Value for Money Study on Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) Programme Interventions

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Avijit Poddar, Md. Sogir Hossain Khandoker

Faisal M Ahmed, M Nazim Ud Dowlah

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unicef

Unicef-BCO, BSL Office Complex

1 Minto Road, Dhaka 1000

Dhaka: January 2015

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[1] *Professor, Department of Economics, University of Dhaka;*
Chief Advisor (Hon.), Human Development Research Centre (HDRC) & Study Team Leader

[2] *Director Research, Human Development Research Centre (HDRC)*

[3,5] *Consultant, Human Development Research Centre (HDRC)*

[4] *Research Associate, Human Development Research Centre (HDRC)*

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Bangladesh, over the years, has attained a considerable progress in the field of Water and Environmental Sanitation (WES) in terms of hardware. However, it is staggering in terms of software (especially improved hygiene practice). Knowledge on hygiene practice has undergone a noticeable improvement across the country in general but, in fact, the predisposition towards the adoption of such practices is still not greatly active as compared with the information they hold. Against the backdrop of the issue, the Government of Bangladesh (GoB) in collaboration with Unicef has undertaken a daunting challenge to address the weakest links in the WES development chain through Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) with major financial assistance from Department of International Development (DFID), UK. The study team is greatly indebted to UNICEF for entrusting us with the responsibility to conduct this challenging study titled, "Value for Money Study on Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) Programme Interventions".

We are immensely indebted to all the SHEWA-B Project staff and all the relevant officials of the Department of Public Health Engineering (DPHE) for their professional support at all stages of the study. We have enormously benefited from the DPHE Engineers, to cite a few, Md. Nurul Islam, Deputy Project Director (SHEWA-B), Md. Nurul Islam, Deputy Project Director (SHEWA-B), Md. Monawar Hossain, Superintendent Engineer, Md. Golam Muktadir, Executive Engineer, Md. Ehete Shamul Russel, Executive Engineer (Planning and Monitoring), Md Arif Anwar Khan, Executive Engineer for their sharing with us various key aspects of the project including project related reports and data. The study team expresses sincere gratitude to them all.

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Prof. Abul Barkat, *Ph.D* January 2015
Study Team Leader

ABBREVIATIONS

AAA	Assessment, Analysis and Action (Method)
ALRI	Acute Lower Respiratory Infection
ARI	Acute Respiratory Infection
BBS	Bangladesh Bureau of Statistics
CAP	Community Action Plan
CHP	Community Hygiene Promoter
CHT	Chittagong Hill Tract
DALY	Disability Adjusted Life Years
DFID	Department for International Development
DGHS	Directorate General of Health Services
DPE	Directorate of Primary Education
DPHE	Department of Public Health Engineering
DSHE	Directorate of Secondary and Higher Education
DTW	Deep tube well
FGD	Focus Group Discussion
FIS	Financial Information System
GFS	Gravity Flow System
GIS	Geographic Information System
GoB	Government of Bangladesh
HH	Household
HIES	Household Income and Expenditure Survey
HWS	Hand Washing with Soap
ICB	Institutional Capacity Building
ICD	Institutional Capacity Development

ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
ICDP	Integrated Community Development Project
IFG	Infiltration Gallery
IPT	Interactive Popular Theatre
KII	Key Informant Interview
LGD	Local Government Division
LGI	Local Government Institution
M&E	Monitoring and Evaluation
MAP	Mobility Action Plan
MDG	Millennium Development Goal
MIS	Management Information System
NGO	Non-Government of Organization
O&M	Operation and Maintenance
OHCHR	Office of the United Nations High Commissioner for Human Rights
OTM	Open Tendering Method
PAP	Para Action Plan
PDW	Para Development Worker
PSF	Pond Sand Filter
R&D	Research and Development
SHEWA-B	Sanitation, Hygiene Education and Water Supply in Bangladesh
SMC	School Managing Committee
SocMob	Social Mobilization
SSHE	Sanitization, Hygiene Education in School (or School Sanitation and Hygiene Education)
STW	Shallow tube well
UNICEF	United Nations Children's Fund
UP	Union Parishad
VfM	Value for Money
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WES	Water and Environmental Sanitation
WinS	WASH in School
YLD	Years Lived with Disability
YLL	Years of Life Lost

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EXECUTIVE SUMMARY

Introduction

The Department of Public Health Engineering (DPHE) of the Government of Bangladesh (GoB) and the United Nations Children's Fund (UNICEF) implemented a five year programme from 2007 to 2012 entitled Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B), having two major components: rural and urban. The programme worked towards enhancing people's access to safe water, sanitation and hygiene behaviour. The accompanying study conducted a closer examination of various aspects of Value for Money (VfM) assessment of SHEWA-B rural component. SHEWA-B rural programme covered 19 districts (16 districts, 60 upazilas, 630 unions and 22,000 villages in the plain land; and 600 paras in 16 Upazila of 3 districts in the Chittagong Hill Tracts) across Bangladesh and covered a population of about 20.4 million. An amount of US$ 72 million was spent under SHEWA-B rural interventions.

Objective and Methodology

The objective of the study is to gain a greater understanding of the input costs involved with the various interventions of SHEWA-B, the efficiency of different modes of interventions, and their overall cost effectiveness in terms of leading factors that contribute towards the broader programme outcome.

The study methodology comprised both quantitative and qualitative methods. Quantitative methods included a collection of secondary data on programme achievements and financial (SHEWA-B expenditure) data, conducting household survey and market survey. The qualitative methods include Focus Group Discussion (FGD) and Key Informant Interview (KII). A total of sixteen Data/Information Collection Instruments (DCIs) were used in the study.

For estimating unit cost, cost effectiveness and benefit-cost ratio of interventions, the total SHEWA-B rural intervention expenditure has been disaggregated by the programme components: Water, Sanitation, WASH in schools, Social mobilization, and Institutional capacity building following a systematic iteration procedure. Unit cost, efficiency, cost effectiveness and benefit-cost ratios were estimated in line with the DFID's value for money analysis guidelines.

Value for Money: Analysis and Outcomes

- SHEWA-B rural intervention spent US$ 72 million under five broad components namely, Water (29%), Sanitation (13%), WASH in school (13%), Institutional capacity building (10%), and Social mobilization (34%). Such spending originated new hardware installation around community and significant changes in hygiene behavior.
- SHEWA-B installed a total of 19,579[1] different types of water points including 41 village piped water system in rural areas. Average unit cost of SHEWA-B installed water points vary depending upon technology ranging between US$ 175 (shallow tube well with number 6 hand pump) and US$ 39,000 (village pipe water supply). The average unit cost of deep tube well with number 6 hand pump is US$ 858 and the same of deep tube well with Tara dev head pump is US$ 1,007. The unit cost of water points shows an increase over time primarily due to increase in market price. The average unit cost comprises 3 cost components: hardware, transportation, and installation. The hardware and installation components constitute substantial share of unit cost for most of the water technologies. For example, hardware cost for shallow tube well with number 6 hand pump and deep tube well with number 6 hand pump respectively constitutes about 62 per cent and 32 per cent, while installation cost for the same technologies constitute 36 per cent and 66 per cent respectively.
- SHEWA-B provided direct cash transfer for different packages for WASH activities (installation or rehabilitation of water points and latrines) in schools. Data collected from database of achievement did not provide disaggregation by capital cost, transportation cost, and installation cost for the transferred amount. Average unit cost of WASH in School (WinS) per school is US$ 1,860 for the entire intervention period. Average unit cost of motivation for installing water points is US$ 35, while the same for installing latrine is about US$ 5. Average unit cost of Mobility Action Plan (MAP) preparation is US$ 1.6, while the same for Community Action Plan (CAP) is US$ 8.2. The estimated average unit cost of motivation (per person) for access to safe water, sanitation and handwashing practices is US$ 0.09, US$ 0.12 and US$ 0.15 respectively.
- The estimated average unit cost of a household visit by Community Hygiene Promoter (CHP) is US$ 0.42, while the same for a courtyard meeting and a tea stall session respectively is US$ 2.83 and US$ 1.58. The average unit cost of a CHP for WASH in schools for providing technical assistance to school sanitation and hygiene education is US$ 327.
- The average unit cost of institutional capacity building per Community Hygiene Promoter (CHP) is US$ 165, per school teacher US$ 22, per member of School Managing Committee (SMC) US$ 16, and per union parishad US$ 103.
- The efficiency of SHEWA-B installed water points at community level is 86 per cent. Of all the water points (tube wells) at present in the intervention area, 11 per cent are attributed by SHEWA-B. Among the SHEWA-B installed water points 78 per cent are a range of hand pumps and 20 per cent ring wells *(with tara head or No. 6 pump)* that covered 94 per cent of the hard ware installation beneficiaries. Appropriateness of

[1] Source: MIS/GIS unit DPHE.

water point installation varies by geographical conditions of the area. SHEWA-B programme undertook the process of installing different types of water points.

