4	6.1	10.0
Total food	1903.9	1948.5	1870.2	1902.9
N	4819	2425	1603	800

3.5 Household Monthly Expenditure

Estimates have been made on household per capita monthly expenditure. All expenditure of sampled households during 12 months prior to the survey has been accounted for. It is to note that among all expenditure heads data on food consumption have been collected in physical quantity consumed and a price sheet for the consumed commodities for each urban center has also been collected. The annual household expenditure has been calculated on the basis of stated above data. For other items (non-food) annual expenditure on respective head for the respondent household has been collected during interview.

It is revealed that although average household monthly total expenditure as well as food expenditure recorded during midline survey both in intervention and control *pourashavas* have increased compared to that of baseline. It is to note that share of food expenditure among all categories of households have relatively increased during the period between baseline and midline.

Table 3.3 Monthly average amount of expenditure per person (Tk.): Baseline (2009) and Midline (2011) Intervention

Indicator	Intervention		Control	
	Baseline (2009)	Midline (2011)	Baseline (2009)	Midline (2011)
Monthly non-food expenditure of the household	1129	1761	953	1290
Monthly total expenditure (food+non-food) of the household	5175	6867	4604	5908
Per person monthly non-food expenditure	246	380	216	284
Per person monthly total (food+non-food) expenditure	1132	1495	1056	1317

Highlights

- ✓ The respondents in about 75% and 78% of households in intervention and control *pourashavas* live in own houses, while the others live in houses built on khas land or other government land. Majority of the dwelling in the surveyed households lives in houses with “one” room (52% in intervention and 58% in control)
- ✓ Roofing material of almost all households irrespective of intervention and control *pourashavas* is tin, and floor made of mud/sand
- ✓ The amount of land owned per household during midline in both intervention and control *pourashavas* is 22 decimals. About 74% of households in intervention and 54% in control *pourashavas* are electrified.
- ✓ The estimated average household monthly net income during midline is Tk. 8,647 in intervention and Tk. 7,782 in control *pourashavas*.
- ✓ The estimated calorie intakes per person per day in intervention and control *pourashavas* are 1948 kcal. and 1903 kcal respectively which is lower than the national average calorie intake.
- ✓ Estimated average household monthly expenditure in both intervention and control *Pourashavas* during midline have been found substantially higher compared to baseline.

CHAPTER 4

WATER: AVAILABILITY AND ACCESS

4.1 Introduction

“We shall not finally defeat AIDS, tuberculosis, malaria, or any of the other infectious diseases that plague the developing world until we have also won the battle for safe drinking-water, sanitation and basic health care.”

--Kofi Annan, Former United Nations Secretary-General

In Bangladesh, remarkable progress in terms of providing safe drinking water to its citizens has been observed. According to Department of Public Health Engineering, 97% of the people had access to safe water within 150 meters. With the discovery of arsenic in groundwater, the coverage has come down to about 75%.¹ However there is still ample scope for work to ensure the supply of safe, clean, arsenic free water round the year especially to the poorer portion of population. The current Government also committed to the people of Bangladesh in its election manifesto of 2008 by declaring to provide safe-arsenic free drinking water to every house of the country by 2011 (Section 11.2 of the manifesto).

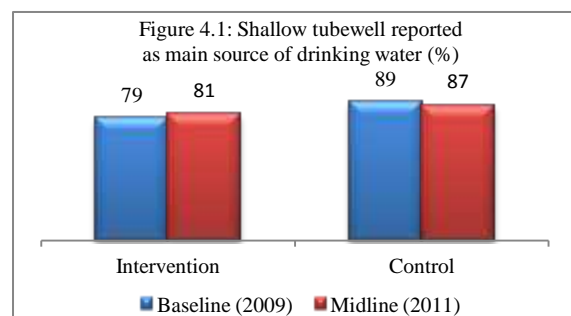
This chapter focuses on the sources of water for key domestic uses, ownership of water source, adequacy and quality of safe water, household water collector, time requirement for water collection, household appraisal of gender and other disadvantaged people in safe water issues, and problems faced in access and collection of water among the urban poor.

Box 4.1 Categories of drinking water	
<p>Drinking water supply has been broken down into two categories by WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, namely ‘Improved’ and Unimproved’. In 2008, JMP developed a new way of presenting the status of access to drinking water, where improved drinking water sources is further refined into ‘piped water in dwelling premises’, and ‘other improved sources’ and expressed it in ‘ladder’ format including ‘piped water in dwelling premises’, ‘other improved sources’, and ‘unimproved sources’. The category ‘improved drinking water sources’ is defined as the ones that, by nature of their construction or through active intervention, are protected from outside contamination, in particular from contamination with faecal matter (Progress on drinking water and sanitation, UNICEF and WHO, 2008). However, as the current study does not provide information on the quality of drinking water based on relevant <i>microbial, chemical and physical parameters</i>, improved water sources do not necessarily indicate safe water.</p>	<p style="text-align: center;">Drinking water categories in ‘ladder’ format</p> <p>Piped water on premises: Piped household water connection located inside the user’s dwelling, plot, or yard.</p> <p>Other improved drinking water sources: Public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection.</p> <p>Unimproved drinking water sources: Unprotected dug well, unprotected spring, cart with small tank/drum, tanker truck, and surface water (river, dam, lake, pond, stream, canal, irrigation channels), bottled water.</p>

4.2 Availability of Water

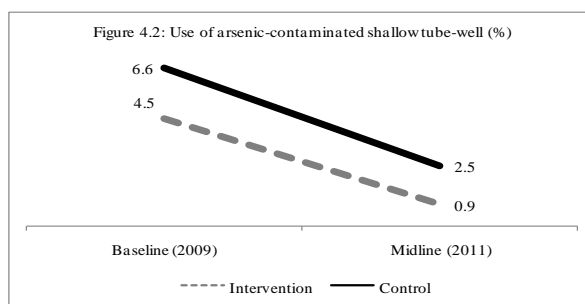
Main Sources of Drinking Water

It has been found that the pattern of main source of drinking water has remained same since the baseline in 2009.



¹ http://www.dphe.gov.bd/index.php?option=com_content&view=article&id=77&Itemid=28. Accessed on May 26, 2011

A 81% of the intervention household report shallow tube-well as main source of drinking water, which was 2 percentage-points lower in the baseline (79%). The use of shallow tube-well is bit higher among the control households than the intervention households in both the period of survey (i.e., Baseline: 2009 and Midline: 2011).



It is noteworthy to mention that among the shallow tube-wells, the use of arsenic contaminated tube-well has been reduced significantly, in both the intervention (currently 0.9% from 4.5%) and control households (currently 2.5% from 6.6%). However, in focus group discussion with community people reveals that- in number of cases, there is a misconception that clear and clean water means arsenic free water.

Box 4.2: Main sources of water for cooking and other purposes

It has been found that that except insignificant variation in sources of water, the extent of use of various water sources across the intervention and control households are almost identical, though the purpose of use is different (e.g., cooking, washing fruits/vegetables). This trend found in the survey during midline (2011) is identical to that of baseline (2009).

A slight increase of the use of deep tube-well as main source of drinking water has been found in midline compared to baseline; during midline 12% of the intervention households have reported deep-tube well as main source of drinking water, which was also same in baseline (among control households currently 9% reported deep tube-well as main source of drinking water, which was 7% in baseline).

In contrast to shallow tube-wells, almost all deep tube-wells have been reported as arsenic-free.

It is interesting to observe that reporting of tap/piped-water as main source of drinking water has been reduced by 3 percentage-points among the intervention households (Baseline: 7%, Midline: 4%). However, among the control households during midline 2% have reported tap/piped water as main source of drinking water, which was 1% in baseline.

Box 4.3: Reported quality of drinking water and measures taken for water purification

Among the intervention households the reported quality of drinking water is satisfactory. A 79% of them report the water quality as good, which was 74% in baseline. A 20% of the intervention households reported some type of metallic test in the water in the baseline, which has been decreased by 4 percentage-points (16%). Bad taste and smell was reported by 9% of the intervention households which has been decreased by around fifty per cent (5%). The trend is similar among the control households. Among the control households 72% (67% in baseline) report the water quality as good. The reported bad taste, smell, dirty, and metallic taste is decreased by 7 percentage points (from 31% to 24%). Almost all the intervention households (97%) do not take any initiative to purify the water; where 93% of them use tube-well water for drinking.

According to JMP classification, hardly around 4% in intervention households have access to piped water, which was around 7% during baseline. If the broader definition of ‘other improved sources’ is considered, then it becomes 97%, which was 96% in the baseline².

Gap between poor and non-poor group of people has been reduced significantly in the intervention household regarding access to safe drinking water during the midline compared to the baseline. During the baseline survey, significant gap was found between poor and non-poor people regarding access to safe water for drinking, where non-poor people had better access compared to the poor people among the intervention households. But, during the current midline study, the situation has been improved visibly- where among the intervention

² Goal Indicator: Proportion of population using an improve drinking water source.

households irrespective of poverty status has been improved and there is almost no gap between poor and non-poor category (Table 4.1).

Table 4.1: Households reported using water sources for drinking by poverty status: Baseline and Midline (%)

Water source	Intervention						Control					
	Baseline (2009)			Midline (2011)			Baseline (2009)			Midline (2011)		
	Poor	Non-poor	Both	Poor	Non-poor	Both	Poor	Non-poor	Both	Poor	Non-poor	Both
Tube-well (Arsenic free)	33	39	35	40	41	41	29	31	30	35	37	35
Tube-well (Arsenic contaminated)	5	3	5	1	1	1	8	3	7	2	3	2
Tube-well (not Arsenic tested)	44	35	42	42	42	42	54	54	54	53	49	52
Tap water (Inside home)	2	6	3	1	3	2	0	0	0	0	1	0
Tap water (outside home)	3	5	4	2	2	2	1	1	1	2	1	1
Deep Tube-well (Arsenic free)	11	17	12	15	10	12	7	10	8	9	7	9
Deep Tube-well (not-tested Arsenic)	2	3	2	1	2	1	0	0	0	4	2	4
N	3526	1293	4819	1295	1130	2425	1232	371	1603	541	259	800

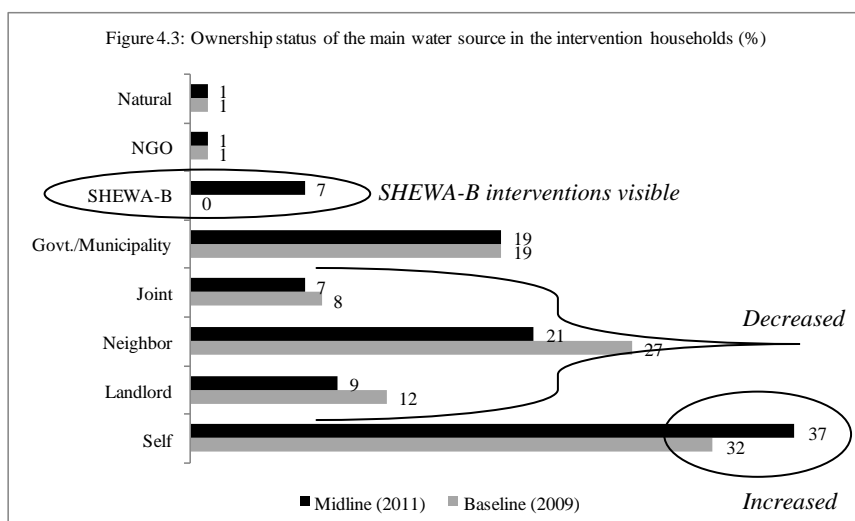
4.3 Access to Water

Status of Availability of Adequate Water

It has been reported that most of the intervention households (92%) get adequate drinking water round the year³, which is similar in the control households- where 93% households get adequate drinking water. This indicates that alternative source of water for drinking and other purposes in both intervention and control households are the least pronounced that are used when water from the main source is not available. Both the surveys conducted during midline and baseline do not show any noteworthy difference between the main and alternative sources of water during different seasons in both intervention and control households. In baseline, for intervention household: 89% and for control household: 95%.

Ownership of Water Source

There has been found slight but notable changes regarding ownership of water source among the intervention households during the midline survey (2011) compared to the baseline (2009). The self-ownership has been increased by 5 percentage-points (from 32% to 37%). It is to note that a 7% of the SHEWA-B water points

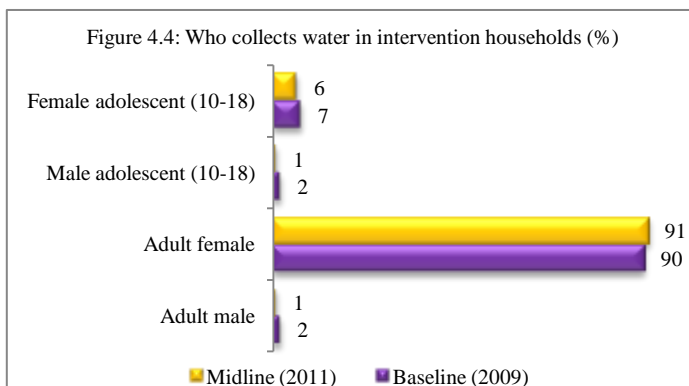


³ Get daily 20 liter of water from all members of household from specific source

have been reported as source of water in the midline, which was nil during baseline. As a logical consequence of the above mentioned facts- ownership by neighbor, land lord, and joint has been decreased by 10 percentage-points (from 47% to 37%). It has been found that the trend is similar among the control households- except there are no SHEWA-B installed water points as there is no intervention.

Who collects water?

In both the period (i.e., baseline and midline) water is collected mostly by adult female member of the households (in more than nine-tenth of the cases). In around seven per cent cases female adolescent collect water. Men or boys collect water rarely. The pattern is same in both the intervention and control households.



Box 4.4: Access status of women, physically challenged, and elderly people to the water points

It has been found that among the intervention household, in selecting the technology of the water-point, in 67% cases women’s opinion are sought (64% in baseline) where in 15% cases elderly peoples’ opinion are sought (9% in baseline). It has been found that only in less than 1% case physically challenged peoples’ opinion are sought in both the phases. In site selection, the respective figures of women, elderly member, and physically challenged are: 70%, 15%, and 0.8%; respectively the baseline figures are: 65%, 9%, and 0.8. The trend is similar among the control households. Thus, it is indicative that women’s and elderly peoples’ participation have been increased slightly- though, there is much to be attained. However, it has been reported that women friendliness situation of the water-points have been improved notably, from 63% to 88% in the intervention households. The figures for elderly people and physically challenged people are: from 9% to 15%, and from 0.9% to 0.8%. This trend is also similar for the control households. However, from focus group discussions, women in the community have opined that they have almost no access in the construction and maintenance process of the water-points.

Problem faced in water collection from community water-points

It has been reported by 85% of the intervention households that they do not face significant problem in collection of water from the community water-points, which was 75% during the baseline- which indicates, slight, but some sort of development. In the focus group discussions (FGDs) held with community women it has been reported by majority of the participants that the amount of water they collect from the community water points are somewhat adequate but collection process is troublesome as the number of water source is very limited compared to the number of community people. In household survey, currently in 66% cases *over-crowding* has been reported as one of the problem-reasons for water collection, which was 43% in baseline. In 18% cases, it has been reported that the controller of the water-points create problems during water collection, which was 5% in the baseline. In FGDs, women report that water collection from the community water-points at night is very difficult for women and there is lack of sufficient light at that place; moreover, the place, where the water-points are located, in many cases do not provide any scope for privacy for the women.

Highlights

- ✓ Pattern of main source of drinking water has remained same since the baseline in 2009. A 81% of the intervention household report shallow tube-well as main source of drinking water, which was 79% during baseline.
- ✓ Use of arsenic contaminated tube-well has been reduced significantly, in both the intervention (currently 0.9% from 4.5%) and control households (currently 2.5% from 6.6%).
- ✓ Among the intervention households the reported quality of drinking water is satisfactory. A 79% of them report the water quality as good (74% in baseline). A 20% of the intervention households reported some type of metallic taste in the water in the baseline, which has been decreased by 4 percentage-points (16%). Bad taste and smell was reported by 9% of the intervention households which has been decreased by around fifty per cent (5%). The trend is similar among the control households.
- ✓ According to JMP classification, hardly around 4% in intervention households have access to piped water, which was around 7% during baseline. If the broader definition of 'other improved sources' is considered, then it becomes 97%, which was 96% in the baseline.
- ✓ Gap between poor and non-poor group of people has been reduced significantly in the intervention household regarding access to safe drinking water during the midline compared to the baseline.
- ✓ It has been reported that most of the intervention households (92%) get adequate drinking water round the year (i.e., Get daily 20 liter of water from all members of household from specific source).
- ✓ There has been found slight but notable changes regarding ownership of water source among the intervention households during the midline survey (2011) compared to the baseline (2009). The self-ownership has been increased by 5 percentage-points (from 32% to 37%). It is to note that a 7% of the SHEWA-B water points have been reported as source of water in the midline, which was nil during baseline. As a logical consequence of the above mentioned facts- ownership by neighbor, land lord, and joint has been decreased by 10 percentage-points (from 47% to 37%).
- ✓ In both the period (i.e., baseline and midline) water is collected mostly by adult female member of the households (in more than nine-tenth of the cases). In around seven per cent cases female adolescent collect water. Men or boys collect water rarely. The pattern is same in both the intervention and control households.
- ✓ In the focus group discussions (FGDs) held with community women it has been reported by majority of the participants that the amount of water they collect from the community water points are somewhat adequate but collection process is troublesome as the number of water source is very limited compared to the number of community people. Women report that water collection from the community water-points at night is very difficult for women and there is lack of sufficient light at that place; moreover, the place, where the water-points are located, in many cases do not provide any scope for privacy for the women.

CHAPTER 5

SANITATION AND DEFECATION PRACTICES OF HOUSEHOLDS AND ENVIRONMENTAL CLEANLINESS OF COMMUNITY

5.1 Introduction

In Bangladesh, ‘Sanitation and defecation practices of household and environmental cleanliness of community’ are very much neglected, especially among the poor. Due to indiscriminate development of urban slums and/or settlements, in many cases, the sanitation is worse in urban areas. They have limited access to water, limited access to sanitary latrines, and face high incidence of diarrhoea. SHEWA-B project is working with DPHE-UNICEF and the local NGOs for sanitation, hygiene and water quality improvement and to encourage all community members to improve their hand washing behaviors. This chapter focuses on current situation of ‘sanitation and defecation practices of household and environmental cleanliness of community’, in comparison to the situation during the baseline.

5.2 Data Collection Methodology

For data collection related to this issue, both quantitative and qualitative methods have followed. The quantitative method followed is household-based interview, and the qualitative methods are- Spot Check (Observation), Focus Group Discussion (FGDs), PRA and In-depth Interview. The sample surveyed has been divided into intervention and control groups for comparison and to bring out the gross and net impact.

5.3 Varieties of Latrines Used by Households

The households are using different types of latrines. The latrines have broadly been categorized into Improved and Unimproved varieties.

The *Improved varieties of latrines* are-

- Flush to pipe sewer system
- Flush to septic tank
- Pit latrine with slab and water seal
- Pit latrine with slab and lid with no water seal
- Pit latrine with slab but no lid and no water seal
- Pit latrine with slab and flap but no water seal, and
- Ventilated Improved Pit latrine (VIP).

The *Unimproved varieties of latrines* are-

- Flush to other /unknown place
- Pit latrine without slab or Open pit, and
- Hanging latrine.

5.4 Improved Sanitation Facilities

5.4.1 Household Using Improved Sanitation Facilities

Among 2,425 HHs under intervention 42.6% (1,033) individual latrines are being used by 4,855 (1,033 X 4.7) persons, 21.1% (512) Shared latrines are being used by 4,813 (512 X 2 X 4.7) persons, and 34.4% (834) Community and Public latrines are being used by 22,774 (834 X 5.81 X 4.7) persons. In total, 32,442 persons are using these 2,425 latrines. Thus, Individual latrine users are 14.96%, Shared latrine users are 14.83%, and Community and Public latrine users are 70.19% of the total users (Annex Table 5.23).

Among all households, improved sanitation facilities in latrines having *individual sanitation facilities* were found to be available during the midline in 43% of the HHs in intervention group and 53% HHs in the control group. During the baseline, it was available in 36% HHs of the intervention group and 44% HHs in the control group. As found in midline, *shared sanitation facilities* in latrines were available in 21% of the HHs in intervention group and 23% HHs in the control group. During the baseline, the same was 20% in both intervention and control groups. Although technologically most of these latrines are improved, shared latrines are not defined as “improved” one. However, if we count both individual and shared latrines with improved facilities as improved one, 64% of the HHs under intervention of SHEWA-B have access to improved latrines [*Purpose indicator: 2*].

As found in midline, *Community sanitation facilities* in latrines has been available in 34% of the HHs in intervention group and 22% HHs in the control group. During the baseline, the same was available in 29% in intervention and 22% in control group. During the midline survey, only 0.1 % of households have reported of using *Public latrines* in intervention HHs, which was 0.6% during the baseline. In control HHs, the same is about 0.3% during the midline, which was 0.6% during the baseline (Table 5.1 and Annex Table 5.1). In spite of using improve technologies, all the community and public latrines are not counted as improved latrines as per definition.

Table 5.1: Percentage of all households using different latrines: Baseline and Midline

Latrine user types	Intervention		Control	
	Baseline	Midline	Baseline	Midline
Individual latrine	35.6	42.6	44.4	52.8
Shared latrine (up to 2 HH)	19.7	21.1	20.1	23.0
Community latrine (more than 2 HH)	28.6	34.3	21.6	22.4
Public toilet	0.6	0.1	0.6	0.3
N	4819	2425	1603	800

While analyzed for impact it has been observed that gross impact of individual, shared and community latrine use is positive (7%, 1% and 5.7%). However, the net impact is positive (4.9%) for community latrines only.

FGD Findings

During FGD, the women also expressed the same as above. However, a number of them from intervention HHs mentioned of using shared and community latrines constructed by SHEWA-B.

5.5 Use of Own or Shared Latrines among the Poorest Households

The situation of own or shared latrine use among the poorest has also been analyzed. It has been reported in midline survey that 32% of the poorest households have been using Individual latrine, which was 36% in baseline. In control HHs use of the same has been

reported by 43% poorest HHs during the midline survey, which was 44% in baseline (Table 5.2 and Annex Table 5.2).

Table 5.2: Proportion of the poorest household members using improved latrines: Baseline and Midline

Improved latrine user types	Intervention		Control	
	Baseline	Midline	Baseline	Midline
Individual latrine	34.6	32.0	44.2	42.9
Shared latrine (up to 2 HH)	21.4	20.5	21.2	22.1
Community latrine (more than 2 HH)	27.5	28.7	21.0	19.8
Public toilet	0.6	0.1	0.8	0.3
N	2654	672	964	308

While analyzed, it has been observed that gross and net impact of community latrine use among the poorest is positive (1.2% and 2.4% respectively).

5.6 User-friendliness of Latrines for Females, Alternatively Challenged Persons, and Old Aged Persons

The females, alternatively challenged persons, and old aged persons have been asked whether they can use the latrines. Among *female users*, 57% in baseline and 80% during the midline in intervention HHs reported in positive. In control HHs, it has been reported by 55% during the baseline and 68% during the midline survey. Among *alternatively challenged/physically disabled persons* 23% in baseline and 48% during the midline in intervention HHs reported in positive. In control HHs, it has decreased from 20% in baseline to 15% in midline. *Old aged persons* reported ability to use latrine as 55% in baseline and 70% during the midline in intervention HHs. In control HHs, it is 52% during the baseline and 62% during the midline (Annex Table 5.5). While analyzed for gross and net impact, an increase in latrine use has been observed among all the three sections of people.

In *FGDs*, *women* in both control and intervention areas mentioned that latrines are mostly not user-friendly for them due to problems as follows-

- ✓ Problems in maintenance of privacy (no roof, broken wall, fencing made of polyethene, bamboo or tin)
- ✓ In many cases, there are public roads adjacent to these latrines.
- ✓ Many of the latrines do not have any steps or proper door.
- ✓ Due to obstruction in sanitary pipes the pans are filled-in with faeces and causing foul smell inside and around.
- ✓ Due to use of single latrine by numbers of HHs cleanliness can not be maintained at all.
- ✓ All these problems aggravate during the rainy season.

In addition, they mentioned that many of the latrines constructed under SHEWA-B project in intervention areas have not yet been started functioning.

5.7 Use of Latrines by Physically Disabled and Old Aged Persons

As to *alternatively challenged/physically disabled persons*, in intervention HHs, the use of latrines has increased to 88% during the midline from 46% during the baseline. In control, the same has increased to 92% during the midline survey from 43% during the baseline (Annex Table 5.6).

As to *older persons*, its use has increased to 98% during the midline from 83% during the baseline in intervention HHs. In control HHs, it has increased in the midline to 94% from 77% in baseline (Annex Table 5.8).

As to reason for not using latrine, among non-users, 75% of the alternatively challenged/ physically disabled people in intervention HHs in midline and 100% of them in control mentioned that ‘design is not friendly for them’. This was reported in much lower proportion during the baseline. Most of the older people in intervention HHs in midline report that ‘design is not old aged friendly for them’ (Annex tables 5.7 & 5.9).

5.8 Usability of Latrines during Rainy Season/Flood

The individual and shared latrine user households were asked whether they can use the latrine during rainy season or flood. In intervention HHs, 85% of the respondents during midline survey report in positive, which was 71% during the baseline. In control HHs, 90% of the respondents during midline survey report in positive that was 77% during the baseline (Annex table 5.3). Gross impact in this case shows an improvement by 13.5%.

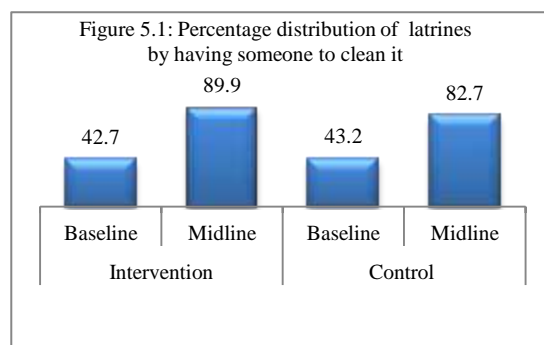
5.8.1 Alternatives in Case of Unusable Latrines during Rainy Season/Flood

The individual and shared latrine user respondent households who reported in negative regarding usability of latrines during rainy season or flood were asked to mention the alternative place of defecation during that period. In intervention HHs, 45% report ‘neighbor’s latrine’ during the midline, which was 30% during baseline survey. In control HHs 38% reports the same, which was 23% during the baseline. In intervention HHs 21% of them report ‘open place/drain’ during the midline that was 18% during baseline survey. In control HHs 20% reports the same, which was 22% during the baseline. ‘At night near house’ has been reported by 12% of them in midline, which was 39% during the baseline in intervention HHs. In control HHs, it has been reported by 20% of the respondents during the midline, which was 41% in baseline. In intervention HHs, ‘defecation in hanging latrine’ during the rainy season or flood shows an increase from 9% in baseline to 17% in midline. In control HHs, the same is 4% in baseline and 2% in midline (Annex Table 5.4).

5.9 Cleaning of Latrines

5.9.1 Whether Latrines are Cleaned

The HHs using individual and shared latrines were asked whether there was anyone to clean a latrine. Around 90% in intervention and 83% in control HHs reported in the positive during the midline; the same was around 43% in both intervention and control HHs in baseline (Figure 5.1 and Annex Table 5.14). This is definitely a positive achievement where gross impact shows 47% positive impact positive by 7%.



However, women in FGDs mentioned cleaning of latrines as a real problem, especially those who are using shared and community latrines, as there is no system for this. There is nobody to clean these latrines. Availability of water nearby is also an aggravating factor.

5.9.2 Who Cleans the Latrines

Who clean the latrines usually

The HHs who reported of cleaning the latrine was asked to mention in particular regarding member(s) household usually cleaned the latrines. In midline survey, 97% in the intervention

group and 99% in the control group reported that an adult female usually cleaned the latrine. In baseline, the same was 96.6% in the intervention group and 95.4% in the control group. During midline survey percentage of adult males participating in cleaning the latrines has been reported as 24.3% and 19% in intervention and control groups respectively. In baseline, the same was 41.8% and 33.1% in intervention and control groups respectively. During the midline, the percentage of households reported adolescent girls cleaning the latrines was 10.3% and 6% respectively in intervention and control groups. The same was 12.4% and 11.1% respectively in intervention and control groups in baseline. In both midline and baseline survey, the same for adolescent boys cleaning latrines are significantly lower (Table 5.3 and Annex Table 5.15)).

Table 5.3: Percentage distribution of latrine user HHs by person who clean latrine usually

Type of household member cleaning latrine generally	Intervention		Control	
	Baseline	Midline	Baseline	Midline
Adult male	41.8	24.3	33.1	19.0
Adult female	96.6	97.2	95.4	99.4
Male adolescent (10-18 yrs)	8.5	5.2	5.8	4.4
Female adolescent (10-18 yrs)	12.4	10.3	11.1	6.0
Boys (6-9 yrs)	0.1	0.1	-	0.2
Girls (6-9 yrs)	0.4	0.1	-	-

Who mainly cleans the latrine

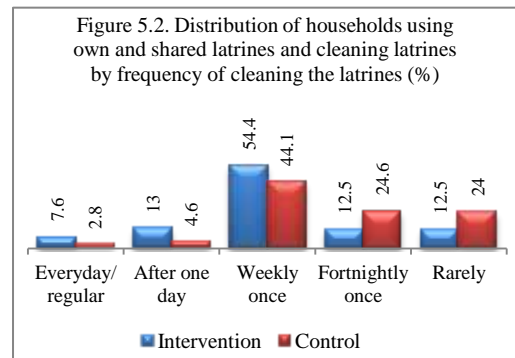
The HHs which reportedly had at least any member who cleaned the latrine was asked which particular household member(s) mainly cleaned the latrines. During the midline, 90% of the intervention HHs and 95% of the control HHs reported that an adult female member of the household mainly cleaned the latrine. In baseline, the same was reported by 85% of the intervention HHs and 90% of the control HHs. In midline, it has reported that, only 6% and 3% of adult males in intervention and control groups respectively clean the latrines mainly. During the baseline, the same was reported by 12% and 6% in intervention and control groups respectively. In midline, 3% and 1% HHs in intervention and control groups respectively reported that adolescent girls mainly clean the latrines. During baseline, the same was reported by 2.7% and 3.2% in intervention and control groups respectively. Adolescent boys cleaning the latrines was significantly lower in both midline and baseline (Table 5.4 and Annex Table 5.16).

Table 5.4: Percentage distribution of households by type of HH member cleaning latrine (mainly)

Type of household member cleaning latrine mainly	Intervention		Control	
	Baseline	Midline	Baseline	Midline
Adult male	11.6	6.3	6.5	2.8
Adult female	84.7	89.5	89.3	95.4
Male adolescent (10-18 yrs)	1.0	1.1	1.0	1.0
Female adolescent (10-18 yrs)	2.7	3.0	3.2	0.8
Boys (6-9 yrs)	0.0	0.1	-	-
Girl (6-9)	-	6.3	-	2.8

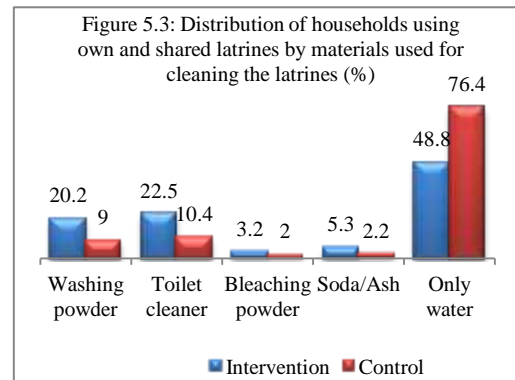
5.9.3 Frequency of Cleaning the Latrines

During the midline survey, the HHs using own and shared latrines and cleaning latrines were asked regarding the frequency of cleaning the latrines. It has been reported that majority of them (54% Intervention and 44% control HHs) clean the latrines once in a week. Only 8% in intervention and 3% in control HHs clean the latrines everyday (Figure 5.2 and Annex Table 5.17).



5.9.4 Materials Used for Cleaning Latrine

The HHs using own and shared latrines and cleaning latrines were asked about materials used for cleaning latrine. It has been reported by 49% of them in intervention and 76% in control HHs that they are using only water for this purpose. Around 20% of them in intervention and 9% in control HHs are using washing powder, and nearly the same proportion are using toilet cleaner. Only few of them were using bleaching powder and soda or ash for this purpose (Figure 5.3 and Annex Table 5.18).



5.9.5 Cleanliness Situation of Latrines

An observation was carried out in order to study the cleanliness status of the latrines. In midline, only 24% of latrines in the intervention and 14% of latrines in the control HHs appeared to be ‘Good/Very good/Clean’ (**output indicator 2.2a**). While the same during baseline was 12% and 10% in intervention and control HHs respectively. In midline, about 67% of latrines in the intervention HHs and 79% in the control HHs were ‘foul-smelling’. The same during the baseline was 82% and 89% in intervention and control HHs respectively. In midline survey, faeces were seen in the pan of latrines of 41% of the intervention and 54% of the control HHs. During the baseline, the same was 43% and 44% in the intervention and control HHs respectively. In midline survey, faeces were found lying around platforms of latrines in 6% of the intervention and 12% of the control HHs. During the baseline, the same were 8% and 6% in intervention and control respectively (Table 5.5).

Table 5.5: Percentage distribution of households by cleanliness situation of latrines

Cleanliness situation of latrines	Intervention		Control	
	Baseline	Midline	Baseline	Midline
Feces around the platform of latrine	8.0	6.4	6.1	12.3
Feces in the pan of latrine	43.2	40.5	44.4	53.6
Very bad smell	81.7	66.9	88.8	79.0
Clean	12.1	24.4	10.1	13.6

Both gross and net impacts are positive in terms of cleanliness of latrines.

Women in FGDs mentioned of the same additional problems of cleanliness of the major two are-

- ✓ Foul smell in latrines
- ✓ Faeces visible in pan of latrine.

5.10 Consultation with Household Members Regarding Installation of Latrines

Households using Individual and Shared Latrines were asked if consent and opinion of the female, disabled and elderly HH members (above 60 years) were taken before installation of a latrine about type and installation site of the proposed latrine.

In response to query on if particular types of HH members were consulted for deciding on *the type of a latrine*, around 74% of women in the intervention and 70% in the control HHs reported during midline survey that they were consulted. During the baseline survey, the same was reported by 68% in intervention and 71% in the control HHs. Around 26% of physically disabled persons in the intervention and 24% in the control HHs reported during midline survey that they were consulted for this. During the baseline survey, the same was reported by 19% in both intervention and control HHs. Around 66% of older members in intervention and 70% in control HHs reported during midline survey that they were consulted for this. During the baseline survey, the same was reported by 61% in intervention and 68% in control HHs (Table 5.6).