- The financial data analysis reveals steady increase in the unit cost for different water technology installed over time. The estimated unit cost of Deep Tube well with No. 6 hand pump was US$ 810 in 2008 and US$ 916 in 2012 averaging US$ 858 throughout the project period. The estimated average number of beneficiary households for this installation was 16 households.
- The installation of 19,579 water points included a large variety. The water technologies were installed considering the geographical condition, appropriateness, past experience, maximization of beneficiary inclusion and minimization of installation cost.
- About 65,000 water points (mostly Shallow tube wells with No.6 hand pump) and 1.5 million improved latrines were installed by the community people within the intervention area as a result of SHEWA-B social mobilization activities. A total of 1.2 million primary and 159,000 secondary school students were benefited through hardware installation and/or rehabilitation (WASH in school).
- Most commonly, community people neglect the importance of operation and maintenance activity and are reluctant to shoulder relevant costs. The operation and maintenance (O&M) cost, differs from one type of technology to another. The front line workers instructed community people about keeping the water points clean. They also instructed community people about operation and maintenance of water points. A number of SHEWA-B installed water points have been found dysfunctional due to lack of maintenance. According to design the O&M cost has to be borne by the beneficiary community. In reality, in most instances, the O&M cost of functional water points is found to be borne by the nearest household where it is located.
- According to the SHEWA-B programme documents, there were no provisions of hardware interventions for latrine installation within sanitation component. The key concept of sanitation intervention was to motivate the rural people through explaining and demonstrating the benefits of using improved latrine and impede open defecation so that they install improved latrines in the households and use them regularly. However, nearly 6,000 set (5 rings and a slab) of latrine hardware were distributed as subsidy among rural households under institutional capacity building of Local Government representatives. The unit cost for latrine subsidy was US$ 28.8. However, market survey reveals such unit cost from local market is US$ 31.4 (2013 price). The estimated unit cost for motivating a household to install a latrine is US$ 4.9 which implies per capita unit cost US$ 0.85.
- WASH in school included both software and hardware interventions in primary and secondary schools. The schools that were recipients of hardware interventions derived their benefits as a package of installation/repairing of water point/latrine. The estimated unit cost of hygiene education per school is US$ 495 (including technical assistance from Community Hygiene Promoter) and for hardware intervention is US$ 1,366 totaling a unit cost of US$ 1,860 per school. The unit cost per student is US$ 6.5. Such expenses resulted in positive changes in the attendance and performance situation of students. Data collected through school survey reveal that the average school attendance rate increased by 8.5 per cent (combining primary and secondary schools), enrolment rate by 9.5 per cent, and dropout rate decreased by 15 per cent.

- SHEWA-B undertook a number of activities under the social mobilization. Such activities included household visit, court yard sessions, tea stall sessions, interactive theater, film show, rally, fair etc. Primary data collected through household survey reveals that among the surveyed households 86 per cent positively responded to CHP visit in the household. Combining the different activities under the social mobilization, SHEWA-B covered 100 per cent of the surveyed households through social mobilization. The accomplishment of such coverage resulted 95 per cent coverage of adequate knowledge on hygiene practices. The local WATSAN committee has been trained and oriented by the SHEWA-B and responsible to keep the message on going. Since the WATSAN committee is primarily comprised local people, this strategy should carry on messages after phasing out of the project.
- Primary data collected through household survey suggest hand washing practice (reported) with soap/ash after defecation has reportedly gone up to 95 per cent (Household survey 2013) since the baseline survey. According to baseline survey (2009) such rate was 54 per cent. The hand washing behavior before eating has increased to 41 per cent from 22 per cent since baseline survey. The respondents were asked to recall the hygiene behavior they were informed by SHEWA-B (unprompted). All the respondents could recall at least one and nearly 95 per cent of the respondents could recall three or more hygiene behaviors.
- Community Hygiene Promoters were unhappy with their monthly salary and they did not receive their salary in time which caused less motivation among them. LGI representatives shared that less number of CHPs with better packages would be more effective. The villages furthest to the union parishad or hard-to-reach areas were least benefited. Additional resources – both in hardware and software interventions – could be deployed to cover such areas.
- Qualitative survey suggests that the LGI representatives are aware of the benefits of WASH activities. According to them the increasing demand of support among the people is much higher than the supply. The LGI representatives with the help of WATSAN committee members advise people to help themselves with proper hygiene practice, install water points through community partnership, and request the local elites to help out the economically disadvantaged people around their community.
- SHEWA-B rural interventions altogether has generated a total benefit of US$ 2.3 billion during its implementation period (2007-2012) against a total cost of US$ 72 million. The highest amount of benefit has generated due to saved water collection time totaling US$ 1.4 billion (60.7% of total benefits). The second highest amount of benefit has generated due to improved health status totaling US$ 434 million (18.6% of total benefits). This is followed by other three sources of benefit with US$ 233 million (10% of total benefits) for Institutional Capacity Building, US$ 141 million (6.1% of total benefits) for increased access to adequate safe water, and US$106 million (4.6% of total benefits) due to WASH in School.
- The present value of benefit and cost after inflation adjustment and discounting are US$ 400.5 million and US$ 58.7 million respectively. The estimated benefit-cost ratio (BCR) for SHEWA-B rural interventions is 9.9.

Recommendations

The 'Value for Money' (VfM) analysis of SHEWA-B bears ample testimony that the programme should continue. However, the implementation agencies of SHEWA-B (DPHE and UNICEF) need to consider following recommendations in future designing the programme to generate more high utility outcomes:

1. Both the two agencies need to synchronize programme progress and financial reporting mechanism, so that project expenditure by head/sub-head/sub-sub-heads can be linked up with component and sub component-wise interventions. Developing such linkage between activities and expenditure would be of more utility.
2. Project Management Information System (MIS) and Financial Information System (FIS) needs to be designed in such a manner that relevant information may be reproduced by administrative units by period when necessary.
3. All the future projects need to develop an inbuilt strong, systematic and dynamic monitoring and documentation mechanism of its own which, in turn, will help both the agencies to enhance the organizational memory make use of the best practices and learning.