Regarding consultation for deciding on *the site of installation of a latrine*, around 78% of women in intervention and 74% in control HHs reported during the midline survey that they were consulted. During the baseline survey, the same was reported by 69% in intervention and 72% in control HHs. Around 26% of physically disabled persons in the intervention and 18% in the control HHs reported during midline survey that they were consulted for this. During the baseline survey the same was reported by 19% in intervention and 17% in control HHs in response to this query. Around 66% of older members in the intervention HHs and 72% in the control HHs reported during midline survey that they were consulted for this. During the baseline survey, the same was reported by 62% in intervention and 68% in control HHs (Table 5.6).

With regard to whether their opinion on *user-friendliness of the type and design of the proposed latrine* was taken, around 80% of women in intervention and 68% in control HHs reported during midline survey that they were consulted. During the baseline survey, the same was reported by 57% in both intervention and control HHs. Around 26% of physically disabled persons in the intervention and 12% in the control HHs reported during midline survey that they were consulted for this. During the baseline survey the same was reported by 18% in intervention and 15% in control HHs. Around 59% of older members in the intervention HHs and 55% in the control HHs reported during midline survey that they were consulted for this. During the baseline survey, the same was reported by 57% in intervention and 58% in control HHs (Table 5.6).

Table 5.6: Percentage distribution of individual and shared latrine user HHs by taking consent of female, disabled and old aged members on different latrine issues

Opinion	Intervention		Control	
	Baseline	Midline	Baseline	Midline
<i>Opinion of female members about taking their consent</i>				
Taken her opinion in selection of type of latrine	68.3	74.3	71.4	69.8
Taken her opinion in selection of site for installation	69.2	77.5	71.9	73.6
Taken her opinion for the latrine to be user-friendly	57.3	79.9	56.6	67.5
<i>Opinion of disabled members about taking their consent</i>				
Taken his/her opinion in selection of type of latrine	18.8	25.5	18.5	23.5
Taken his/her opinion in selection of site for installation	18.8	25.5	16.7	17.6
Taken his/her opinion for the latrine to be user-friendly	18.1	25.5	14.8	11.8
<i>Opinion of older members about taking their consent</i>				
Taken his/her opinion in selection of type of latrine	61.4	65.7	68.1	70.0
Taken his/her opinion in selection of site for installation	61.7	66.2	68.1	72.3
Taken his/her opinion for the latrine to be user- friendly	56.5	58.9	58.4	54.6

5.11 Defecation Places for Children Aged 3-9 Years

The individual and shared latrine user households were asked about the places where their children aged 3-9 years defecate. In response, 78% of the respondents in intervention HHs during midline survey reported that their children defecate in latrine, which was 66% during the baseline. In control HHs, 77% of the respondents during midline survey report in positive that was 64% during the baseline. Use of pot has also increased and open space defecation has decreased (Annex Table 5.10).

During the midline survey, *in PRA sessions with children* (where they were shown various types of latrine for their ease in understanding the questions), around two-thirds of them in intervention households and a slightly lower proportion of them in control households reports of using sanitary latrines for their defecation. During the baseline, the situation was the same in intervention and worse in control households. During the midline survey, use of sanitary latrines equipped with water-seals shows an increase in both groups of children (from 12% during the baseline to 65% and 60% in intervention and control households respectively). However, as found in midline, practice of defecation in open spaces and bushes has not changed that much. *As to causes of open place defecation*, children during PRA sessions commonly reported the following: fear of falling in latrine, latrine is far away, can't change habit, and dirty latrine.

5.12 Open Place Defecation of HH Members above 5 Years Age

The individual and shared latrine user households were asked about open place defecation of HH members above 5 years age. Only 4.9% of the respondents in intervention HHs during midline survey reported in positive, which was 6.9% during the baseline. In control HHs, 6.3% of them during the midline survey reported in positive and the same was 8.7% during the baseline (Annex Table 5.11).

5.13 Situation of Community Latrines

5.13.1 Number of People Using Community/Public Latrines

Number of people using Government or NGO established Community/Public latrines in intervention and control HHs has not increased much. During the midline survey, among 834 HHs in the intervention group and 181 HHs in the control group using Government or NGO

established Community/Public latrines interviewed for number of people using such a latrine. They reported that, 4848 HHs in intervention and 701 HHs in control are using those latrines. This means that, on an average 5.81 HHs in intervention and 3.87 HHs in control are using each of these latrines. During the baseline each of the community/public latrines established by Government or NGO were being used by 5.86 HHs in intervention and 3.49 HHs on average in control respectively (Table 5.7 and Annex Table 5.19). However, it is to be borne in mind that population density in these areas has also increased during this period.

Table 5.7: Number of HHs using community/public latrines established by Government or NGO

Indicators	Intervention		Control	
	Baseline N=4816	Midline n=2425	Baseline N=1604	Midline n=800
Number of sample HHs using community/public latrines	1694	834	375	181
Number of HHs using those community/public latrines used by sample HHs	9929	4848	1310	701
Average number of HHs using each of the community/public latrines	5.86	5.81	3.49	3.87

5.13.2 Cleanliness of Community Latrines

Households using Public/Community/Pourashava/Govt./NGO-established latrines were asked as to whether these latrines are being cleaned. During the midline, 88% HHs in the intervention group and 77% HHs in the control group reported that the latrines are being cleaned. Whereas during the baseline, 60% HHs in the intervention group and 54% HHs in the control group reported the same (Table 5.8 and Annex Table 5.20). Both gross and net impact in this case is positive (44.7% and 10.6% respectively).

Table 5.8: Percentage distribution of public/community/pourashava/Govt./NGO established latrine user HHs by whether latrines are cleaned

Response on whether latrines are cleaned	Intervention		Control	
	Baseline n=1694	Midline n=834	Baseline n=375	Midline n=181
Yes	42.7	88.4	43.2	77.3
No	57.3	11.6	56.8	22.7

5.13.3 Cleaner of Community Latrines

In response to the question to the HHs on who cleans the latrines established by Public/Community/Pourashava/Govt./NGO and used by them (the HHs), around 28% HHs in intervention and 32% in control groups reported that there is no specific person assigned to carry out this task of cleaning the latrine. During the baseline, the same reported by around 63% HHs in both intervention and control groups. Around 71% HHs of the intervention group and 61% HHs of the control group reported that various members of this families/HHs clean the latrines by turn. During the baseline, the same was reported by around 30% HHs of the intervention and 24% HHs of the control group. During midline survey, 1% HHs in the intervention and 6% in the control group reported that the *pourashava* sweepers clean the community latrines. During the baseline, the same was reported by 4% in the intervention group and 10% in the control group (Table 5.9 and Annex Table 5.21).

Table 5.9: Percentage distribution of public/community/pourashava/Govt./NGO established latrine user HHs by cleaner of latrine

Response on who cleaning the latrine	Intervention		Control	
	Baseline n=1694	Midline n=834	Baseline n=375	Control n=181
Household members using the latrine by turn	30.3	70.9	24.5	60.8
<i>Pourashava</i> Sweeper	4.2	1.2	10.4	6.1
Appointed male caretaker	1.7	0.2	1.6	1.1
Appointed female caretaker'	0.8	0.1	0.3	-
No specific person	63.1	27.6	63.2	32.0

5.13.4 Frequency of Cleaning Community Latrines

The households using public/community/pourashava/Govt./NGO established latrine were asked regarding frequency of cleaning latrines. As reported, the proportion of households cleaning latrines daily has increased to 9% from 3% in baseline survey in intervention HHs. In control HHs, the situation has not changed. Positive effect of intervention has been observed in case of increasing proportion of cleaning latrines every alternate day, once a week and once in 2 weeks. The proportion not cleaning latrines regularly has decreased in midline to 26% from 62% in baseline (Annex Table 5.12).

5.13.5 Materials Used for Cleaning Community Latrines

The households using public/community/pourashava/Govt./NGO established latrine were inquired about materials they use for cleaning latrines. In intervention HHs, about 24% of households are using washing powder, which was used by 10% during baseline. In control HHs, its use has increased to 15% from 6% in baseline. Use of other washing materials, e.g., toilet cleaner, bleaching powder, and soda/ash has also increased in intervention HHs for cleaning latrines. The proportion of cleaning only by water and not cleaning latrines regularly has decreased from 80% in midline to 51% in baseline (Annex table 5.13).

5.14 Environmental Cleanliness of the Community

5.14.1 Solid Waste Management System

Person collecting waste from household

Sample households were asked regarding the person collecting solid waste from the houses. Almost all in both intervention and control HHs reported that there is no designated person for this purpose. Only 1 to 2 percent of them reported of cleaner of municipality and local worker collecting solid waste from the houses (Annex Table 5.22).

How the solid waste is disposed off

Households were observed to know as to how the solid wastes were being disposed off. During the midline , it has been found that 31.8% intervention and 29% control HHs have on-site garbage pit and/or other arrangements like- dustbins, barrels, garbage pits, small dugouts for making compost/natural fertilizer, and various types of pots or baskets for disposal/recycling of solid wastes. It was 27.7% in the intervention HHs and 26.9% in the control HHs during the baseline (Table 5.10 and Annex Table 5.28) [Output Indicator 2.3].

Table 5.10: Percentage of households by having appropriate solid waste disposal system (on-site garbage pit for collection)

Solid waste disposal system	Intervention		Control	
	Baseline (N=4819)	Midline (N=2425)	Baseline (N=1603)	Midline (N=800)
Dustbin	2.3	1.3	0.1	0.8
Barrel	0.3	0.4	0.1	0.1
At a garbage pit(dug/hole)	24.3	29.0	25.9	26.4
Hole for making compost/natural fertilizer	0.4	0.2	0.2	1.4
On a pot/basket which bin collector collects	0.4	0.9	0.6	0.3
Total	27.7	31.8	26.9	29.0

5.14.2 Waste Water Disposal System

The waste water disposal system was studied through field-level observation. It has been observed during the midline that disposal of liquid wastes into pit/canal/ditch is the most common practice found in around 49% of the intervention HHs and 50% of the control HHs. During the baseline, the same was found in 54% of the intervention and 59% of the control HHs. During midline survey, appropriate liquid waste disposal has been found in about 47% of intervention and control households each. During the baseline, appropriate liquid waste disposal was found in 36% in intervention and 32% in control households respectively (Table 5.11 and Annex Table 5.17).

Table 5.11: Percentage distribution of households by having appropriate liquid wastes disposal system

How the liquid wastes are removed	Intervention		Control	
	Baseline n=4819	Midline n=2425	Baseline n=1603	Midline n=800
Through concrete drain with lid connected to public drain	1.6	4.0	0.7	0.3
Through open concrete drain connected to public drain	5.8	7.7	2.4	5.9
Through un-concrete drain	28.9	34.8	28.9	40.6
Total	36.3	46.5	32.0	46.8

It now appears from the data presented above through analysis of the *Urban log frame Output indicator 2.3* that the percentage of HHs having **appropriate solid waste disposal system** (on-site garbage pit or collection) is 31.8% and that for an **appropriate waste water disposal system** is 46.5%.

5.14.3 Cleanliness of Inside Latrine

The cleanliness situations of inside latrines were observed in the survey. Around 24% of latrines in intervention and 14% of those in control were found to be 'clean'. A major portion of the latrines (67% in intervention and 79% in control) were having 'very bad smell'. 'Feces in the pan of latrine' has been found in 41% of the latrines in intervention and 54% in control (Annex table 5.24).

5.15 Environmental Cleanliness of Household

5.15.1 Cleanliness of Inside Household

In order to understand the cleanliness status of inside the survey households observation visits were made. During the midline, no garbage (very clean) has been observed in 45% of the intervention HHs and 39% of the control HHs. During the baseline, the same situation was observed in 26% of the intervention and 28% of the control HHs. During midline, some

amount of garbage was seen ('Clean HHs') in around 45% of the intervention HHs and 49% of the control HHs. During the baseline, the same was found in around 41% of the intervention HHs and 40% of the control HHs. As observed during the midline, about 11% of the intervention HHs and 12% of the control HHs were reported to be having significant amounts of garbage ('Unclean HHs'). During the baseline, the same was found in about 33 % of the intervention HHs and 32% of the control HHs (Table 5.12 and Annex Table 5.27).

Table 5.12: Percentage distribution of households by cleanliness situation of inside household

Cleanliness situation of inside household	Intervention		Control	
	Baseline n=4819	Midline n=2425	Baseline n=1603	Midline n=800
Very clean	26.2	44.7	28	38.9
Clean	40.8	44.7	40.1	49.0
Not clean	33.0	10.6	31.9	12.1

5.15.2 Cleanliness of Surrounding Household

Observation visits were also made in order to understand the cleanliness status of the areas surrounding the survey households. During the midline, around 53% of the intervention HHs and 49% of the control HHs has been observed to be clean. During the baseline, the same was found in around 32% of the intervention and 38% of the control HHs. As observed during the midline about 41 % of the intervention HHs and 48% of the control HHs the surrounding physical environments were found to be unclean ('not clean'). During the baseline, the same was found in about 67 % of the intervention HHs and 61% of the control HHs (Table 5.13 and Annex Table 5.27).

Table 5.13: Percentage distribution of households by cleanliness situation of surrounding households

Cleanliness situation of surrounding household	Intervention		Control	
	Baseline n=4819	Midline n=2425	Baseline n=1603	Midline n=800
Very clean	1.0	6.1	0.9	2.8
Clean	32.2	53.0	38.1	49.1
Not clean	66.7	40.8	60.9	48.1

5.15.3 Presence/Absence of Urine/Faeces in/around Courtyard

Presence or absence of faeces within and around the courtyards of the houses was also observed in both baseline and midline. The observation reported has been presented in terms of (i) *faeces within the courtyard*, and (ii) *faeces around the courtyard*.

No Faeces within the Courtyard-

During the midline, in about 71% of the intervention group and 69% of the control group houses no faeces were found within the courtyards. The same situation was found in 60% among the intervention group and 65% among the control group houses during the baseline (Table 5.14 and Annex Table 5.28).

No Faeces around the Courtyard-

During the midline, faeces were not visible around the courtyard in about 49% of the intervention HHs and 54% of the control HHs. During the baseline, the same situation was found in about 63% of the intervention HHs and 65% of the control HHs (Table 5.14 and Annex Table 5.28). These are definitely positive achievement in terms of maintenance of cleanliness within and around houses.

Table 5.14: Percentage distribution of households by presence/absence of urine or faeces in or around courtyard

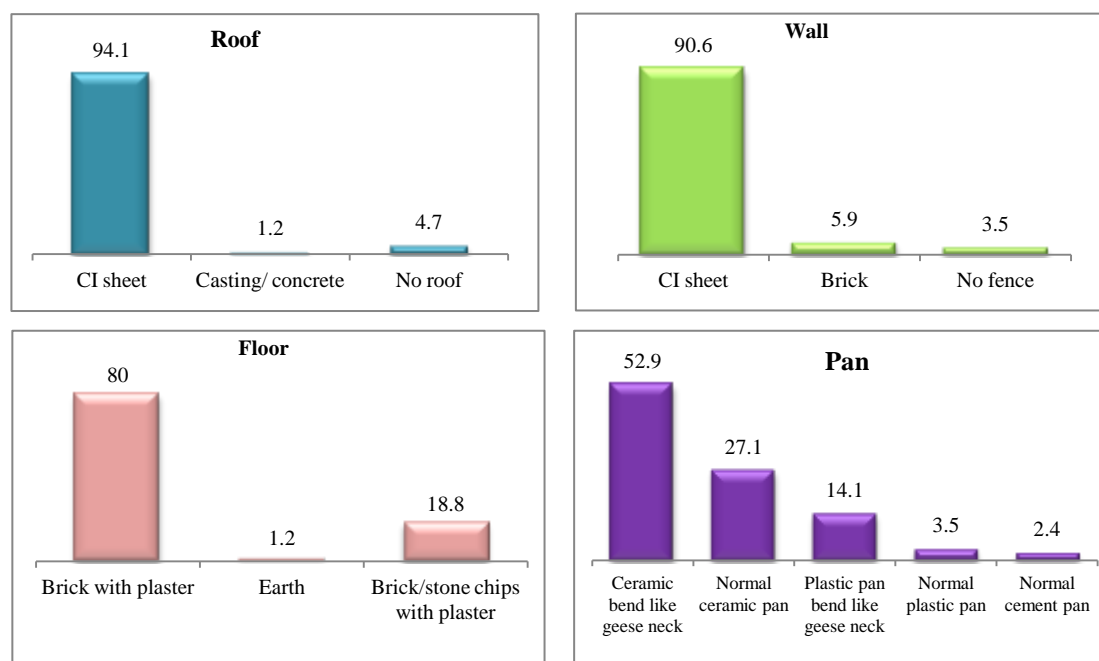
Presence or absence of faeces in or around houses	Intervention		Control	
	Baseline n=4819	Midline n=2425	Baseline n=1603	Midline n=800
Faeces present within courtyard	10.1	8.1	9.3	12.5
Faeces not present within courtyard	59.8	71.1	65.1	69.0
Faeces present around courtyard	28.1	15.1	29.2	19.6
Faeces not present around courtyard	63.3	48.9	65.0	54.4

5.16 Construction of Shared Latrines

During the midline survey, the shared latrines (used by 2 HHs) built under SHEWA-B Project were observed for construction materials used for its roof, wall, floor and pan. In total, 85 such latrines have been observed.