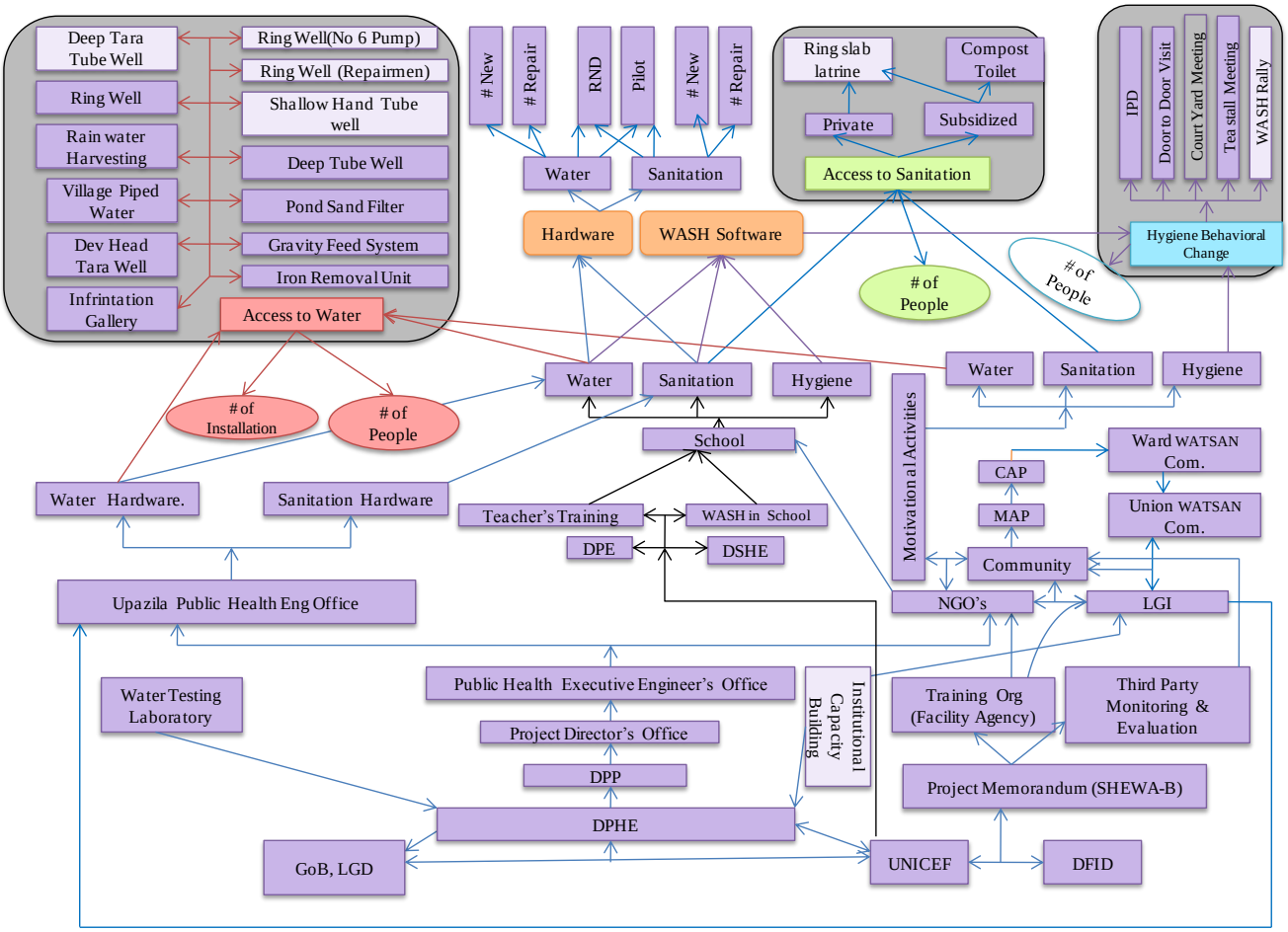
CHAPTER 1

INTRODUCTION

1.1 Background

In 2007- 2012, the United Nations Children's Fund (UNICEF) implemented the Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) programme with an aim to improve the access to safe water, sanitation and hygiene of approximately **21.4 million people** reached through hygiene promotion in 60 upazilas (rural sub-districts) of 16 districts of plain land Bangladesh, and in 600 Para-centres from 16 upazilas in three Chittagong Hill Tract (CHT) including **2.4 million children** in 8,800 primary schools, **402,500 children** in 1150 secondary schools and **1 million urban poor** in 18 municipalities across Bangladesh. SHEWA-B has two major components viz. rural and urban. In order to obtain a broader understanding of the utility of input costs of various interventions of SHEWA-B (rural component), the efficiency of the different modes of interventions and their cost effectiveness, the UNICEF has undertaken an initiative to conduct a value for money (VfM) study. The accompanying report explored value for money aspects of SHEWA-B programme's rural component. A comprehensive scenario of the SHEWA-B rural component at a glance is presented below in Figure 1.1.

Figure 1.1: SHEWA-B Rural Component: At a Glance



1.2 Purpose

The purpose of the study is as follows:

I. To develop national evidence based on "Value for Money" (VfM) for effective WASH programme implementation across the sector and to support evidence-based advocacy for more effective resource allocation and intervention options.

II. To undertake a Value for Money analysis of the selected *rural WASH interventions* implemented by SHEWA-B, looking at aspects relating to economy, efficiency and overall cost effectiveness of the activities with the aim of assessing the economic impacts of the various interventions undertaken under the SHEWA-B programme.

1.3 Objective

The objective of the study entails gaining a comprehensive understanding of the input costs involved with the various interventions of SHEWA-B, the efficiency of different modes of interventions, and their overall cost effectiveness in terms of leading factors that contribute towards the broader programme outcome.

CHAPTER 2

METHODOLOGY

The sources of data/information included SHEWA-B data base of achievements, UNICEF WES Financial Data, DPHE MIS, DPHE Annual Progress Reports, household survey, key informant interviews of SHEWA-B stakeholders, focus group discussions with SHEWA-B beneficiaries, and unstructured interview with BRAC WASH Officials, BRAC WASH, and market survey.

In the study, both the plain land districts and hill districts (Chittagong Hill Tracts) was covered. The geographical coverage of survey locations by number of units covered is shown in Table 2.1; and the sample size by categories (both for quantitative and qualitative) is shown in Table 2.2.

Table 2.1: Geographical coverage of survey by locations

Geographical coverage of survey locations	Number of units covered	Total units
Plain Land Districts	16	16
Upazila	32	60
Union	96	858
Village	188	12,200
Chittagong Hill Tracts	3	3
Para	36	600

Table 2.2: Sample categories and size

Sample Survey Categories	Size
Field Survey	
Households (Plain land)	1880
Households (Chittagong Hill Tracts, CHT)	180
Market Survey	19
WATSAN committee members	96
School survey	
Primary school	86
Secondary school	10
School teacher	96
School Managing Committee members	96
Focus Group Discussion	
Community Hygiene Promoter (Plain land)	96
Para Development Worker (Chittagong Hill Tracts)	18
Community people	129
Primary school students	105
Key Informant Interview	
Upazila Chairman	19
Upazila Secretary	19
Union Chairman	19
Upazila sub assistant engineer	16
NGO officials	9
Local dealer	10
DPHE officials in Dhaka	10
Experts, academics and knowledgeable persons	12
Former Executive Engineers	3

In order to conduct value for money analysis, the programme output information (including number of beneficiaries) by components (water, sanitation, WASH in School, social mobilization, and institutional capacity development) has been generated through database analysis of achievements of SHEWA-B, household survey, FGDs and key informant interviews. The obtainment of financial data from WASH-UNICEF financial database (DFID and UNICEF funded expenditure), and DPHE books of accounts (GoB funded expenditure) has cropped up. Aggregation of stated two financial databases constituted comprehensive financial database. Financial data have been processed through iterative phases. In the first phase, the financial data have been disaggregated by two broader locations: (i) rural, and (ii) urban by examining each and every entry (Figure 2.1). In the second phase, all the entries related to rural SHEWA-B have been grouped into five programme components by year. During this phase, the expenditure data have been segregated by year and broader heads of expenditure, namely, (i) hardware, (ii) software, (iii) institutional capacity building, (iv) research and development (R&D including piloting), (v) Monitoring and Evaluation (M&E), (vi) salary, (vi) 'others' (include transport and vehicle, machinery and equipment, water quality testing and surveillance) by exploring the entries (see, Figure 2.2).

Figure 2.1: Estimation methodology: SHEWA-B expenditure disaggregation process

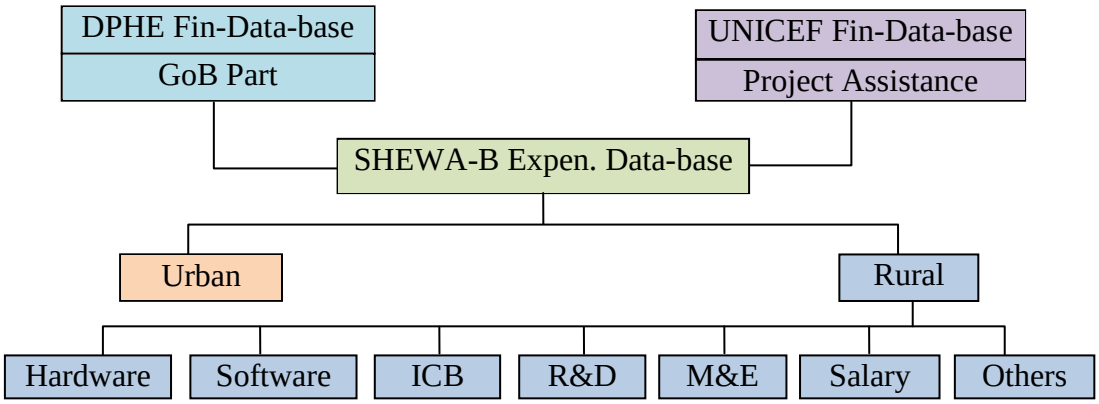
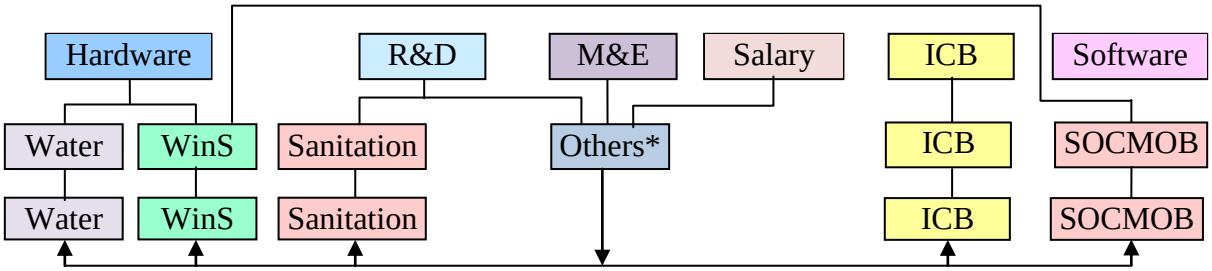


Figure 2.2: Estimation methodology by expenditure heads: Hardware, software, ICB, R&D, M&E, salary and others allocated by SHEWA-B components



*Note: Accumulated entries under the head 'others' redistributed between the SHEWA-B components (Water, Sanitation, WinS, ICB and SocMoB) following respective weight of each of the components

In the third phase, the hardware-related entries have been further segregated into two components, (1) Water, and (2) WASH in School (WinS). It is noteworthy that, according to the nature of entries, there appeared no sanitation-oriented entries during the entire project duration. However, a number of entries related to R&D (including piloting) expenditure head contain expenditure on sanitation hardware. These entries therefore, have been relocated to sanitation component and rest of the entries to expenditure head "others". In the subsequent phase, entries related to software have been examined and distributed between Social mobilization (SocMob) and WinS according to relevance of the entries. Similarly, all entries related to M&E and salary head, have been relocated under expenditure head "others". It is worth noting that the main thrust of SHEWA-B, was to attain sustainable behavioral changes related to WASH-related practices. From this perspective, the major focus was bestowed upon SocMob rather than a mere installation of a water point or latrine. Therefore, the accumulated entries under the head 'others' redistributed between the SHEWA-B components (Water Sanitation, WinS, ICB, and SocMoB) following respective weight of each of the components.

Household survey provided a certain range of information on SHEWA-B activities, its' output, outcome, and impact at community and household levels. By the same token, school survey provided information on the programme's activities at school, output, outcome and impact on pupils.

Market survey provided information on availability of different water technologies in the market, price, and quality of available hardware.

A total of 16 different data collection instruments (DCI) were used in the study for collecting quantitative as well as qualitative primary data/information. A list of data collection instruments is presented below in Box 2.1, and all the instruments are presented in Annex 2. Among all the data collection instruments, DCI for household survey, DCI for focus group discussions with community people, DCI for focus group discussions with Community Hygiene Promoters, and DCI for key informant interview with knowledgeable persons/experts were the central instruments for generation of pertinent primary information. The rest of the data collection instruments complemented and supplemented the generated information.

Box 2.1: List of Data Collection Instruments used in the study	
DCI 1:	Household Interview Schedule
DCI 2:	Household Checklist
DCI 3:	Focus Group Discussion (FGD) with Community People
DCI 4:	Focus Group Discussion (FGD) with Community Hygiene Promoters (CHPs)
DCI 5:	Focus Group Discussion (FGD) with Para Development Workers (PDWs)
DCI 6:	Observation Checklist for School
DCI 7:	School Information Collection Schedule (Secondary Data Compilation Format)
DCI 8:	In-depth Interview with School Teachers
DCI 9:	In-depth Interview with School Managing Committee (SMC) Member
DCI 10:	Focus Group Discussion (FGD) with Students
DCI 11:	Key Informant Interview (KII) with Knowledgeable Persons/Experts
DCI 12:	Key Informant Interview (KII) with LGI Representative
DCI 13:	Key Informant Interview (KII) with DPHE Officials
DCI 14:	Key Informant Interview (KII) with Local Dealers
DCI 15:	Household Listing Format (September 2013)
DCI 16:	Market Survey Format

Household interview schedule captured information on (i) demographic characteristics, (ii) housing and possession of materials/assets, (iii) water source, (iv) sanitation (v) hygiene behavior, (vi) incidents of WASH-related diseases, (vii) participation in social mobilization activities, (viii) benefit stream along with perceived proportion of contribution of SHEWA-B interventions, and (ix) some other pertinent information of sample households.

Data collection instrument for focus group discussion (FGD) with community members was deigned to collect information on perception about SHEWA-B interventions, level of satisfaction, benefits received from the programme interventions and perceived contribution of SHEWA-B in a 100 point scale for each of the benefits mentioned by the FGD participants.

The guideline for focus group discussion with the Community Hygiene Promoters (CHP) (DCI-4) primarily aimed to congregate information on recruitment, training, tasks, distribution of time by tasks/activities, and benefits generated by the programme in the community.

Data collection instrument for key informant interviews (KII) with knowledgeable persons/ experts was focused on information related to appropriateness, effectiveness and efficiency of hardware and software interventions used by SHEWA-B and pertinent information of available alternative technological options. This DCI also covered observation of knowledgeable persons on issues related to training of CHPs, local government representatives.

The study had four stages. Stage one – includes collection of relevant documents along with programme performance related data and desk review – started in April 2013 and continued till October 2013. Stage two – collection of primary data – commenced during September and October, 2013. Stage three involved data/information analysis and report writing, which was accomplished during October and December 2013. In the fourth (and final) stage, the draft report was submitted to Unicef for review, and after having feedback in the form of comments and suggestions from Unicef and all other stakeholders including a series of meetings, the report was then finalized.

CHAPTER 3

SHEWA-B RURAL PART AND BRAC WASH: KEY FEATURES

3.1 Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B): Rural Part

The programme titled "Sanitation, Hygiene Education and Water Supply Programme in Bangladesh, SHEWA-B" involved the largest planned set of actions in WASH sector ever attempted in a developing country, implemented by the DPHE on behalf of the government and UNICEF. The project constituted two integral parts: rural and urban part. The accompanying value for money study explored the rural part of SHEWA-B. The SHEWA-B Rural part during project implementation (2007-2012) incurred a total amount of US$ 72 million (where, GoB provided US$ 14.4 million, DFID US$ 50.4 million and UNICEF US$ 7.2 million). The project covered 16 plain land districts (60 upazilas, 630 unions and around 22,000 villages) and 600 paras/settlements in 16 upazilas of 3 Chittagong Hill Tracts where populations of indigenous community live. Nearly 20.4 million rural people have directly benefited from the project (extrapobted for 2012 using data in Annex Table 4). The main focus of the project involves the access enhancement of people to safe water and sanitation through social mobilization, capacity building of relevant institutions, hygiene education in schools which, in turn, will motivate the people towards installing water points and latrines. Apart from these activities, the installation of a limited number of water points (19,475 units) and latrines (5,363 units) has taken place in the community. Moreover, water points and/or and latrines with running water facilities were installed or renovated in 4211 primary and 321 secondary schools.

SHEWA-B activities constituted hardware, software and institutional capacity building sub-activities. DPHE implemented the installation and/or repair of hardware (water points) in the community, while the implementation of hardware installation and/or renovation activities took place in schools under the auspices of respective school managing committees, aided by technical assistance from DPHE. Software sub-activities constituted of two sub-sub-activities: (i) Social mobilization (SocMoB) and hygiene promotion in communities, and (ii) Sanitation and Hygiene Education in Schools (SSHE). Later on it was renamed as Water Supply, Sanitation and Hygiene (WASH) in school (WinS). SocMob was implemented by contracted out to local NGOs in plain land districts, and by ICDP (Integrated Community Development Project) in Chittagong Hill Tract (CHT) Areas. WinS intervention took place in 8,800 primary schools and 1,150 secondary schools. WinS was implemented in respective schools. The implementation of WinS got finished by trained teachers of the respective school with assistance from front line worker – Community Hygiene Promoter – of the respective NGOs. WinS along with WASH hardware installation (installation or renovation of water points and/or latrine) together constitutes SHEWA-B component "WASH in School".