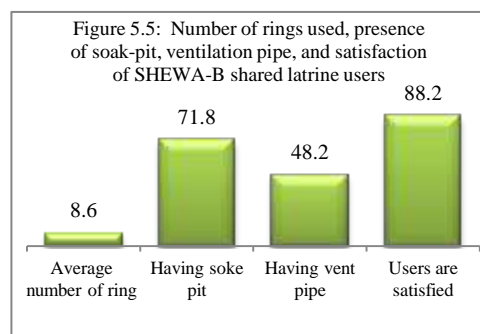
It has been reported by the observers that 94% of the roof of these latrines are made of ‘CI sheet’. However, in around 5% of these latrines ‘no roof’ was found. Regarding wall of these latrines 91% found made of ‘CI sheet’, 6% of ‘brick’ and 4% of having ‘no fence’. Floor of these latrines are made of ‘brick with plaster’ in 80% cases and in 18.8% cases these are made of ‘brick/stone chips with plaster’. Pan of the shared latrines is made of ‘Ceramic bend like geese neck’ in about 53% cases. In about 27% of these latrines pan is made of ‘Normal ceramic pan’, in 14% ‘Plastic pan bend like geese neck’, in 4% ‘Normal plastic pan’ and in 2% latrines ‘Normal cement pan’ have been found (Figure 5.4 and Annex Table 5.29).

Figure 5.4: Percentage distribution of shared latrines built under SHEWAB Project by construction materials used for its roof, wall, floor and pan



Number of Rings used, Soak pit, Ventilation pipe and User satisfaction

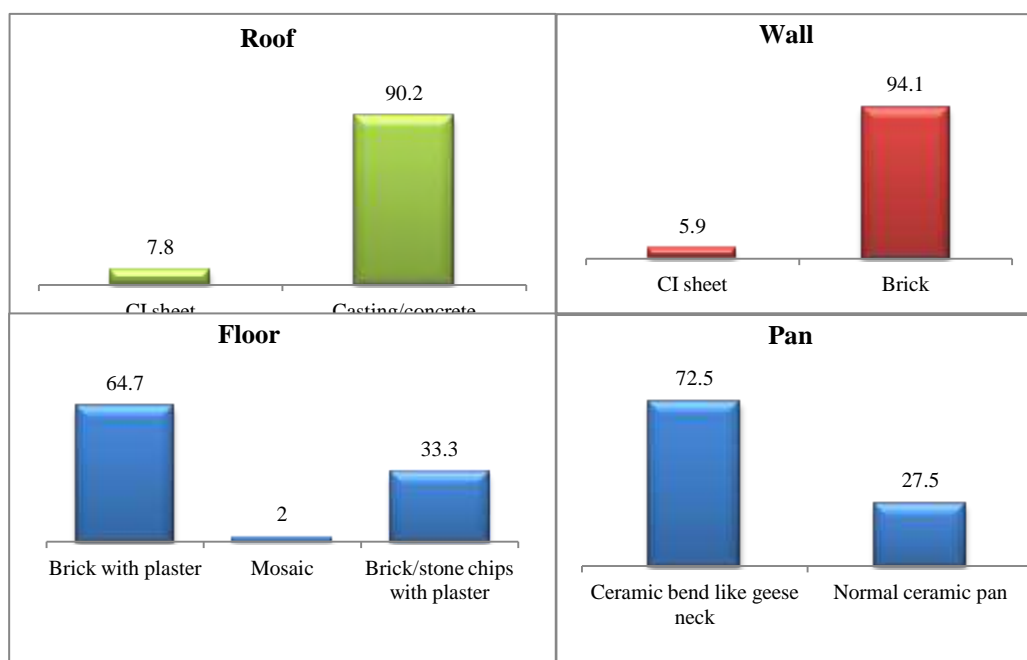
During the midline survey, the field data collectors also observed and discussed on some other issues like number of rings used in drainage pipe, presence of soak-pit, presence of ventilation pipe, and satisfaction of the users for the shared latrines used by SHEWA-B Project beneficiary HHs. It has been reported that on an average 8.6 rings have been used in drainage pipe, 72% latrines have soak pit, and 48% have ventilation pipe. For 88% of these latrines the users have expressed their satisfaction in positive (Figure 5.5 and Annex Table 5.30).



5.17 Construction of Community Latrines

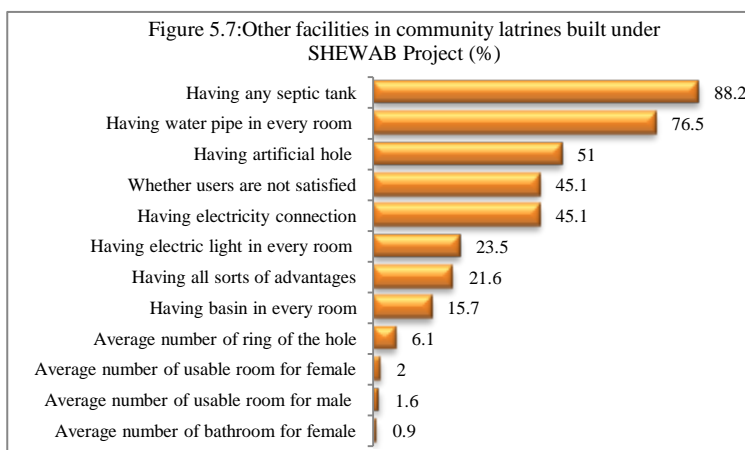
During the midline survey, the community latrines (used by more than 2 HHs) built under SHEWAB Project were observed for construction materials used for its roof, wall, floor and pan. It has been reported by the observers that, 90% roofs of these latrines are made of ‘Casting/concrete’, and in 8% ‘CI sheet’. However, in 2% of these latrines ‘no roof’ was found. Regarding wall of these latrines 94% reported that these are made of ‘brick’, and, 8% reported of ‘CI sheet’. Floor of these latrines are made of ‘brick with plaster’ in 65% cases, in 33% cases made of ‘brick/stone chips with plaster’, and in 2% cases ‘mosaic’. Pan of these community latrines are made of ‘ceramic bend like geese neck’ in about73% cases, and in 27% made of ‘normal ceramic pan’ (Figure 5.6 and Annex Table 5.31).

Figure 5.6. Construction materials used for its roof, wall, floor and pan of community latrines built under SHEWAB Project (%)



5.18 Other Facilities in Community Latrines

During the midline survey, the community latrines built under SHEWAB Project and other latrines used by control HHs were observed. In total, 51 such community latrines for intervention HHs were observed. It has been observed that on average there are 1.6 usable rooms for male and 2.0 usable rooms for female in those latrines. And, on average, there is 1 bathroom for female. Around 77% of those latrines have water pipe in every room, 45% have electricity connection, and 24% have electric light in every room. Around 16% have basin in every room and 88% have septic tank. About 51% of those latrines have artificial hole, and on average there are 6.1 rings around the holes. However, as reported, about 22% of the latrines have all sorts of advantages, although 45% of latrines users are not satisfied of these (Figure 5.7 and Annex Table 5.32).

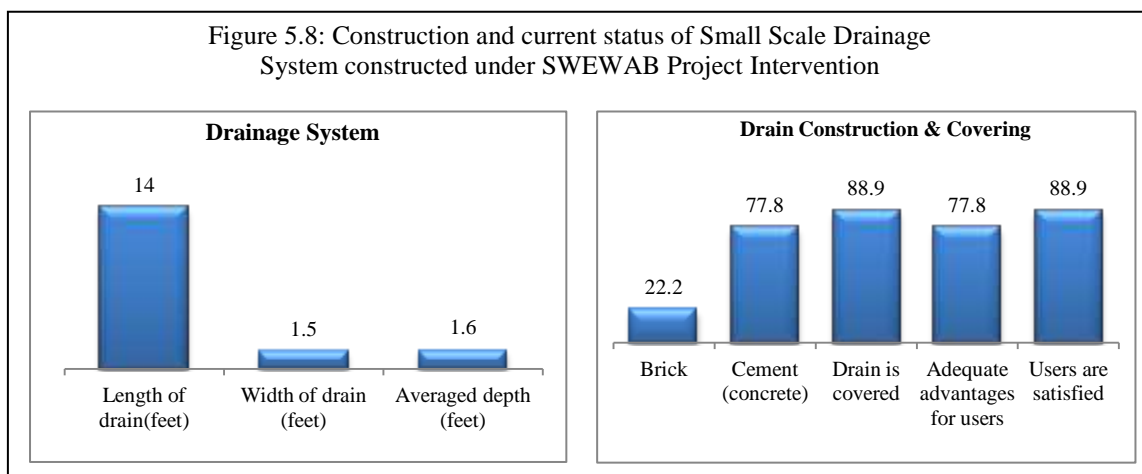


5.19 Construction and Current Status of Small Scale Drainage System

During the midline survey, construction and current situation of Small Scale Drainage System built under SWEWA-B Project was also surveyed. For this purpose Small Scale Drainage System in the intervention areas were observed and beneficiary HHs was also interviewed.

Drainage system

Average length of drains reported is 14 feet, with width 1.5 feet and depth 1.6 feet. They reported that 22% of the drains are constructed by bricks and 78% by brick-cement concrete. About 89% reported that the drains are covered, and 78% reported that there are adequate advantages for users. In 89% of cases, the users expressed satisfaction (Figures 5.8 and Annex Table 5.33).



5.20 Responses of PRA sessions with children

As in the baseline, during the midline survey, majority of children during *PRA sessions* in the intervention group reported that waste is disposed off in ditches in their community. However, waste-dumping into dustbins and collection by solid waste collectors have increased during the midline survey, which was only a few during baseline. Throwing of waste into ponds, drain and open spaces has also been reported by the intervention group children.

In the control group, although disposal of waste in ditches has been reported by the highest during the midline, the situation is worse than that of the intervention group. Here, waste-dumping in proper place (dustbins and collection by solid waste collectors) has been by lower proportion than those in the intervention group.

5.21 Suggestions of Women and Children

Suggestions of Women during FGD

During the midline survey women in both intervention and control groups have made some suggestions during FGD for overall improvement of sanitation and environmental cleanliness in their localities.

The *major suggestions made by women regarding construction of latrines* are as follows:

- ✓ More improved latrines with water seal should be installed.
- ✓ Maintenance of privacy should be ensured while installing latrine.
- ✓ Supply of water inside latrine should be ensured.
- ✓ Pipes with more thickness should be used in latrines to prevent obstruction.
- ✓ Provision should be there for electricity inside the latrines.
- ✓ Platforms should be constructed for the latrines to make it user-friendly for them.
- ✓ Latrines should be user-friendly for the elderly people as well.

However, more of the women in control HHs stressed on ‘maintenance of privacy’ while installing latrine.

Regarding *maintenance of cleanliness of latrines* women have made the following suggestions-

- ✓ There should be an active committee for maintenance of cleanliness of latrines.
- ✓ Women should be included in these maintenance committees.
- ✓ Latrines should be cleaned each alternate day with soda, ash and bleaching powder.

Suggestions of children during PRA

During the midline survey, children have made some suggestions at PRA sessions for overall improvement of sanitation and environmental cleanliness in their localities. The suggestions with preference in both intervention and control groups are as follows:

- ✓ Child-friendly latrines should be installed.
- ✓ More sanitary latrines need to be in place.
- ✓ Supply of adequate light in the toilet must be ensured.
- ✓ There should be water source in or near latrine.
- ✓ Hand washing materials should be there in or near latrine.
- ✓ Open defecation must be stopped by the people in their respective communities.
- ✓ Latrines must be kept clean.
- ✓ More awareness-building programs should be undertaken to stop open defecation and maintain environmental cleanliness.
- ✓ More dustbins should be put in place.

Highlight

- ✓ Individual latrine users are 14.96%, Shared latrine users are 14.83%, and Community and Public latrine users are 70.19% of the total latrine users in intervention areas.
- ✓ Currently, on an average, 5.81 HHs are using each of the community/public latrines established by govt. or NGO in intervention communities.
- ✓ About 64% HHs under intervention has access to improved sanitation facilities (43% in individual and 21% in shared latrines).
- ✓ Community latrines are available in 34% of the intervention HHs.
- ✓ Latrine is user-friendly to around 80% females, 48% to physically disabled people, and 70% to old aged persons in intervention HHs.
- ✓ Maintenance of privacy is the major problem in females. The most common cause of not using latrine in physically disabled peoples is 'design is not friendly for them'.
- ✓ Around 85% of the intervention HHs can use latrine during rainy season or flood.
- ✓ In around 90% in intervention individual and shared latrine user HHs have someone to clean the latrine.
- ✓ Around 54% in intervention using shared latrines clean it themselves. Majority of them are cleaning the latrines once a week.
- ✓ Among own and shared latrine user HHs and cleaning latrines around 20% in intervention HHs are using washing powder and the same proportion using toilet cleaner.
- ✓ Among community latrine users there is no system of cleaning it.
- ✓ Around 24% of latrines in the intervention HHs appeared to be 'good/very good/clean'.
- ✓ Around 74% of women, 26% of physically disabled persons, and 66% of older members in the intervention HHs were consulted on type and site of latrines before its installation.
- ✓ Among the individual and shared latrine user intervention HHs, 78% children aged 3-9 years defecate in latrine.
- ✓ Among individual and shared latrine user intervention HHs 4.9% members above 5 years age defecate in open place.
- ✓ Children reported fear of falling in latrine, latrine is far away, can't change habit and dirty latrine' as to causes of open place defecation.
- ✓ About 31.8% HHs have appropriate solid waste disposal system and 46.5% have an appropriate waste water disposal system.
- ✓ Children in intervention group reported that although solid waste is mostly disposed of in ditches, waste-dumping into dustbins and collection of it by solid waste collectors have increased.
- ✓ In 45% of the intervention HHs no garbage was found (very clean).
- ✓ In about 71% of the intervention HHs 'no faeces' were found within the courtyards.
- ✓ Faeces were not visible around the courtyard in about 49% of the intervention HHs.
- ✓ *Shared latrines built under SHEWA-B Project:* Around 94% roofs and 91% wall of latrines are made of 'CI sheet', 80% floors are made of 'brick with plaster', and 53% pan is made of 'ceramic bend like geese neck'. On average 8.6 rings have been used in drainage pipe of latrines, 72% have soak pit, and 48% have ventilation pipe. Around 88% users are satisfied.
- ✓ *Community latrines built under SHEWA-B Project:* Around 90% roofs of latrines is made of 'casting/concrete', 94% wall is made of 'brick', 65% floor is made of 'brick with plaster', and 73% pan is made of 'ceramic bend like geese neck'. On average, there are 1.6 usable rooms for male, 2.0 usable rooms for female in these latrines, around 77% of have water pipe, 16% have basin, and 24% have electric light in every room. Around 45% of users are not satisfied with these latrines.
- ✓ *Small Scale Drains built under SWEWA-B Project:* Average length of drain is 14 feet, width 1.5 feet and depth 1.6 feet. Around 22% of the drains are constructed by bricks and 78% by brick-cement concrete. About 89% of the drains are covered, and in 78% there are adequate advantages for users. Around 89% users expressed satisfaction.

CHAPTER 6

WATER-SANITATION-HYGIENE RELATED MORBIDITY AND MORTALITY

6.1 Introduction

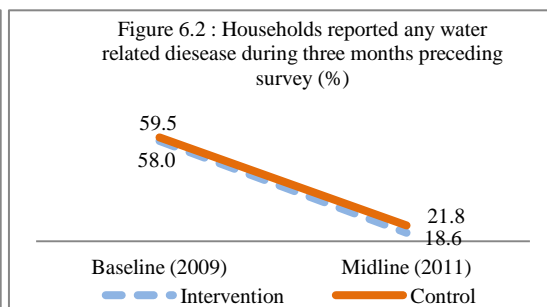
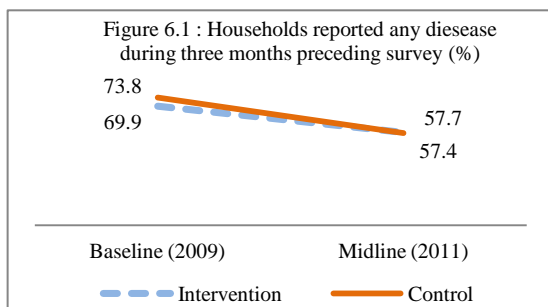
Water-sanitation-hygiene related germs are the major causes of morbidity and mortality in Bangladesh. Especially, water plays a major role in the overall disease profile of Bangladesh as Diarrhoea and other gastro-intestinal diseases account for nearly a quarter of all illnesses in Bangladesh⁴. Hence, successful intervention in the arena of water-sanitation-hygiene can bring certain desirable change in morbidity and mortality condition of the intervene population. At this backdrop, this chapter presents an analysis on the water-sanitation-hygiene related morbidity and mortality scenario in the SHEWA-B intervention area. In this regard, where necessary, comparisons have been drawn between experimental and control households. However, analysis of water-sanitation-hygiene related morbidity and mortality scenario of the intervention households have been carried out in light of the project’s relevant indicator as delineated in the box 6.1.

Box 6.1: Major Indicators
✓ Prevalence of diseases among household and household members.
✓ Prevalence of water-sanitation-hygiene related diseases among household and household members.
✓ Incidence of water-sanitation-hygiene related diseases as percent of all disease incidences.
✓ Cost of treatment due to water-sanitation-hygiene related diseases.
✓ Incidence of death due to water-sanitation-hygiene related diseases.

Some of the baseline data of this report are different from that of baseline report. Because of some estimation error, some data of baseline report exhibit this difference. However, in this report those estimation error has been addressed and re-estimated.