The following are elements of social mobilization and hygiene promotion activities: (i) HH inventory through baseline survey, (ii) preparing and updating of community action plan (CAP), (iii) courtyard session, (iv) puppet show (v) household visits, (v) tea-stall session, (vi) community meeting, (vii) WatSan fare, (viii) interactive popular theater (IPT) show, (ix) video show, x) school visits etc. In plain land districts, Community Hygiene Promoters (CHP) used to accomplish SocMob related interventions; and in districts under CHT, the ICDP appointed Para Worker used to implement the social mobilization and hygiene promotion activities-related interventions in the catchment para community.

Under SHEWA-B, institutional capacity building (ICB) related activities were assigned an important role. Thus, ICB was the fifth component of rural SHEWA-B and concentrated in providing training and/or orientation to improve their technical and managerial capacity for the provision of WASH services. The component built capacity among DPHE officials and LGI members, teachers, school managing committees (SMC) members, members of WATSAN committees at different levels (Ward, Union, Upazila and district), Community Hygiene Promoters and para workers. The basic traits of SHEWA-B's rural component in terms of input, output, outcome and impact are presented in Matrix 3.1.

Matrix 3.1: Input, output, outcome, and impact matrix for SHEWA-B rural component

Input/Activities	Output	Outcome	Impact
WATER			
• Motivation to use safe water for drinking • Arsenic testing for water points • Construction or rehabilitation (tube well platform) of water points • Providing Sono filters in arsenic prone areas	• Increased number of functional water points in project area • Increased access to safe drinking water in project area • Water points with arsenic contamination identified	• Higher coverage of safe drinking water	• Reduction in incidence of diarrhoeal episodes and Acute Respiratory Infection (ARIs) • Less possibility of incidence of Arsenicosis

Contd...

Input/Activities	Output	Outcome	Impact
SANITATION			
• Motivation for installing and using improved latrine • Motivation against open defecation • Direct cash transfer to 53 unions as part of capacity building for institutional capacity building	• Households build own improved latrine due to motivation • Increased coverage of improved latrine in project area • Reduction of open defecation	• Greater coverage for improved sanitation • Reduced rate of open defecation	• Reduction in incidence of diarrhoeal episodes and ARIs • Improved isolation and treatment of human excreta • Environmental cleanliness
HYGIENE			
• Promoting improved sanitation, safe water messages , and appropriate hand washing practice through social mobilization • Media campaigns at local level • Observance of World Hand Washing Day and World Water Day	• Increased coverage on adequate hygiene knowledge and behaviour • Increased understanding on advantages of good hygiene practice • People learning appropriate hand washing techniques • Exposure to mass media campaign	• Improved knowledge among population on hygiene and hand washing issues • People motivated to better hygiene practice • Mothers/caregivers able to pass on appropriate hygiene behaviours to children	• Reduction in incidence of diarrhoeal episodes and ARIs • Increased rate of hand washing after defecation • Reduction in water borne disease due to improved hygiene behaviour
WASH in SCHOOL			
• Sanitation and hygiene education at school • Menstrual hygiene education to adolescent girls • Construction or rehabilitation of latrines • Construction or rehabilitation of water points • School brigade • Arsenic testing for water points in school	• Greater number of students retaining adequate knowledge of hygiene, sanitation and safe water messages • Greater number of schools with access to functional improved latrine and water point • Students convey hygiene messages to community and household • Students participating in environmental cleanliness activities • Increased number of water points in schools tested for arsenic	• Hygiene behaviours adopted and practiced by students • Students with access to a functional toilet and a clean toilet • Access for students to arsenic-safe water and functional water points	• Reduction in incidence of diarrhoeal episodes and ARIs among students • Increased attendance and decreased dropout rate of female students • Improved educational attainment

Contd...

Input/Activities	Output	Outcome	Impact
INSTITUTIONAL CAPACITY BUILDING			
• Training to LGI representatives on fund management for improving access to sanitation • Capacity building training for school teachers, SMC members, WATSAN committee members • Capacity development of DPHE	• Enhanced capacity of DPHE, LGI, and partner NGOs through system strengthening in the areas of sanitation and water resources • Development of social maps in intervention areas and community action plans	• Monitoring of WASH activities enhanced at local level (LGI) • Greater ability of LGI representative on WASH fund management	• Higher focus of LGI for improving WASH status in locality

3.2 BRAC Water Sanitation and Hygiene Programme

The BRAC WASH programme (2006-2011)[2] was implemented in 150 upazilas (1457 unions) and reached: (i) 37.5 million people with a holistic hygiene promotion and education intervention, (ii) 17.6 million people with access to sanitation services, and (iii) 8.5 million people with safe water (including new water points for 1 million people, repaired water points for 7.5 million). A total of € 58.73 million (US$ 76.1 million) has been spent, where The Government of Netherlands provided €52.96 (US$ 68.7 million), and BRAC contributed € 3.87 million (US$ 5 million), and in addition the local communities contributed € 1.89 million (US$ 2.4 million) for installing new water points.

[2] On this, the secondary information was provided by BRAC Water Sanitation and Hygiene Programme MIS on November 2013.

CHAPTER 4

VALUE FOR MONEY ANALYSIS: SHEWA-B RURAL INTERVENTIONS

This chapter is the core of the study. The chapter provides analysis on the following key dimensions of the Value for Money (VfM) of SHEWA-B: Assessment of SHEWA-B input, output and outcome components (section 4.1); Economic dimensions in terms of unit cost by broad components of SHEWA-B, namely Water, Sanitation, Wash in School, Social Mobilization, and Institutional Capacity Building (section 4.2); Efficiency by these five broad components (section 4.3); Cost-effectiveness (section 4.4); Impacts – both measurable and un-measurable, quantifiable and non-quantifiable (section 4.5); Benefits – both measurable and non-measurable, tangible and intangible (section 4.6); and Benefit-cost ratio (section 4.7).

4.1 SHEWA-B input, output, and outcome by components: An assessment

Based on triangulated analyses of SHEWA-B log frame, SHEWA-B database of achievements, outcomes of household survey and assumptions on average household size – an assessment has been made for the whole SHEWA-B period (2007-2012) on input, output and outcomes by five major components, namely Water, Sanitation, WinS, ICB, and SocMob with hygiene promotion. The results of the assessment are presented below in Table 4.1.

Table 4.1: Assessment results of SHEWA-B by five broad component-wise input, output and outcome, 2007-2012.

Broad component	Input[3] (in US$)	Output	Outcome
Water	20,792,938	19,579 water points installed/renovated by SHEWA-B	1,762,110 people benefited[4]
Sanitation	9,391,291	(1) 5,738 latrines installed (2) Motivation for installing and using improved latrine (13,900 new latrine installed) (3) Decreased rate of open defecation	98,190 people directly benefited[5]**
WinS*	9,653,491	**Total 9,950 schools covered** Primary schools (1) 8,800 schools covered (2) In 4,528 schools with provision of water points and/or latrines installed or repaired and rehabilitated along with hygiene promotion interventions (3) 8,800 schools were covered with hygiene education activities Secondary schools (1) 1,150 schools covered (2) 327 schools with provision of water points and/or latrines installed or repaired and rehabilitated along with hygiene promotion interventions (3) 1,150 schools with provision of hygiene promotion interventions	2,716,350 pupil benefited[6]
ICB*	7,542,964	**192,049 individuals received training and/or orientation** (1) 10,000 CHP/para development workers (2) 27,561 Primary school teachers (3) 3,250 Secondary school teachers (4) 20,324 School Managing Committee members (5) 129,286 WATSAN Committee members (6) 1,346 Union Parishad Chairman and secretary (7) 282 DPHE staff	20,400,000 people benefited[7]

Contd...

[3] Disaggregation of inputs by broad components has been estimated by the authors using data provided in Annex Tables 1, 2, and 3.

[4] According to SHEWA-B logframe, the average household size within project area is 5.0. Primary data collected through household survey reveal that on average 18 household was benefited from an installed/renovated water point. Hence, 19,579×5×18=1,762,110 people benefited from water point installation/renovation.

[5] Primary data analyses suggest that there were approximately 13,900 new improved latrines installed through motivation. So, a total of 19,638 households (5,738+13,900) were directly benefited through Sanitation activities. Assuming an average household size of 5.0 (as per SHEWA-B logframe), the total number of people benefited is, 19,638×5.0=98,190.

[6] Analysis of SHEWA-B database of achievements reveals that average number of students in a school is 273. Hence, in 9,950 schools, 9,950×273=2,716,350 pupil was benefited.

[7] Individuals receiving training under ICB worked for the community people. Moreover, the WATSAN committee members were people from within the community. They were supposed to provide motivational activities and deliver messages to community people on improved hygiene behavior. SHEWA-B database of achievements suggest none of the geographical location were excluded from such training activities. So, it was assumed that all population within programme coverage received benefit of such activity.

Broad component	Input[3] (in US$)	Output	Outcome
SocMob* and hygiene promotion	24,635,127	(1) 20,400,000 population received SocMob and hygiene promotion intervention	20,400,000 people benefited
		(2) 64,800 new water points were installed by community after being motivated by SHEWA-B (3) Around 5,000 new latrine, 1,200 water point and water points platform repaired through direct cash transferred in 53 UPs	6,647,000 people benefited
		(4) 1,486,000 new latrines were installed by community after being motivated by SHEWA-B. SHEWA-B had provision of water points and/or latrines installed or repaired and rehabilitated along with hygiene promotion interventions	8,472,000 people benefited
Total	72,015,810		

* WinS = WASH in School, ICB = Institutional Capacity Building, SocMoB = Social Mobilization
**People received support for latrine installation and/or motivated to build their own improved latrine

4.2 Economy: Unit Cost

This section provides analysis of unit cost (in US$) by five broad components of SHEWA-B, namely Water points by technology types, Sanitation, WASH in Schools, Social Mobilization, and Institutional Capacity Building. The analysis of unit cost by each of the broad components has been presented by type of technology, by year (for the period between 2008 and 2012), by sub-components (hardware and software), by type of activities and events (for SocMob and hygiene promotion), by types of training and orientation (for Institutional Capacity Building). The relevant methodology, in addition to what has already been presented in Chapter 2, is provided in the relevant sub-sections below.

4.2.1 Unit cost estimation: Issues on methodology

All expenditures on SHEWA-B rural component are distributed among the programme components (water, sanitation, WinS, SocMob and hygiene promotion, and ICB) following the procedure explained in the Chapter 2 on methodology.

In order to estimate unit cost of water points by technology, the disaggregated expenditure on water points by technology and year is divided a number of water points by technology and year.

In order to estimate unit cost of latrines, the total SHEWA-B expenditure is divided by total number of latrines installed under ICB. For estimating unit cost of motivation for improved access to sanitation the apportioned amount of total SocMob expenditure is divided by total number of latrines installed by beneficiary people. Such households belong to two categories: (i) households who installed improved latrines using out of pocket expenditure (mostly all households who installed latrines), (ii) households who received subsidized hardware (limited in numbers) and, (iii) latrine installed through UP direct cash transfer piloting in 53 UPs.

For estimating unit cost of water point installed or renovated under WinS component the total expenditure incurred under this head is divided by total number of such water points. Unit cost of newly installed or renovated latrine is estimated in the similar fashion. For estimating

unit cost of WASH in school intervention per school total amount of expenditure under this subhead (consisting of apportioned part of teachers' salary and WinS-related materials) is divided by total number of schools.

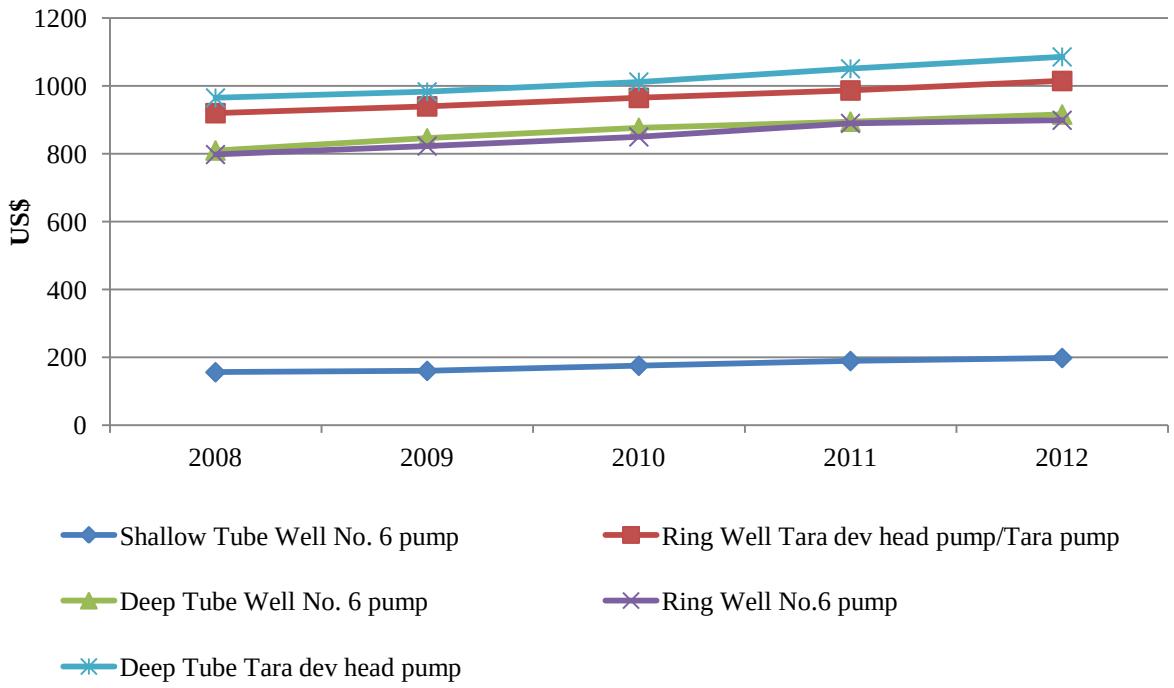
Unit cost of Community Hygiene Promoters' assistance in WinS is estimated as apportioned amount of respective CHP (calculated on the basis of time spent in visiting schools).

4.2.2 Unit cost: WATER

This subsection on "unit cost of water" provides analysis and their outcomes on the following: (1) unit cost by water points by technology type by year (for each year between 2008 and 2012), (2) number of households benefited from SHEWA-B installed water points by year (2008-2012) by technology type, (3) process of installation of water points, (4) specification of major water point technologies, (5) comparison of prices between unit costs of SHEWA-B water points and (cheaper) option available in the market by type of technology, and (6) comparison of unit costs between SHEWA-B and BRAC by type of water point technologies.

The unit cost of water points varies over time by technology types and by districts. For SHEWA-B, unit cost of a shallow tube well with No.6 hand pump was US$ 156 in 2008 and US$ 198 in 2012 (Figure 4.1 and Table 4.2). The average unit cost is US$ 175. Unit cost of a shallow tube well with Tara Dev hand pump in 2008 was US$ 365 and the same was US$ 398 in 2012. The average unit cost of Ring Well with Tara dev hand pump during the project period was US$ 973, and the same for gravity flow system constituted US$ 14,933 (Table 4.2).

Figure 4.1: Unit cost of water points by technology type by year, 2008-2012 (in US$)



The average unit cost of water points for the same technology varies by districts. For example, for a shallow tube well with Tara Dev hand pump in 2009, the unit cost at Bandarban was US$ 378 and that in Pabna was US$ 524.

Table 4.2: Unit cost (US$) of water points by technology type by year, 2008-2012

Technology types	Year					Average	Increased unit cost in 2012 as per cent of unit cost in 2008
	2008	2009	2010	2011	2012		
A. Shared Water Point							
i. Shallow Tube Well No. 6 pump	156	160	175	189	198	175	12.2
ii. Shallow Tube Tara dev head pump	365	378	-	389	398	375	2.7
iii. Ring Well No.6 pump	798	823	850	890	899	849	6.4
iv. Ring Well Tara dev head pump/Tara pump	920	940	965	987	1,015	973	5.8
v. Ring Well renovation	318	328		345	357	341	
vi. Deep Tube Well No. 6 pump	810	846	877	895	916	858	5.9
vii. Deep Tube Tara dev head pump	965	983	1,012	1,051	1,086	1,007	4.4
viii. Rain Water Harvester	-	429	-	478	493	487	-
ix. Infiltration gallery	282	363	-	-	-	323	-
B. Community System							
x. Pond sand Filter (PSF)	922	-	-	-	-	922	-
xi. Gravity Flow System (GFS)	12,232	14,109	-	15,325	16,235	14,933	-
xii. Village pipe water supply		36,578	35,272	39,191	39,751	39,000	
xiii. DTW – Multiple connection	Secondary data collected from Directorate of Public Health Engineering (DPHE) did not contain information on Deep tube well (DTW) Multiple connection.						