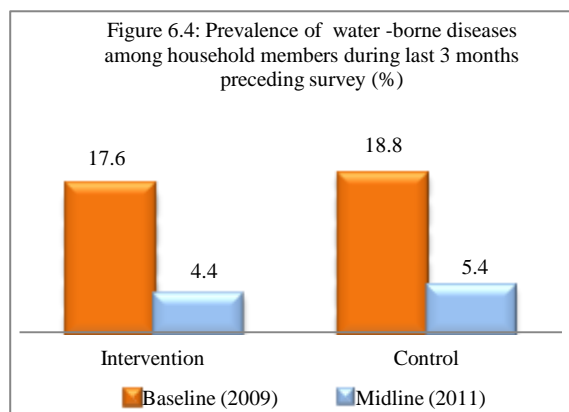
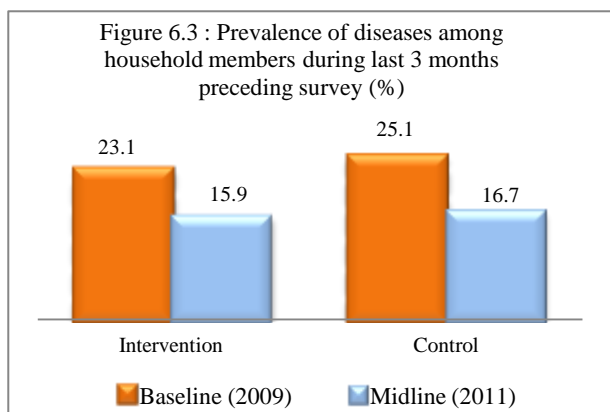
6.2 Incidence of Water-Sanitation-Hygiene Related Disease

It has been found that households reported of any short of diseases among the intervention and control household has reduced quite considerably (Figure 6.1). A 57.4 % of the intervention household reported of any disease during three months preceding the midline survey, which is 12.5 percentage-points lower than the respective scenario found in baseline survey. However, in this respect, the trend of decrease of water related diseases among the household in the intervention and control area is more prominent (Figure 6.2). Between baseline and midline survey time span, percentage of household reported of water-sanitation-hygiene related diseases has been decreased by 39.4 percentage-points among the surveyed households of intervention area. In this regard, this trend of declining is higher in the intervention area as compare to that in the control area (39.4 percentage-points vs. 37.7 percentage-points).

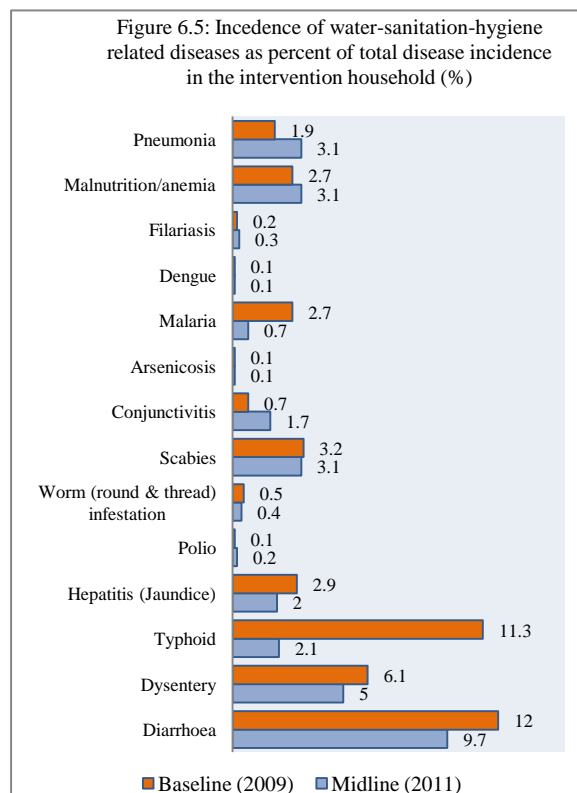


⁴ Banglapedia: Water-borne Disease, available at: http://www.banglapedia.org/httpdocs/HT/W_0035.HTM

During the midline survey, total of 11,672 members of the intervention household has been surveyed. Among these respondents, 15.9% respondents faced any diseases during within three months preceding the survey. However, during baseline survey about 23% of the surveyed household member⁵ reported of suffering from diseases during preceding three months of the survey. Hence, prevalence of any diseases among the household members has been decreased by 7.2 percentage-points. However, during this span of time i.e., time between baseline survey and midline survey, prevalence of water borne diseases has been reduced more notably (13.2 percentage-points) than that of any diseases (Figure 6.3 and 6.4). During the baseline survey, it was found that ratio of male and female respondents reported of water borne diseases were the same (i.e., 50:50). However, this ratio has been found the same during the midline survey.



During the baseline survey, incidences of water-sanitation-hygiene related diseases comprised of 44.5 % of all disease incidences in the intervention area⁶. However, in the midline survey it has been found that- this proportion of water-sanitation-hygiene relate disease incidences among all diseases incidences has been lessened to 31.6%. The incidences of specific types of water-sanitation-hygiene related diseases as percentage of all disease incidences depict that among the other, proportion of the incidences of water-sanitation-hygiene related diseases like typhoid, dysentery, diarrhoea have been reduced quite notably in the intervention area. Especially, proportion of the incidences of typhoid disease has been reduced quite sharply from 11.3% (Baseline) to 2.1% (Midline). The incidence of other water-sanitation-hygiene related diseases like hepatitis, malaria, scabies, and worm infestation as percentage of all disease



⁵ During baseline survey, 22976 and 7243 household members were surveyed in the intervention and control households respectively.

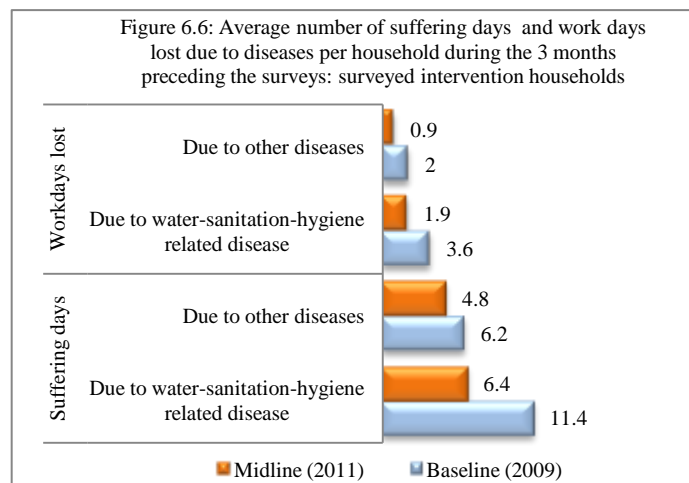
⁶ Here, cough and cold diseases are not considered as water-sanitation-hygiene related diseases. However, in baseline report, estimation was carried out by considering cough and cold as water-sanitation-hygiene related disease

incidences also has been reduced in some extent. However, incidences of water-sanitation-hygiene related diseases like pneumonia, malnutrition/anemia, dengue, arsenicosis as percentage of all disease incidences have not been changed or some extent increased slightly.

6.3 Days of Suffering and Workdays Lost due to Water-Sanitation-Hygiene Related Diseases

During the baseline survey, it has been found that the average number of suffering days and work days lost per intervention household (during the 3 months of preceding surveys) due to water-sanitation-hygiene related diseases have been reduced as compared to respective baseline condition of intervention households. Figure 6.6 shows that average number of suffering days due to water-sanitation-hygiene related diseases has been reduced to 6.4 days from 11.5 days. On the other hand, average number of suffering days due to other diseases also has been decreased slightly (from 6.2 days from to 4.8 days). However, average number of suffering days due to water-sanitation-hygiene related diseases has been reduced more prominently than that of other diseases.

Similar trend of changes are also visible among the intervention households in terms of work days lost scenario. While during the baseline period, on average 3.6 work days were lost by the intervention households; during the midline period, the average work days lost has been reduced to 1.9 days. In contrast, work days lost due to other diseases has been decreased to 0.9 work days from 2 work days (Figure 6.6).



6.4 Cost of Treatment

This chapter intends to delineate the changes of average cost of treatment in the intervention household between baseline and midline survey. For this study purpose, cost of treatment includes doctors' fee, cost of medicines, cost of diagnoses, and the cost of transportation. Besides that, for estimating average cost of treatment per household, expenditure for treatment during 3 months preceding the surveys has been used.

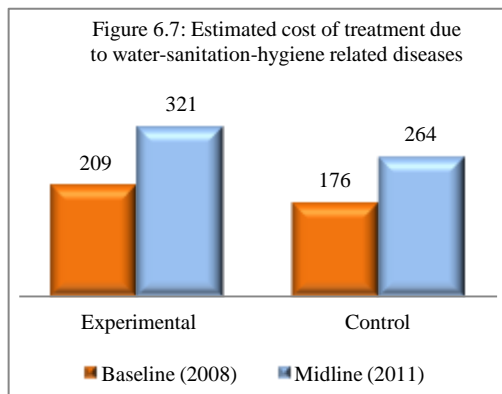
Table 6.1 shows that among the intervention households, average total cost of treatment per household due to water-borne diseases has been increased by Tk. 112 during the years between baseline and midline survey. On the contrary, average total cost of treatment per household due to other diseases has been decreased by Tk. 212. If cost

Table 6.1: Estimated average cost of treatment due to water-sanitation-hygiene related and other diseases during 3 months preceding survey per household: surveyed intervention households (in Tk.)

Cost components	Cost	
	Baseline (2008) ⁷	Midline (2011)
<i>Cost due to water-borne diseases</i>		
Doctor fee	28	36
Medicine cost	151	239
Diagnostic cost	17	27
Transport cost	13	19
Total cost	209	321
<i>Cost due to other diseases</i>		
Doctor fee	44	18
Medicine cost	298	187
Diagnostic cost	75	23
Transport cost	35	12
Total cost	452	240
<i>Cost due to all types of diseases</i>		
Doctor fee	71	54
Medicine cost	449	427
Diagnostic cost	92	49
Transport cost	47	31
Total cost	659	561

⁷ Inflation adjusted current price in 2011

component (i.e., doctors’ fee, medicine cost etc.) of treatment due water-sanitation-hygiene related and other diseases are considered, similar patterns of changes are also visible among the intervention household (Table 6.1). In this regard, it is noteworthy that cost of treatment for specific diseases tends to increase when people become more conscious about those diseases. At this backdrop, the above information suggests that households of SHEWA-B intervention area has performed better in the area of treatment of water-sanitation-hygiene related diseases during midline survey. From the figure 6.7 it is evident that- among the control household cost of treatment due to water borne diseases has been increased by 50%; while among the intervention households respective cost of treatment has been increased by 53%.



6.5 Mortality Related to Water-Sanitation-Hygiene Diseases

It has been found that rate of death due to various diseases has been decreased quite significantly among the intervention households (Table 6.2). While during the baseline survey, death rate (due to diseases) per thousand was 3.31; during midline survey, it has been found 0.98 people per thousand population. However, in line with the declining trend of death rate due to all diseases, rate of death due to water-sanitation-hygiene related diseases also has been reduced during the years between baseline and midline survey. During the baseline survey (2008) among 4819 intervention households, incidences of death due to water-sanitation-hygiene related diseases was found 57 (i.e., death rate- 1.24 per thousand population). However, during the midline survey (2011), water-sanitation-hygiene diseases caused death rate has been reduced to 0.73 per thousand populations among the survey intervention households (2425 households).

Incidence of death		Baseline (2008)	Midline (2011)
Due to all diseases	Rate per thousand (per year)	3.31	0.98
	n	152	23
Due to water-sanitation -hygiene diseases	Rate per thousand (per year)	1.24	0.73
	n	57	17
Number of sample household members (N)		22976	11672

6.6 Water-Sanitation-Hygiene Related Diseases Scenario-Local Quack Doctors Opinion

During the midline survey it has been found that the average number of patients receiving treatment per day from a local quack doctor is estimated to be 44 in the intervention area. Among these patients, medical practitioners consider 73.4% as poor. However, during the baseline survey it was reported that on average 17 patients received treatment from a local quack doctors and 78.5% of these patients were poor (Table 6.3). Table 6.3 suggests that in the intervention area proportion of women patients receiving treatment has been increased by 6.5 percentage-points (55.8% in baseline period).

	Baseline (2008)	Midline (2011)
Number of patients receiving treatment in a day (average)	17.1	44.2
Respondents reporting the percentage of patients being poor	78.5	73.4
Respondents reporting the percentage of patients being women	49.3	55.8
N (Number of medical practitioners)	17	18

Highlight

- ✓ Between baseline and midline survey time span, while percentage of household reported of any disease during three months preceding the surveys has been reduced by 12.5 percentage-points; percentage of household reported of water-sanitation-hygiene related diseases has been decreased by 39.4 percentage-points among the surveyed intervention household.
- ✓ While during the baseline survey the incidences of water-sanitation-hygiene related diseases comprised of 44.5 % of all disease incidences, during the midline survey this proportion has been reduced to 31.6%.
- ✓ In the midline survey, the average number of suffering days and lost workdays per household due to water-sanitation-hygiene related diseases are estimated to be 6.4 days and 1.9 days (during 3 months of preceding survey) respectively in the intervention area. However, during baseline survey, due to water-sanitation-hygiene related diseases the average number of suffering days and lost workdays per household were 11.4 and 3.6 days respectively.
- ✓ Between the years between baseline and midline survey, while average total cost of treatment per household due to water-sanitation-hygiene related diseases has been increased by Tk. 112; average total cost of treatment per household due to other diseases has been decreased by Tk. 212.
- ✓ Among the surveyed intervention households, during the midline survey (2011), water-sanitation-hygiene diseases caused death rate has been reduced to 0.73 from 1.24 (Baseline) per thousand populations.

CHAPTER 7

HYGIENE ISSUES: KNOWLEDGE STATUS, SOURCE OF KNOWLEDGE, AND OBSERVATION

7.1 Introduction

In this chapter, status of knowledge on different hygiene issues for different categories of people – adult males/females and children– along with the source(s) of knowledge have been identified. In addition, a separate instrument, especially focusing on observation has been administered to know the actual practice level. In the sample pourasavas, owners/salesmen of retail shops (selling personal hygiene items) were interviewed to understand the sales scenario of various personal hygiene-related products. The data and information collected during midline survey has been compared with baseline.

7.2 Hygiene Issues: Reported Knowledge, and Source of Knowledge

Status of knowledge on hygiene issues and source of knowledge had been identified for different categories of people – adult males/females and children – using separate Data Collection Instruments. These instruments include household survey for adult male/female and Participatory Research Appraisal (PRA) with children. In addition, a separate instrument, especially focusing on observation, had been administered to know the actual practice level.

7.2.1 Hygiene: Knowledge and their Sources among Adult Males and Females

A total of 17 indicators had been used in the HH survey to assess the midline status on respondents' knowledge on hygiene issues.

In the HH survey, respondents (mostly women) were asked about a number of crucial hygiene issues to identify whether they knew them or not. They were also asked about the sources of their knowledge on the hygiene issues.

It has been found that the knowledge status on hygiene issues has been increased significantly among the intervention households than the control households in last about two years (from baseline to midline).

Knowledge status of all the indicators have been increased among the intervention households during the midline compared to the baseline situation.

It is very interesting to observe that SHEWA-B intervention has significant impact on improving the knowledge status on sanitation and hygiene issues- which becomes more visible while the intervention household's data is compared with compared household. The overall situation among the control households has been increased to some extent, but the improvement rate is very high among the intervention households compared to control household's status on knowledge. The net changes (improvement) due to SHEWA-B interventions has been found significant in most of the indicators used to assess the knowledge status on sanitation and hygiene issues (Table 7.1)- which indicates of positive contribution of SHEW-B interventions.

Knowledge on proper disposal of children’s faeces has been increased by more than double (from 32% to 71%). Knowledge on maintenance of sanitary latrine has been increased to 71% from 42%. Knowledge about proper hand washing methods before preparing foods has been increased notably (from 52% to 77%). Knowledge about washing hands before feeding to baby has been increased to 79% from 54%. The knowledge about use of sanitary latrine by all household members including the children has been doubled (from 40% to 70%). The knowledge about washing hands after disposing of children’s faeces has also been increased significantly (from 54% to 81%). The knowledge status on other indicators has also been increased significantly.