Analysis of unit cost by technologies over the years (2008-2012) shows a non-substantial changes (see, Table 4.3). According to DPHE sources it is mainly attributable to the market fluctuations.

Table 4.3: Variation in unit cost by technology by year, 2008-2012 (base year 2008=100)

Technology types	Year				
	2008	2009	2010	2011	2012
Shallow Tube Well No. 6 pump	100	102.6	109.4	108.0	104.8
Deep Tube Well No. 6 pump	100	104.4	103.7	102.1	102.3
Deep Tube Tara dev head pump	100	101.9	103.0	103.9	103.3
Ring Well Tara dev head pump/Tara pump	100	102.2	102.7	102.3	102.8
Ring Well No.6 pump	100	103.1	103.3	104.7	101.0

Table 4.4: Variation in total budget of hardware for water point installation by technology in percentage by year, 2008-2012

Technology types	Year				
	2008	2009	2010	2011	2012
Shallow Tube Well No. 6 pump	-	215.7	-85.6	-17.8	801.9
Deep Tube Well No. 6 pump	-	112.1	-86.6	953.7	17.0
Deep Tube Tara dev head pump	-	750.6	-96.7	203.1	410.0
Ring Well Tara dev head pump/Tara pump	-	168.1	-72.5	-36.5	526.3
Ring Well No.6 pump	-	-20.6	-49.5	-38.1	596.3

During five year's period between 2008 and 2012, a total of 346,388 households have been benefited from SHEWA-B installed water points (Table 4.5). Out of the total households benefited 60 per cent households got benefit in the first two years (i.e. in 2008 and 2009). During the project life, technology-wise, 52 per cent households got benefit from deep tube well, 25 per cent from Ring well, and 21 per cent from shallow tube well (estimated based on data in Table 4.5).

Table 4.5: Number of household benefited[8] from SHEWA-B installed water points by year, 2008-2012

Technology types	Year					Total number of household benefited
	2008	2009	2010	2011	2012	
Shallow Tube Tara dev head pump	13,044	12,372	-	1,536	3,048	30,000
Shallow Tube Well No. 6 pump	8,928	15,684	1,452	2,652	15,336	44,052
Ring Well Tara dev head pump/Tara pump	4,144	7,264	480	8,224	8,368	28,480
Gravity Flow System	100	1,300	-	100	1,000	2,500
Deep Tube Well No. 6 pump	29,760	28,448	2,416	14,384	20,608	95,616
Ring Well No.6 pump	15,168	16,320	2,064	4,848	19,536	57,936
Rain Water Harvester	-	8	-	352	660	1,020
Deep Tube Tara dev head pump	33,900	20,490	4,500	5,160	21,000	85,050
PSF	1,350	-	-	-	-	1,350
Infiltration gallery	192	192	-	-	-	384
Total households benefited	106,586	102,078	10,912	37,256	89,556	346,388

[8] Number of water point installed by type by year has been collected from DPHE annual progress reports (2008-2012) and household benefited from an installed water point (of different types) was estimated from primary data collected through household survey. However, the number of beneficiary per Gravity Flow System, Rain Water Harvester, Pond Sand Filter, and Infiltration gallery was estimated in consultation with DPHE and SHEWA-B experts.

Key informant interviews with respective personnel reveal that the process of installation of water points constituted of several steps: (i) procurement of hardware, (ii) transportation to locations, and (iii) installation itself. Procurement of hardware is made centrally in bulk under the supervision of a committee, comprising representatives from both DPHE and UNICEF through an open tendering method (OTM) using GoB Public Procurement Regulations. The bids were evaluated by the committee members, and the lowest bidder who satisfied the technical specification got the supply order. Once the supply order is issued, the supplier received the money from UNICEF and supplied the hardware to the respective DPHE warehouse. In the subsequent steps, DPHE organized transportation and installation of hardware through enlisted pool of contractors in consonance with public procurement rules (i.e., the lowest bidder). Payment for transportation and installation was made by DPHE from the GoB contribution fund.

The DPHE engineers reported that in the whole process there was no provision for mitigating the cost except depending upon the lowest bidder.

The market survey has revealed that there was no significant variation of unit cost of hardware that has been used in SHEWA-B (DPHE standard specification). In some instances, the unit market price of the hardware is costlier than the unit procurement price of SHEWA-B installed hardware. The technical specifications of shallow and deep tube well with number 6 hand pump used in SHEWA-B are presented below as examples (see, Tables 4.6 and 4.7).

Table 4.6: Specification of shallow tube well with number 6 hand pump used in SHEWA-B

Description of Materials	Quantity	Unit
38 mm GI Pipe (BS 1387:1985, weight 3.6 Kg per meter)	10	ft
38 mm PVC Pipe38 mm PVC Pipe (BS 3505:1986, outside diameter: 48.1 mm to 48.4 mm. Class ‘D’ of wall thickness 2.5 mm-3.00 mm) (End: One end plain, other end socketted (bell joint). Bell joint to be slightly tappered to accept 48.1 mm to 48.4mm pipe and joint depth 125mm)	165	ft
38 mm dia sand trap (DPHE approved brand)	5	ft
38mm dia strainer (2meter long)	1	Each
No 6 Hand Pump (cast iron made, Barrel: 13 Kgms – 14 Kgms Head cover: 5 Kgms – 5.5 Kgms, Handle: 5 Kgms – 5.5 Kgms, Base: 2.75 Kgms – 3.00 Kgms, plunger 2kgms, check valve 0.1 kg; average total weight 29 kg)	1	Each
Solvent Cement (100 gm) (DPHE approved brand)	1	tube
Socket adopter [Unplasticized PVC to BS 3505: 1986 class 7 Nominal diameter 1 ½ inch (38mm)],	1	Each

Table 4.7: Specification of deep tube well with number 6 hand pump used in SHEWA-B

Description of Materials	Quantity	Unit
38 mm GI Pipe (BS 1387:1985, weight 3.6 Kg per meter)	10	ft
38 mm PVC Pipe (BS 3505:1986, outside diameter: 48.1 mm to 48.4 mm. Class 'D' of wall thickness 2.5 mm-3.00 mm) (End: One end plain, other end socketted (bell joint). Bell joint to be slightly tappered to accept 48.1 mm to 48.4mm pipe and joint depth 125mm)	890	ft
38 mm dia sand trap (DPHE approved brand)	10	ft
38mm dia strainer (2meter long)	2	Each
No 6 Hand Pump No 6 Hand Pump (cast iron made, Barrel: 13 Kgms – 14 Kgms Head cover: 5 Kgms – 5.5 Kgms, Handle: 5 Kgms – 5.5 Kgms, Base: 2.75 Kgms – 3.00 Kgms, plunger 2kgms, check valve 0.1 kg: average total weight 29 kg)	1	Each
Solvent Cement(100 gm) (DPHE approved brand)	3	tube
Socket adopter [Unplasticized PVC to BS 3505: 1986 class 7 Nominal diameter 1 ½ inch (38mm)],	1	Each

In the market, however, there are various brands of hardware (hand pump, pipes, and filters) available which do not satisfy the DPHE approved specification, but are cheaper (see, Table 4.8, and Figures 4.2 and 4.3). KII with DPHE reveals that on average, the life time of a shallow tube well with No. 6 hand pump (satisfying the DPHE standard specification) is about 10 years. However, the life time of water points like that of shallow tube well, deep tube well, tara tube well also depends on intensity of use (i.e., number of people/households using as well as frequency of use). "For hardware not complying with official DPHE standard, obviously the life time will be less", the DPHE specialist added. Therefore, presence of cheaper alternative hardware in market does not sustainably resolve the question of ensuring access to safe water at a cheaper price. The comparison of average cost distributed by broad cost-components (hardware, installation, and transportation) by technologies (shallow and deep tube wells) between the SHEWA-B used and the cheaper option available in the market is shown in Table 4.8.