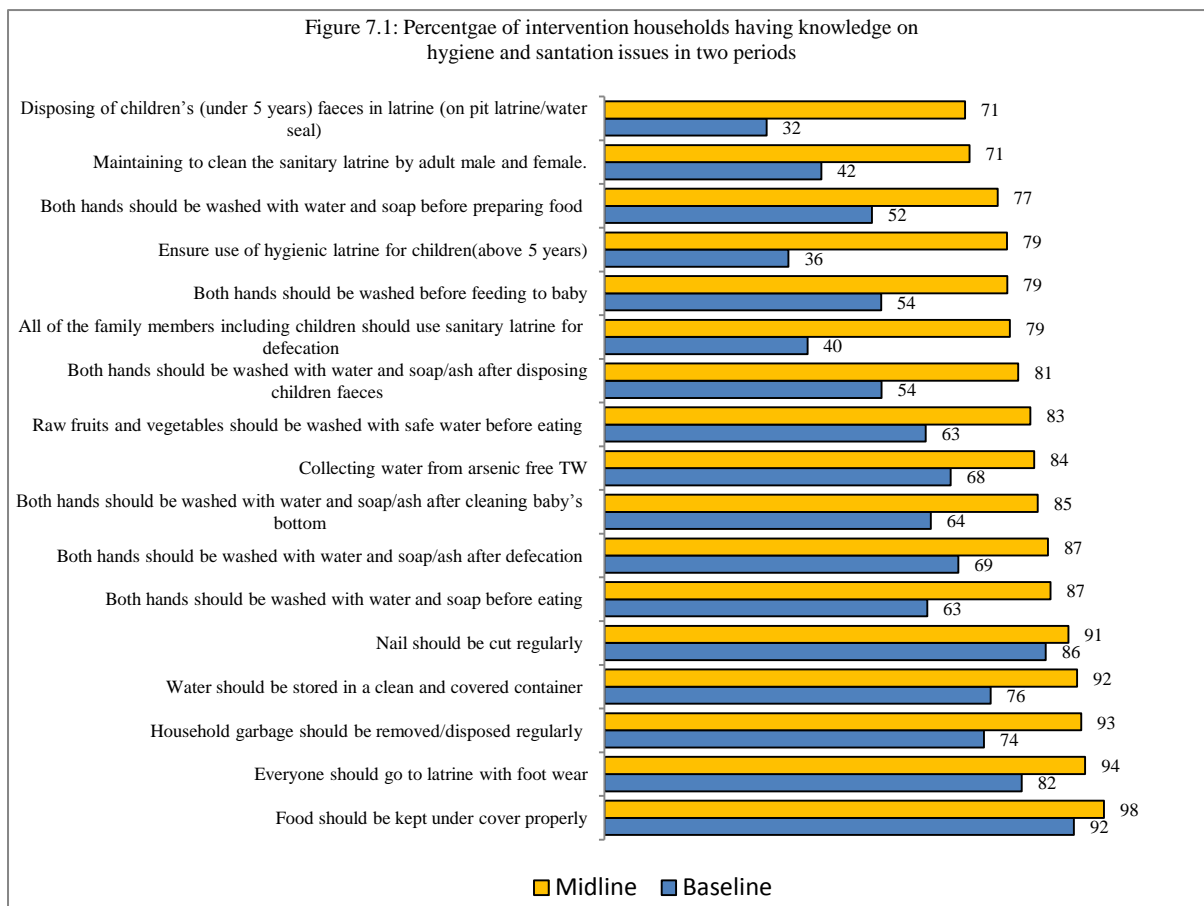


Table 7.1: Hygiene knowledge status

Issues	Intervention		Control		Net changes due to SHEWA-B interventions (percentage-points)
	Baseline (%)	Midline (%)	Baseline (%)	Midline (%)	
1. Both hands should be washed with water and soap before preparing food	52.3	76.9	56	53.1	27.5
2. Both hands should be washed before feeding to baby	54.1	78.8	55.1	53.3	26.5
3. Both hands should be washed with water and soap/ash after disposing children faeces	54.2	80.9	52.3	58.1	20.9
4. Both hands should be washed with water and soap before eating	63.1	87.2	64.6	69.3	19.4
5. Ensure use of hygienic latrine for children(above 5 years)	36	78.7	27.7	51.3	19.1
6. All of the family members including children should use sanitary latrine for defecation	39.7	79.3	30.8	52.1	18.3
7. Maintaining to clean the sanitary latrine by adult male and female.	42.4	71.4	33	45.3	16.7
8. Disposing of children's (under 5 years) faeces in latrine (on pit latrine/water seal)	31.7	70.5	22.2	44.9	16.1
9. Both hands should be washed with water and soap/ash after cleaning baby's bottom	63.8	84.7	62.3	68.3	14.9
10. Both hands should be washed with water and soap/ash after defecation	69.2	86.7	69.9	73.9	13.5
11. Raw fruits and vegetables should be washed with safe water before eating	62.8	83.3	58.6	66.3	12.8
12. Food should be kept under cover properly	91.8	97.7	94	90.6	9.3
13. Everyone should go to latrine with foot wear	81.6	94	81	85	8.4
14. Household garbage should be removed/disposed regularly	74.2	93.2	71.6	82.3	8.3
15. Nail should be cut regularly	86.3	90.7	86.8	85	6.2
16. Water should be stored in a clean and covered container	75.5	92.4	69.7	81.4	5.2
17. Collecting water from arsenic free TW	67.7	84	59.5	76.1	-0.3

It is mention worthy that the status of output indicator 1.2 of the SHEWA-B log frame⁸ has been improved significantly during midline compared to the baseline (here, *the knowledge status of the community people*). In the baseline while only 9.5% of the community people at household level had adequate knowledge on hygiene, sanitation, and safe water message, now, at midline 70.9% of the community people have adequate knowledge on this issue⁹. It is also noteworthy that 8.2% of the community people did not any knowledge on any of the 17 indicators during baseline and during midline this percentage has been reduced to almost nil (i.e., 0.7%).

⁸ **Output indicator 1.2:** Percentage of people in communities and school children in project area having adequate knowledge of hygiene, sanitation, and safe water message.

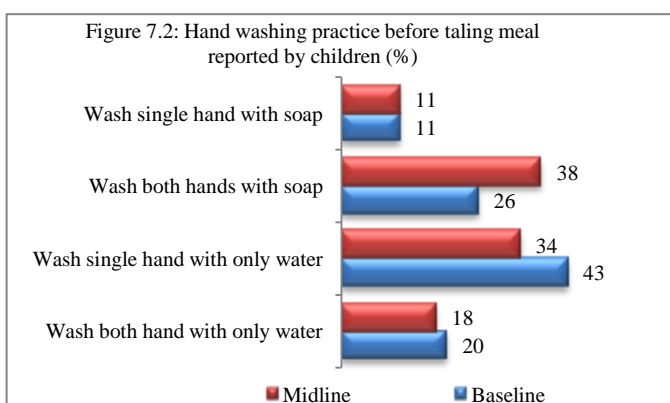
⁹ A same operational definition has been used to assess the adequate knowledge status in both the phases of the study-*baseline* and *midline*. Knowledge on any of the five indicators out of ten indicators has been considered as *adequate*. The indicators are: 1) Both hands should be washed with water and soap before eating; 2) Both hands should be washed with water and soap/ash after defecation; 3) Both hands should be washed with water and soap/ash after cleaning baby's bottom; 4) All of the family members including children should use sanitary latrine for defecation; 5) Ensure use of hygienic latrine for children (above 5 years); 6) Disposing off children's (under 5 years) faeces in latrine (on pit latrine/water seal); 7) Maintaining to clean the sanitary latrine by adult male and female; 8) Collecting water from arsenic free tube-well; 9) Water should be stored in a clean and covered container; 10) Raw fruits and vegetables should be washed with safe water before eating.

It is interesting to observe that the main source of knowledge on the hygiene and sanitation related indicators have been reported as NGO workers during baseline, which was television in the baseline. This surely indicates the positive result of knowledge dissemination interventions of SHEWA-B. It becomes more visible when this is compared with the control households- where they still report *television* and *family members/relative/neighbors* as main source of knowledge of the hygiene and sanitation related indicators.

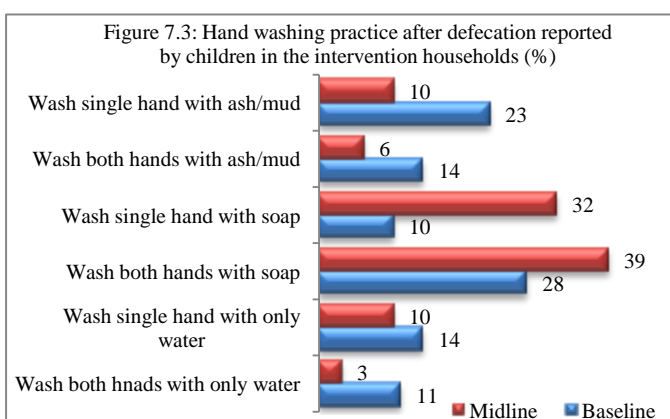
7.2.2 Hygiene Issues in the “Eyes of Children”

Hygiene issues were discussed in a number of Participatory Research Appraisal (PRA) sessions with active participation of children.

It has been found that among the PRA participants, 38% of the children now wash both hands with soap before taking meal- which was 26% during baseline (i.e., 12 percentage-points increment). It is to note that, in the baseline the figure on this indicator was 21% among the children of control households, which has been increased to 30% during midline (i.e., 9 percentage-points increment). This indicates that the gross impact of SHEWA-B intervention is 3 percentage points (i.e., 12 percentage-points *minus* 9 percentage-points) on this indicator.



The children among the intervention households, in the PRA sessions have reported that their practice of washing both hands with soap after defecation has been increased compared to baseline (from 28% to 39%; an increment of 11 percentage-points). Washing single hand with soap after defecation has been increased by 22 percentage-points (from 10% to 32%). The trend has been reported similar among the PRA participants in control households.



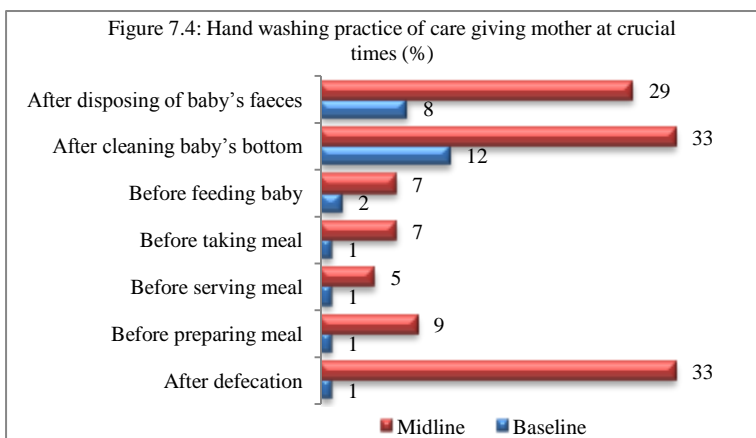
In the PRA sessions, it has been found that the children have suffered from water-borne diseases significantly compared to the baseline situation. Currently, 25% of the children have reported about suffering from water-borne diseases in last three months, which was 56% during baseline (i.e., 31 percentage-points decrease).

The practice of using footwear in the latrine has been increased among the children during midline compared to baseline. While in the baseline, 77% of the children in intervention households reported about using footwear in latrines, currently 84% of them report about it. Among the children of control households- this figure on this indicator is 78%, which was 72% in the baseline.

7.3 Hygiene Issues: Observation¹⁰

Hand washing practice of mother with children at crucial times¹¹

Hand washing practice among the care-giving mother with children at crucial times has been observed. It has been found that the practice level against various indicators have been improved in last two years. After defecation, 33% mothers wash both hands with soap/ash, which was only 1% in baseline. A 33% mother wash both hands with soap/ash after cleaning baby’s bottom, which was 12% during baseline. A 29% of mothers wash both hands with soap/ash after disposing of baby’s faeces, which was 8% during baseline. However, the rate of washing both hands with soap/ash before feeding baby, before taking meal, before serving meal, before preparing meal- is still notably low.

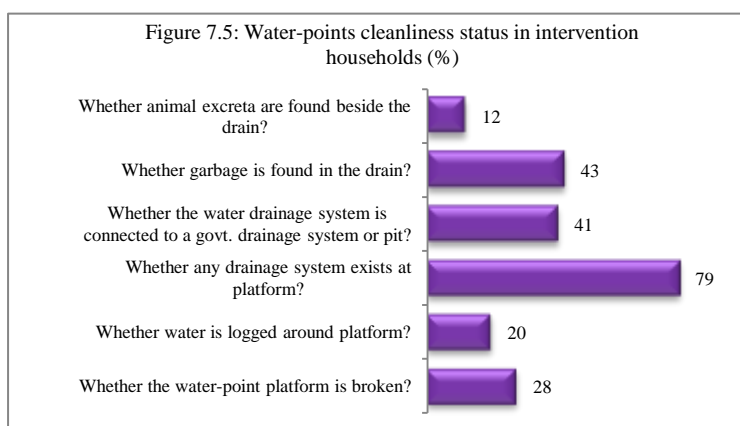


Location and availability of water and soap/ash at convenient place to use after defecation¹²

During the midline survey in 49% households water and soap/ash has been found at convenient place to use after defecation, which was 30% during the baseline (i.e., 19 percentage-points increment).

Cleanliness status of water-points at household¹³

Currently in 55% cases clean environment have been found around water point, which was 44% during baseline in the intervention households. It has been observed in 28% of the intervention households that platform of the water-points are broken. In 20% cases water is logged around platform. In 79% cases drainage system exists of the water-point platforms. In 41% cases drainage system is connected to govt. drainage system. In 43% cases garbage is found in the drain. In 12% cases animal excreta is found beside the drain. This pattern remains similar to the baseline situation.



¹⁰ The findings of this section are the outcome of real observation in household level using different tools and techniques.
¹¹ Related to **Purpose Indicator: 1**. Proportion of mothers of estimated 2.5 million children under five years of age in project areas observed to practice hand washing with both hands and soap/ash at key critical times.
¹² **Output indicator 1.3:** Percentage of households and schools in project areas having clean soap/ash and water at convenient place for hand washing after defecation.
¹³ **Output indicator 1.4:** Percentage of *households* and schools in project area having clean environment around water point.

Storage of drinking water¹⁴

It has been observed that currently in 35% of the households in the intervention area have kept their drinking water in jug, followed by pitcher (13%), and cooking pot (12%). The trend is similar among the control households too. It is interesting to observe that while in the baseline in 50% of both the intervention and control households preserved water in pitcher- that has been reduced to only around 13% and the use of jug has been increased significantly.

It has been observed that in 56% of the intervention households drinking water has been kept in a covered pot, which was 44% in baseline- that is, a 12 percentage-points increment has been observed.

Highlights
<ul style="list-style-type: none"> ✓ In the baseline while only 9.5% of the community people at household level had adequate knowledge on hygiene, sanitation, and safe water message, now, at midline 70.9% of the community people have adequate knowledge on this issue. The main source of knowledge on the hygiene and sanitation related indicators have been reported as NGO workers during baseline, which was television in the baseline. This surely indicates the positive result of knowledge dissemination interventions of SHEWA-B. ✓ Hygiene issues were discussed in a number of Participatory Research Appraisal (PRA) sessions with active participation of children. It has been found that among the PRA participants, 38% of the children of intervention households now wash both hands with soap before taking meal- which was 26% during baseline (i.e., 12 percentage-points increment). It has also been reported by children that their practice of washing both hands with soap after defecation has been increased compared to baseline (from 28% to 39%; an increment of 11 percentage-points). ✓ Hand washing practice among the care-giving mother with children at crucial times has been observed and found that the practice level against various indicators have been improved in last two years. After defecation, 33% mothers wash both hands with soap/ash, which was only 1% in baseline. A 33% mother wash both hands with soap/ash after cleaning baby’s bottom, which was 12% during baseline. ✓ During the midline survey in 49% households water and soap/ash has been found at convenient place to use after defecation, which was 30% during the baseline (i.e., 19 percentage-points increment). ✓ It has been observed in 28% of the intervention households that platform of the water-points are broken. In 20% cases water is logged around platform. In 79% cases drainage system exists of the water-point platforms. In 41% cases drainage system is connected to govt. drainage system. In 43% cases garbage is found in the drain. In 12% cases animal excreta is found beside the drain. ✓ It has been observed that in 56% of the intervention households drinking water has been kept in a covered pot, which was 44% in baseline- that is, a 12 percentage-points increment has been observed.

¹⁴ **Output indicator 1.6:** Percentage of households keeping their drinking water stored in a covered container.

CHAPTER 8

MENSTRUAL HYGIENE: KNOWLEDGE, SOURCE OF KNOWLEDGE, AND PRACTICE

8.1 Introduction

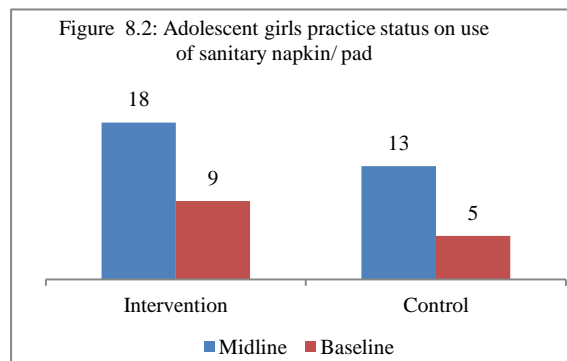
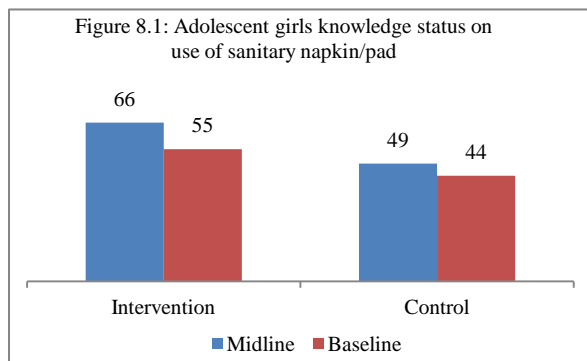
Menstrual hygiene (MH) and menstrual practices are still shackled by a plethora of inviolable taboos and irreverent socio-cultural constraints. As a sequel, adolescent girls and women are remaining incognizant about the real dynamics of menstrual cycle and related hygienic health practices sometimes result into unpleasant and uncongenial health hazards. In the midline survey, in-depth interview was conducted with the adolescent girls in intervention and control HHs with the help of pre-designed and pre-tested questionnaire. The objective was to ascertain their knowledge, attitude and practice regarding MH management issues. A total of 722 HHs representatives were selected for administering the in-depth-interviews in the intervention and control households. Using semi-structured questionnaire, each respondent was asked 22 questions. A total of 30 FGDs were carried out with the adolescent girls in the intervention and control areas. Each FGD had 5-7 participants and was coordinated by a moderator and an observer following a flexible discussion guideline. An attempt was made as well to ensure that members of the same status HHs participated in the discussion to make it more representative and unbiased. The clusters and HHs for the in-depth interview and FGDs were selected randomly. The mean age of the adolescent girls was 14.25 years and most of them (98.6%) were Muslim.

8.2 Menstrual Hygiene: Knowledge, Source of Knowledge, Practice and Dissemination among Adolescent Girls

Knowledge and practice about menstrual hygiene management generally depends on attitude, economic stability, cultural context, and socio- economic condition of adolescent girls. This sub- section of the study aims at assessing the knowledge, practices associated with care and cleanliness during menstrual period of the adolescent girls in the project area. In the midline survey, the respondents were asked questions regarding the knowledge and practices during menstruation. They were asked what did they know about, and used during their periods. The research indicates, most of the adolescent girls in the project area reported that they would know about the use of old rags during menstruation (96% in the intervention and 99% in the control HHs). Moreover, over four-fifth of the respondents (79.2%) in the intervention and almost all (97%) in the control HHs during their period used old rags. The percentage of adolescent girls using old rags was highest at Sirajganj (97%) and lowest at Gaibandha (81%). In the baseline, significant portion of adolescent girls (92% in the intervention and 90% in the control HHs) told that they knew as well as practiced the use of old rags during menstruation.

Two-thirds of adolescent girls in intervention HHs said that they have knowledge about use of sanitary napkin/pad, but only about 18% of them used readymade napkins/pads during period. This proportion was highest at Shibganj (23%) and lowest at Homna (13%). In control households, adolescent girls reported that 49% of them had knowledge about using sanitary napkin/pad but actually only 13% used it. In the baseline, 55% of the adolescent girls in the intervention HHs reported that they knew about the use of sanitary pad whereas only

9% used it during menstrual period. Again, 44% of adolescent girls in the control HHs asserted that they know about the use of sanitary napkins /pad during menstruation while a very insignificant percentage among them (5%) used it (Figures 8.1 and 8.2).



In intervention HHs, 52% adolescent girls claimed that they know about the use of new rag during menstrual period (19% had the practice of using new rags, and 17% disseminated their knowledge on this issue to others). But in the control HHs, 45% adolescent girls reported that they knew about the use of new rag and around 30% of them practiced using it. As regards to the baseline situation, it was affirmed that 55% of adolescent girls in the intervention HHs had knowledge about using new rags and only 30% of them had practiced it. Contrary to this, in control HHs, 45% of adolescent girls told that they know about the use of new rag but only 28% of them practiced.

In intervention HHs, only 3% of adolescent girls practiced using cotton during menstrual cycle. But in the control HHs only 1% of the adolescent girls practiced it. A look into the baseline scenario reveals that 1% of adolescent girls practiced using of cotton in the intervention and only 1.5% in the control HHs.

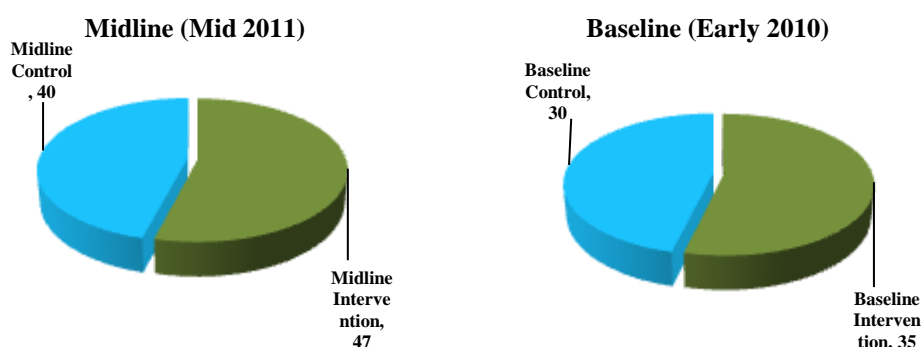
In the intervention HHs, the respondents who reported using old rags, new rags or readymade pads were asked how often they changed the same. More than half of the respondents (51%) told that they changed these once a day, and 29% reported changing twice a day. Nearly one-fifth of the respondents were accustomed in changing the same more than thrice a day. In the control HHs, about 40% of the respondents confirmed that they changed old rags and new rags or readymade pads once a day and 24 % of the respondents mentioned that changing twice a day. Some of the respondents (35%) in the control HHs reported changing the old rags, new rags, or sanitary pads more than thrice a day. In the baseline, irrespective of household category, it was found that 45% of the adolescent girls changed napkins/old rags and new rags twice a day and the remaining changed thrice a day in the intervention HHs. In the control HHs, most of the respondents (65%) reported that they changed twice a day and 34% of them changed once a day.

The respondents who used old rags, new rags or readymade pads during the periods were also asked about the reusability of the same. About 91% of the respondents alluded that they reused it while 4 % of them destroyed it. However, most of the respondents told that they throw or disposed used materials in holes (52% in intervention and 53% in control HHs) followed by ditch/pit (20% in intervention and 19% in control). In the baseline, a large number of adolescent girls reported that they dispose of napkins/rags in holes on the ground (39% in intervention and 46% in control HHs) followed by ditch/pit (28% in intervention and 23% in control). The adolescent girls reusing the cloth or pads were inquired whether the cloth was properly washed or not. In reply, 67% of the respondents told that they washed the

cloth with soap and water and 37% of them reported that usually they washed the cloth only with water. In the baseline, majority of adolescent girls carried out practice of washing used rags with soap (90% in both intervention and control).

The adolescent girls were further probed about the location where they dried up the cloth. The survey indicates that before reusing 47% of the respondents in intervention HH lay the rags in sun outside the house whereas the remaining of them were habituated in drying it in the sun and dark inside the house. In the control HHs 40% of the respondents said that they dried the rags in the sun outside the house while the others dried in the sun inside the house. In the baseline 35% of the adolescent girls in the intervention and 30% in the control HHs reported that they dried the washed rags in the sun outside the house (Figures 8.3).

Figure 8.3: Adolescent girls practice status about drying rag in the sun outside house



In the midline survey, the respondents in menses were asked questions about the type of adversities they encountered regarding menstrual hygiene management. Most of the adolescent girls (59%) in the project area reported that they did not face any difficulties during menstruation, 43% reported that they felt shy to dry up used cloths in the sun outside, 7% replied that lack of privacy was a problem. A very few adolescent girls (14%) answered that their toilets were not user- friendly during periods.

It is to note that in midline survey the level of awareness, understanding and perception about the use of rags, sanitary napkin/ pad, washing rags with soap and water and drying rags in the sun was higher than the baseline situation. However, from the stand point of hygienic health management a significant number of respondents realized that they should use new rag and sanitary napkins during menstrual period.

8.3 Specific Progress Regarding Knowledge and Practice about MH Management

As compared to baseline survey data, during the midline survey, specific progress was found regarding knowledge and practice about care and cleanliness during menstrual period of adolescent girls. The midline values with regard to knowledge and practice level of 4 indicators (*knowledge and use of sanitary napkins/pad, use of new rags by the adolescent girls, knowledge and practice level of washing rags (new and old) with water along with soap and knowledge and practice level of drying rags (new and old) in the sunlight outside the house*) are higher than the values of the indicators in baseline. A greater than 6 and 1.2 percentage point improvement was found in the knowledge and practice level of use of

sanitary pad. Two, and one and half percentage point improvement in the knowledge and practice level in washing rags (new and old) with soap and water and 2 percentage point improvement in the knowledge as well as practice level in drying rags in the sun outside house was found.

The main reasons for these progresses were that the community hygiene promoters (CHPs) of the field agencies had constantly conducted campaign program with the adolescent girls through courtyard meetings and also at household level through HH visit. The CHPs also conducted drama, folk song, tea stall session for enhancing the knowledge and practice level about personal hygiene, sanitation and clean environment.

8.4 Main Sources of Knowledge

One-third (34%) of the adolescent girls (34%) in intervention and 18% in control HHs received information from their mothers regarding use of new rags. But in the baseline, it was 34% and 31% in the intervention and control HHs respectively followed by NGO workers (22% in intervention and 12.2% in control HHs) while in the baseline it was only 3 % in the intervention and 2.2% in the control HHs. Sister and sister-in-law informed 20% of adolescent girls in intervention and 11% in control HHs, in the baseline 26% in intervention and 16% in the control HHs; friends informed 12 % both in intervention and control HHs; in the base line it was 15% in the intervention and 16% in the control HHs. The role of the government health worker in this regard is quite pessimistic since they are found to inform insignificantly only (7%) in the intervention and 3% in control HHs. Only 3% of the adolescent girls received information from their female teacher about use of new rags. NGO worker was the source of information for about 44% of the adolescent girls in the intervention and 6% in control HHs in use of sanitary napkins/pad. A relatively lower percentage of the adolescent girls (30%) in the intervention and (12%) of the adolescent girls reported television was the source of information in the use of sanitary napkins/pad. In the baseline television was the main source of knowledge about use of sanitary napkin/pad (38% in intervention and 29% in control HHs), followed by sister in law/sister (23% in intervention and 12% in control HHs).

Mother was the main source of knowledge in using old rags (42% in intervention and 49% in control HHs), it was reported that in the baseline the main source of knowledge in using old rags was mother (45% in intervention and 48% in control HHs) followed by sister-in-law/sister (30% in intervention and 29% in control HHs); friends (29% in intervention and 30% in control HHs).

As was reported, adolescent girls learnt washing rags with soap mostly from their mother (54% in intervention and 31% in control HHs).The next being from the sister-in-law (39% each in intervention and control HHs). In the baseline survey; it was found that the adolescent girls came to learn drying rag in sufficient sun mostly from mother (67% in intervention and 32% in control HHs) followed by sister, and sister –in –law (64% in intervention and 44% in control HHs).

Table 8.1: Adolescent girls reported main source of knowledge about care and cleanliness during menstrual period

Knowledge about care and cleanliness during menstrual period	Intervention/ Control	Phase	Main source of knowledge									
			TV	NGO Worker	Govt. Health Worker	Neighbor	Relatives	Teacher	Mother	Sister in low/ Sister	Friends	Student/ Classmate
Use of sanitary napkin/ pad	Intervention	Midline	29.6	14.2	2.7	1.5	7.2	1.4	10.5	19.6	9.4	3.9
		Baseline	38.1	5.2	1.5	3.0	7.0	2.8	6.7	12.5	16	3.2
	Control	Midline	36.8	6.3	3.2	1.1	5.3	1.1	7.4	24.2	12.6	1.1
		Baseline	29.2	8.7	1.9	1.9	5.0	3.1	4.3	19.9	16.1	3.7
Use of rag (new)	Intervention	Midline	0.4	22	3.1	3.7	4.8	2.9	34	15.1	12.3	1.7
		Baseline	1.7	3.0	1.2	3.6	6.8	2.5	33.8	26.2	14.6	1.5
	Control	Midline	0	2.2	0	4.5	6.5	4.9	18	11	27.7	24.6
		Baseline	2.2	0	0	6.1	6.7	1.7	30.7	25.7	16.2	1.7
Use of rag (old)	Intervention	Midline	0	5.3	0.6	3.4	6.5	0	42.1	29.8	6.7	2.6
		Baseline	0.4	1.6	0.3	2.5	6.0	1.0	44.6	29.0	9.5	0.8
	Control	Midline		1.6	0.5	1.6	4.7		49.2	29.5	6.7	2.6
		Baseline	0.6	0.6	0	2.6	3.4	0.9	48.1	29.8	8.3	1.1
To wash used rag with soap	Intervention	Midline		8.5	2	3.1	4.4	1.1	38.7	30.2	6.7	1.9
		Baseline	0.6	2.3	0.9	2.4	6.6	0.9	43.2	28.9	8.6	0.9
	Control	Midline	0	3.7	0.5	0.5	4.2		50.3	29.8	6.3	1.0
		Baseline	0.3	1.8	0.7	2.2	6.5	1.0	43.8	29.3	8.3	1.1
To wash used rag with only water	Intervention	Midline		6.9	0.8	6.6	6.6	0.4	34.0	27.8	9.8	2.7
		Baseline	0.6	0.8	0	14.6	5.7	0.4	32.3	26.2	14.6	2.0
	Control	Midline		1.3	0	2.6	3.9		47.4	26.3	6.6	6.6
		Baseline	0.6	0.6	0	13.0	6.2	0.6	34.1	25.7	14.5	2.3
To dry rag in sufficient sun inside house	Intervention	Midline		9.9	1.8	3.4	4.2	1.0	39.0	28.8	7.0	1.0
		Baseline	1.0	3.1	0.9	4.2	5.6	1.5	35.9	29.6	10.4	1.2
	Control	Midline		5.0	0.8	3.3	5.0		40.8	30.0	9.2	4.2
		Baseline	0.9	2.8	0.5	4.2	2.8	0.9	39.7	25.7	9.8	3.7
To dry rag in sun light outside house	Intervention	Midline		10.2	1.3	2.4	5.0	1.6	31.9	34.8	6.8	1.8
		Baseline	1.8	3.7	1.1	4.5	6.6	1.5	32.7	29.0	12.0	1.4
	Control	Midline		3.5	1.8	3.5	6.2	0.9	31.9	32.7	11.5	3.5
		Baseline	1.6	3.4	0.8	4.8	6.1	1.3	32.9	30.1	11.5	1.4

In the focus group discussion, most of the adolescent girls reported that they were accustomed to use old and new rag in their menstrual period. A very few adolescent girls practiced to use napkin/pad; but they have knowledge to use sanitary napkins/pad. It was reported that in the project area, most of the household are too poor to buy sanitary napkins/pads and consequently use rags, torn from old sarees, petticoat and other cloths. During menstrual period, majority of the girls received information from their mothers and NGO worker about menstrual hygiene. A very few girls received information from their teacher. Most of the adolescent girls were scared and anxious at the time of their first menstrual flow. Some girls were irritated and disgusted at the time of their first menstruation.

8.5 Social Exclusion: Taboos and Restriction

Regarding restrictions, most of the girls did not attend religious occasions during menstruation; some girls even did not attend the schools. In the FGD, most of the adolescent girls reported about restriction in daily life such as not being allowed to move openly; enter into holy places; maintaining unkempt hair; standing under big trees at nightfall, keeping a wire- nail at times going outsides and get to sleep with others during night. Sometimes sleeping on a mattress was also prohibited. Apart from these, taboos of dietary restriction like curd, milk, spicy, sour food, and hot beverage during menstrual period were also highly pronounced among the adolescent girls. Social restrictions prevented them from moving out

unnecessary, avoiding male company. Physical restrictions e.g., participation in outdoor sports like swimming, running, racing, lifting heavy objects were also mentioned.

Adolescent girls participated in the FGDs expressed willingness to use sanitary napkins/ pads if these are made available at cheaper price. However, use of sanitary napkins may not increase mainly due to financial hardship and recurring cost of these napkins. In such circumstances, the second best alternative for the girls is to use a clean piece of cloth. Hence, more awareness building campaign and grass root advocacy among the girls is urgently needed to motivate them in using clean cloths.

8.6 Conclusions

The adolescent girls are the future mothers. It is important to encourage safe and hygienic practices among the adolescent girls, educating them about issues related to menstruation and bring them out of all traditional beliefs, misconceptions and restrictions regarding menstruation, so that they can protect themselves against various infections and diseases. The SHEWA-BUC programme also involved the adolescent girls in the age group of 13-18 years in their program to ensure the improvement of MH management issues in the long run. As a part of hygiene promotion initiative under SHEWA-B UC project, the trained Community Hygiene Promoters seriously addressed the menstrual management issue among adolescent girls. CHPs met regularly with adolescent girls in the project area to speak to them about the hygiene, especially the menstrual hygiene.

Highlight
<ul style="list-style-type: none"> ✓ Menstrual hygiene is a taboo and ritual topic. In the slum areas, adolescent girls are uncomfortable discussing in public. Knowledge and practice regarding menstrual hygiene management depend on socio-cultural and economic stability of the adolescent girl. ✓ A greater than 6 and 1.2 percentage point improvement was found in the knowledge and practice level of use of sanitary pad. Two, and one and half percentage point improvement in the knowledge and practice level in washing rags (new and old) with soap and water and 2 percentage point improvement in the knowledge as well as practice level in drying rags in the sun outside house was reported. The main reasons for these progresses were that the community hygiene promoters (CHPs) of the field agencies had constantly conducted campaign program with the adolescent girls through courtyard meetings and also at household level through HH visit. Though some progress is visible regarding hygienic menstrual management, but, there is still much to be achieved. It is important to disseminate relevant knowledge with more emphasis about the prevailing misconceptions in society on menstrual management among the adolescent girls.

CHAPTER 9

WATSAN SCENARIOS OF THE PRIMARY SCHOOLS

9.1 Introduction

In this section three major issues such as water points for supplying drinking water, latrines and waste disposal arrangement have been discussed. The focus of analysis has been the change between what have been seen in the baseline survey and what are found in the midline survey. As well as to identify the reasons for such changes.

9.2 Water Points and Related Issues

9.2.1 Existence of Water Points in the Primary School

Provision of water for the students and teachers depends on whether the school has functional water points. That is why a question has been asked to know whether the school has any functional water point both in the midline and in the baseline surveys. Functionality of water points means that the water points can be operated and water can be collected.

It is a very alarming finding that around 22.7% schools did not have any water point or functional water point in the intervention Pourashava during baseline survey conducted in 2009, compared to 17.1% schools in the control Pourashava. In the midline survey 18.5% schools in the intervention Pourashava and 20.6% schools in the control Pourashava are found to have no water point or no functional water point.

The change found as per the answer of the teacher in the existence of functional water points= change in intervention school –change in control school=(81.5-77.3) –(79.4-82.9)=(3.2)-(-3.5)=3.2+3.5= 6.7% . This is the impact accrued during a couple of years of intervention of the project (Table 9.1).

Table# 9.1: Whether there exists any functional Tube well in the primary school.

Whether any functional tube well exists in the school	Midline Intervention % (n=119)	Midline Control % (n=68)	Baseline Intervention % (n=150)	Baseline Control % (n=70)
Exists	81.5	79.4	77.3	82.9
Does not exist	18.5	20.6	22.7	17.1

9.2.2 Existence of Functional Water Points by Type

The interviewers have personally visited the water points of the schools surveyed for ascertaining whether the water points are really functional. Based on their visits and monitoring results, functional status of water points by specific types are presented below in Table 9.2.

Table 9.2: Functional status of water point by type in Midline and Baseline survey

Type of tube-well	Baseline 2009						Midline 2011					
	Experimental			Control			Experimental			Control		
	Functional	Non-functional	All	Functional	Non-functional	All	Functional	Non-functional	All	Functional	Non-functional	All
Shallow TW	73.1	26.9	100.0 n=93	72.9	27.1	100.0 n=48	83.3	16.7	100.0 n=60	83.8	16.2	100.0 n=37
Deep TW	88.0	12.0	100.0 n=25	100.0	0.0	100.0 n=22	88.9	11.1	100.0 n=36	77.8	22.2	100.0 n=18
Supply water (Inside school)	76.0	24.0	100.0 n=25	100.0	0.0	100.0 n=8	94.1	5.9	100.0 n=17	100.0	0.0	100.0 n=9
Dug well (Pucca & covered)	33.3	66.7	100.0 n=3	100.0	0.0	100.0 n=1	50.0	50.0	100.0 n=2	50.0	50.0	100.0 n=2
Total	75.3	24.7	100.0 n=146	83.5	16.5	100.0 n=79	86.1	13.9	100.0 n=115	83.3	16.7	100.0 n=66

During the intervention period between baseline and midline surveys there has been a substantial change in the functionality of the water points in the schools of intervention Pourashava. The proportion of water points found functional was 86.1% in the midline survey, compared to 75.3% in the baseline survey in the intervention Pourashavas; while the proportion of functional water points remained almost same around 83 % in the midline and baseline surveys in the schools of control Pourashavas. The net change taken place in the schools of intervention Pourashavas= $(86.1-75.3)-(83.3-83.5) = 10.8-(0.2)0.0=10.6\%$. It means about 10.6 % more of the water points were found functional in the midline survey than what found in the baseline survey. This is the project impact, may not be due to direct intervention , but may be due to demonstration effects of the project and for development interventions made by the intervention Pourashavas, because of their advance socio-economic development.

In a different way the impact of the project can be assessed. About 50 % of the water points in the schools are shallow tube well. So, shallow tube well determine the water availability concern to a great extent.. The change occurred in the functionality of the shallow tube well during the couple of years of intervention =Change in the intervention schools-change in the control schools = $(83.3-73.1)-(83.8-72.9) = (10.2)-(10.8) = -0.6$. So it is found that the change has not occurred due to any development in the shallow tube well.

Change occurred in the deep tube well= $(88.9-88.0)-(77.8-88.9)=(0.9)-(-11.1)=0.9+11.1= 12\%$. So, the change in the deep tube well is one of the factors that determine the change in the functionality of the water points.

Change occurred in supply water system= $(94.1-76.0)-(100-100)=18.1-0.0=18.1\%$. So supply water system is the second factor that determines the change in the functionality of the water points.

The possible change due to dug well is negligible because the sample studied is very weak.

It is now concluded that the positive change occurred in the overall functionality of water points in the intervention Pourashavas; may be to some extent for the project intervention and or project demonstration, and to some extent for development efforts of the Pourashavas; because of their advance socioeconomic development, compared to control Pourashavas. And the types of water source that determine the change are the deep tube well and supply water.

9.2.3 Repair Ability of Non-functional Water Points

Majority of the nonfunctional water points are repairable both in the intervention schools and in the control schools (Table 9.3). It is indicated that non-repairable water points has reduced by 9.5 percentage points in the intervention Pourashava schools between the intervening period.

Table 9.3: Whether the non-functional water saucers are repairable

Non-functional water source	Baseline 2009		Midline 2011	
	Intervention	Control	Intervention	Control
Whether repairable				
Repairable	87.8	83.3	78.3	84.2
Not repairable	12.2	16.7	21.7	15.8
Total	100.0	100.0	100.0	100.0

9.2.4 Water Availability Round the Year

Proportion of functional water points supplying water round the year has also improved over the intervention time to the extent of $(94.9-88.2)-(89.1-90.9)=(6.7)-(-1.8)= 8.4\%$. (Table 9.4).It means, 8.4% water points are supplying water round the year because of project related factors and other development factors worked for advancement in the socioeconomic development of the intervention Pourashavas.

Table 9.4: Water availability status of functional water sources

Availability of water	Baseline Survey		Midline Survey	
	Intervention	Control	Intervention	Control
Available round the year	88.2	90.9	94.9	89.1
Available in dry season	0.9	1.5		3.6
Available in wet season	10.9	7.6	5.1	7.3
Total	100.0 n=110	100.0 n=66	100.0 n=99	100.0 n=55

9.2.5 Platform and Drainage System of the Water Points

Great majority of the functional water points are having platform both in the intervention and in the control schools (Table # 5).However the net change seem to be negligible. The net change= $(95.1-91.1)-(97.8-94.7)=4.0-3.1=0.9$ or around one percent. It means that one percent more functional water points are having platform in the intervention school in the midline survey than that found in the intervention school in the baseline survey.

Table 9.5: Whether functional tube-wells have platform

Whether have platform?	Baseline survey		Midline survey	
	Intervention	Control	Intervention	Control
Have platform	91.1	94.7	95.1	97.8
Do not have platform	8.9	5.3	4.9	2.2
Total	100.0 n=90	100.0 n=57	100.0 n=82	100.0 n=45

More functional tube wells are seen to have more platforms in the midline survey than in the baseline survey. However, the change is not quite significant. The change occurred during the intervention period= $(95.1-91.1)-(97.8-94.7)= (4.0)- (3.1)= 4.0-3.1= 0.9\%$.

Majority of the functional tube wells have good platform both in the intervention and control schools (Table 9.6).

Table 9.6: Condition of the platforms of the functional tube-wells

Condition of the platform	Baseline survey		Midline survey	
	Intervention	Control	Intervention	Control
In good condition	78.0	68.5	79.5	79.5
Crack/Broken	22.0	31.5	20.5	20.5
Total	100.0 n=82	100.0 n=54	100.0 n=78	100.0 n=44

Table 9.7: Whether the functional water sources have drainage system

Condition of the platform	Baseline 2009		Midline 2011	
	Intervention	Control	Intervention	Control
For only functional tube-wells				
Functional Drainage	42.2	40.4	76.8	75.6
Choked Drainage	33.3	31.6	12.2	11.1
No Drainage	24.4	28.1	11.0	13.3
Total	100.0 n=90	100.0 n=57	100.0 n=82	100.0 n=45

Drainage system has improved both in the intervention and control schools from the baseline levels.(table 9.7).Over 75% functional tube wells are seen to have drainage system both in intervention and in control schools in the midline survey; compared to around 40% in the baseline survey both in intervention and control schools.

9.1.6 Arsenic Status of Water Points

Teachers of the primary schools were asked to mention whether they have at least one arsenic free shallow tube well for their schools. Findings are presented in table 9.8.

Table 9.8: Distribution of schools by arsenic status of their shallow tube well

Pourashava type	Midline	Baseline
Intervention: % has one arsenic free Shallow tube well:	33.6 n=119	32.7 n=150
Control : % has one arsenic free Shallow tube well	35.3 n=68	35.7 n=70

The existence of arsenic free shallow tube well appears to be similar both in the intervention and in the control schools. About 24.5 % schools of the intervention pourashavas reported that they have arsenic free deep tube well in the midline survey, compared to 22.1 in the control Pourashavas. The midline arsenic free water sources scenario remains almost similar as that of baseline.

9.2 Latrines and Related Issues

9.2.1 Type of Latrine Existing in the Primary Schools

All the schools are having improved sanitation technology and the main type of technology being used by the schools is the Flash/Pour-flash latrine to piped water system or septic tank both in the intervention schools (72.2%) and in the control schools (75.7%). Ventilated improved pit latrine and pit latrine with slab and water seal respectively exist at the second and third places both in intervention and in control schools (Table #9.9).

A change is noticed in installation of Flush/Pour-flush latrine to piped water system/septic tank at an increased rate and the shift has mostly been from pit latrine with slab and water seal to this type both in the intervention and in the control schools.

Table 9.9: Type of latrine existing in the primary schools of intervention Paurashava and Control Paurashava

Type of latrine	Intervention Paurashava		Control Paurashava	
	Midline n=368	Baseline n=448	Midline n=206	Baseline n=206
Flash/Pour-flash latrine to piped water system/septic tank	72.2	44.3	75.7	34.8
pit latrine with slab and water seal	7.0	44.3	6.1	39.4
pit latrine with slab but no lid no water seal	-	7.4	-	13.6
Ventilated improved pit latrine	13.9	1.3	15.2	1.5
pit latrine with slab and flap no water seal	-	-	-	1.5
Any type	100.0	100.0	100.0	100.0

9.2.2 Functional Status of Latrine

A change is seen to have taken place in functionality of latrine. Change in functionality= change in functionality of latrine in intervention schools— change in functionality of latrine in control school over the intervention period which is about two years from 2009-2011= (81.3-72.1)-(78.2-77.7)=8.7%. It means, as a result of the project intervention 8.7% latrines remained functional. This is the impact of the project Table 9.10)

Table 9.10: Functional status of latrines used in school

Functional status	Intervention Paurashava		Control Paurashava	
	Midline n=368	Baseline n= 448	Midline n=206	Baseline n=206
% of latrines found functional	81.3	72.1	78.2	77.7
% of latrines found non-functional	18.7	27.9	21.8	22.3
All	100	100	100	100

9.2.3 Use Status Concerns of Latrine

Use ability status concerns such as latrine remaining open, having water in side latrine, remaining water pot inside latrine, having soap or ash inside latrine and having appointed cleaner for latrine; are found to have remained similar between midline and baseline surveys. The concerns also remained similar between the latrines used by the teachers and the ones used by the students (Table# 9.11).

Table 9.11: Use status Concerns of latrines used by teachers and students

Type of latrine	Intervention Paurashava				Control Paurashava			
	Midline		Baseline		Midline		Baseline	
	latrines used by:		Latrines used by:		Latrines used by:		Latrines used by:	
	Teacher n=265	Student n=271	Teacher n=255	Student n=272	Teacher n=143	Student n=136	Teacher n=127	Student n=144
% of latrines found open	84.2	82.3	89.4	90.1	85.3	87.5	90.6	91.7
% of latrine found clean	74.7	73.8	76.9	77.2	74.7	73.8	77.2	79.2
% of latrine found to have piped water inside latrine	32.8	32.1	40.4	37.9	25.9	25.7	29.1	27.1
% of latrines found to have water pot inside latrine	57.4	57.2	70.2	71.0	56.6	59.6	73.2	77.8
% of latrines found to have soap/ ash in or around latrine	46.4	44.3	65.5	67.3	52.4	54.4	69.3	70.9
% of latrine found to having cleaner	40.0	38.0	42.7	39.7	46.2	45.6	35.4	34.7

In fact, no improvement can be expected to have taken place in these indicators; because at school level interventions have not yet been made under the project

9.2.4 Privacy Concerns of Latrine

For assessing privacy of latrine especially for the ones used by the female teachers and the female students; distance between latrine and class room or road and door direction have been investigated. Findings are presented in Table 9.12 and Table 9.13

Table 9.12: Average distance between latrine and nearest class room and between latrine and nearest road

Average distance (feet)	Intervention Paurashava		Control Paurashava	
	Midline n=112	Baseline	Midline n=64	Baseline
Between latrine and nearest class room (feet)	10.2	5.0	15.2	13.0
Between latrine and nearest road (feet)	53.2	62.0	65.2	63.0

Distance between nearest class room and latrine seems to have better maintained in the control schools (15.2 feet) than in the intervention schools (10.2 feet). However the distance between the latrine and the nearest road is quite big both in the intervention Paurashava (53.2 feet) and in the control Paurashava (65.2 feet). The distances between latrine and class room and between latrine and road found in the midline are similar to what found in the baseline.

Table 9.13: Privacy Concerns of the latrines used by female teachers and female students

Privacy	Intervention Paurashava		Control Paurashava	
	Midline	Baseline	Midline	Baseline
% of latrine privacy well- maintained	76.8%	89.9%	70.8%	87.5%
% of latrines having road/class room/ male-latrine facing door	23.2	10.1	29.2	12.5

It appears that privacy situation has been deteriorated both in the intervention school and in the control school over the intervention period of two years (table# 9.13). But in reality positive change has taken place in the intervention school.

Net change= change in the intervention school- change in the control school= (76.8-89.9)-(70.8-87.5)=(-13.1)-(-16.7)= -13.1+16.7=3.6 %.

Over the period of about two years, privacy concern has been deteriorated by 16.7% in the control school while that of intervention school deteriorated by 13.1%. It means, in the absence of the project deterioration in the privacy concern in the intervention school would have been impacted by 16.7% instead of 13.1%. That means project impact has been for 3.6%.

9.3 Solid Waste Disposing Arrangement

The teachers of the schools were asked to mention whether the schools have solid waste disposing arrangement. The findings are presented in table # 9.14.

Table # 9.14: Whether the school has solid waste disposing system.

Type of school	Midline survey	Baseline survey
Intervention School	45.4%	36.7%
Control School	44.1%	35.7%

Net change in having solid waste disposing system: change in intervention school- change in control school= (45.4-36.7)-(44.1-35.7)= 8.7-8.4=0.3%.. In fact, during the intervention time positive change has taken place both in intervention school and in control school. Solid waste disposing arrangement has almost equally improved in intervention school (8.7%) and in control school (8.4%) school.

Highlights
<ul style="list-style-type: none"> ✓ Proportion of schools having no functional water points improved to 17.1% in the midline survey from 22.7% in the baseline survey. ✓ About 8.4% more water points are supplying water round the year as an impact of the project demonstration effects and or other development issues. ✓ All schools: both in the intervention and control Pourashavas use improved sanitation technologies. Flash or pour-flash latrine to piped water system or septic tank is widely used in the intervention (72.2%) and controls (75.7%) schools. ✓ About 8.7% more latrine found functional in the midline survey as an impact of the project demonstration effects and or other development issues, though deterioration noticed in the provision of cleaning agents. ✓ Privacy concern deteriorated, but 3.6 percentage point less in the intervention schools than in the control schools.

CHAPTER 10 RECOMMENDATIONS

Water Related

- ✓ There is a misconception that clear and clean water means arsenic free water. Thus, it is recommended to disseminate the knowledge on arsenic contamination in a wider manner.
- ✓ Women and people with disability are not adequately consulted about the water-points related issues, which needs to be taken into consideration with more emphasis in future in programme design.
- ✓ Women report that water collection from the community water-points at night is very difficult for women and there is lack of sufficient light at that place; moreover, the places, where the water-points are located, in many cases do not provide any scope for privacy for the women. These issues need to be taken into consideration in future programme design.

Sanitation Related

- ✓ Project should give more emphasis on construction and maintenance of community latrines. For maintaining cleanliness of community latrines, people should be encouraged to form committees and be trained by the project.
- ✓ Peoples using individual and shared latrines should be given technical cooperation for its construction and maintenance.
- ✓ People should be motivated to construct latrines those are user-friendly to females, physically disabled peoples and old aged peoples.
- ✓ To stop open defecation of children 3-9 years the latrines to be prepared should be child friendly as well.
- ✓ Proper water supply and supply of electricity in latrines should be given emphasis by the project.
- ✓ Appropriate solid waste disposal and waste water disposal system should be given emphasis by the project. People need to be trained for their behavioral change as well.
- ✓ More small scale drains should be built by the project, as it is extremely useful for the people in slum areas.

Hygiene Related

- ✓ Still around 30% people do not have adequate knowledge on hygiene, sanitation, and safe water message- which needs to be tackle with more emphasis.
- ✓ Practice of washing both hands with soap at all the critical time is still not satisfactory- which should be taken care with priority basis.
- ✓ In around half of the cases drinking-water is not stored properly- which should be taken into consideration with more thrust in future.

Water-Sanitation-Hygiene Related Morbidity and Mortality

- ✓ Though incidences of water-sanitation-hygiene related diseases like typhoid, dysentery, diarrhoea as percentage of all diseases incidences have been reduced quite notably, percentage incidences of other water-sanitation-hygiene related diseases like pneumonia, malnutrition/anemia, dengue, and arsenicosis have not been changed or increased slightly. Hence, special concerns have to be given on those water-sanitation-hygiene related diseases.
- ✓ It has been found that water-sanitation-hygiene diseases caused death rate has been reduced to 0.73 from 1.24 (baseline) per thousand populations. However, this rate of reduction is considerably below than the reduction rate of overall death rate due to all diseases. Therefore, possible intervention should be taken to reduce the water-sanitation-hygiene diseases related death rate.

Menstrual Hygiene Management Related

- ✓ It is important to disseminate relevant knowledge with more emphasis about the prevailing misconceptions in society on menstrual management among the adolescent girls.

School Related

- ✓ Signs of improvement in WATSAN scenario were there in the intervention schools due to project demonstration effects and or advance socioeconomic conditions. It is recommended to intervene into these schools with WATSAN services for an early impact in the log-frame indicator.