Table 4.8: Price comparison between unit cost of SHEWA-B shallow and deep tube wells with unit price of cheaper option available in the market (in US$)

Technology types	Description	Average cost	Hardware cost	Installation cost	Transportation cost
Shallow Tube Well with No. 6 pump	SHEWA-B Used	175	80	90	5
	Local Market (best quality among non-standard)	157	77	75	5
Deep Tube Well with No. 6 pump	SHEWA-B Used	858	273	568	16
	Local Market (best quality among non-standard)	785	269	500	16

Figure 4.2: Price comparison between unit cost of SHEWA-B used and that of cheaper option available in the market, Shallow tube well with No. 6 pump (in US$)

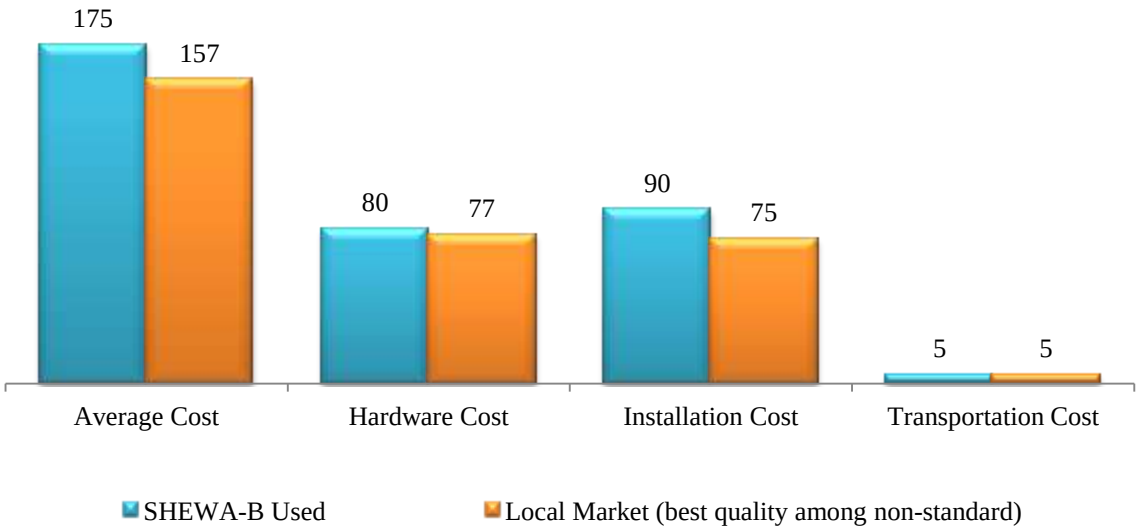
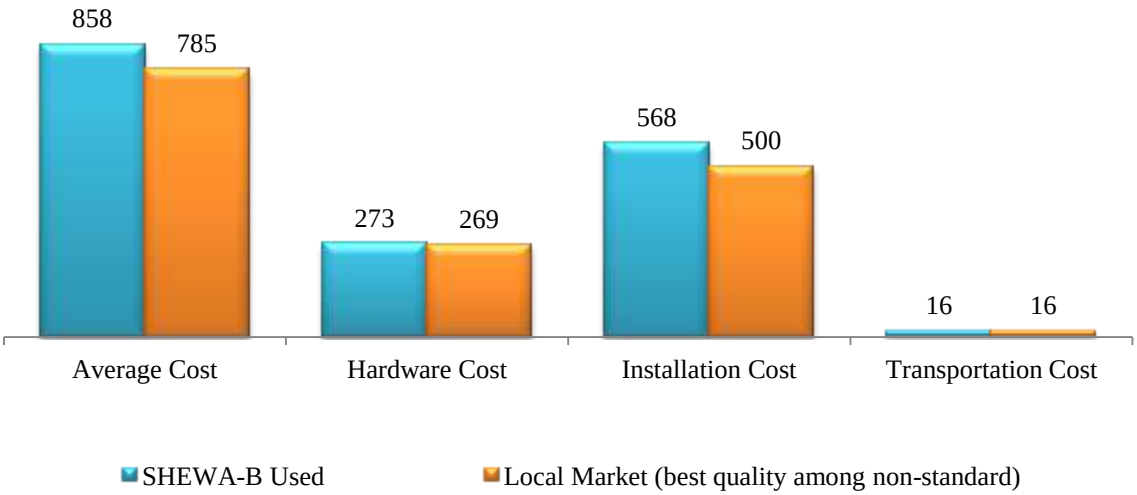


Figure 4.3: Price comparison between unit cost of SHEWA-B used and that of cheaper option available in the market, Deep tube well with No. 6 pump (in US$)



There is a debate among public health practitioners that rural village pipe water system is a cheaper option compared to individual water points at household level. In case of SHEWA-B, the average unit cost of a village piped water system is US$ 39,000 (excluding operation and maintenance cost) and it serves 1,777 people households. Thus, the per capita capital expenditure of village pipe water system is US$ 21.9. Considering the fact that per capita capital expenditure of a SHEWA-B installed shallow tube well and deep tube well is US$ 3.2 and US$ 11.5 respectively, while the same (village pipe water system) does not appear to be cheaper alternative of commonly used technologies in Bangladesh.

An attempt has been made to compare unit cost of SHEWA-B water points with that of BRAC. This is to mention here that in SHEWA-B, the cost of water points is borne as part of the programme. There is a provision for community contribution under which a nominal and symbolic amount is collected and deposited in a special account and kept separate from the SHEWA-B expenditure. Under BRAC WASH programme, the cost of water point is shared

by both BRAC and the community. Moreover, BRAC programme, according to information provided by BRAC has mainly installed deep tube wells with No. 6 hand pump (3,895). A limited number of PSF (16) were constructed, and a number of Sono filters (645) provided in arsenic prone areas.

For SHEWA-B, the average unit cost of Deep Tube well with No. 6 hand pump was US$ 858 (average beneficiary = 16 household). To the contrary, for BRAC WASH, the average unit cost of Deep Tube well with No. 6 hand pump was US$ 738 (average beneficiary = 31 household). BRAC WASH contributes on average US$ 591 and the rest US$ 147 comes from the community

Segregation of average unit cost of SHEWA-B by broad cost components (cost of hardware, transportation, and installation) shows that the respective share of hardware, transportation, and installation varies by technology (see, Tables 4.9 and 4.10). The share of hardware ranges between 17 per cent (for rain water harvester) and 62 per cent (for shallow tube well with tara dev head pump) of average unit cost depending upon technology (Table 4.10). A similar pattern of fluctuation of share is observed for other cost components as well. However, it is worth mentioning that that for almost all technologies except gravity flow system (GFS) and infiltration gallery (IFG), the share of transportation component is substantially low (ranging between 2% and 7%). The same for GFS and IFG respectively constitute 15 per cent and 29 per cent of average unit cost (see, Table 4.10).

Table 4.9: Distribution of average unit cost of technology-wise water points by broad cost-components: Hardware, installation, transportation (in US$)

Technology types	Average cost	Hardware cost	Installation cost	Transportation cost
Shallow Tube well with Tara dev head pump	375	232	134	9
Shallow Tube Well No. 6 pump	175	80	90	5
Ring Well Tara dev head pump/Tara pump	973	570	388	16
Gravity Flow System	14,933	5,973	6,720	2,240
Deep Tube Well No. 6 pump	858	273	568	16
Ring Well No.6 pump	849	448	385	16
Rain Water Harvester	487	81	373	32
Deep Tube Tara dev head pump	1,007	427	555	24
PSF	922	212	651	59
Infiltration gallery	323	129	99	94

Table 4.10: Percentage distribution of component-wise share in average unit cost of water points by technology

Technology types	Average cost	Hardware cost	Installation cost	Transportation cost
Shallow Tube Tara dev head pump	100.0	61.9	35.7	2.4
Shallow Tube Well No. 6 pump	100.0	45.7	51.4	2.9
Ring Well Tara dev head pump/Tara pump	100.0	58.6	39.9	1.6
Gravity Flow System	100.0	40.0	45.0	15.0
Deep Tube Well No. 6 pump	100.0	31.8	66.2	1.9
Ring Well No.6 pump	100.0	52.8	45.3	1.9
Rain Water Harvester	100.0	16.6	76.6	6.6
Deep Tube Tara dev head pump	100.0	42.4	55.1	2.4
PSF	100.0	23.0	70.6	6.4
Infiltration gallery	100.0	39.9	30.7	29.1

4.2.3 Unit cost: SANITATION

It is noteworthy that in rural areas, SHEWA-B does not install latrines under the sanitation component. However, a total number of 5,363 simple pit latrines were installed under ICB components. The accompanying study examined the unit cost from the information provided by respective sample union parishads. It is worth mentioning that data for estimating the unit cost of latrines has been collected partly through household survey and partly in key informant interviews with union parishad secretary.

The unit cost of a Simple Pit Latrine varies depending on the number of rings, type of superstructure and by district. An example of such variation is presented below:

# of rings	Type of superstructure	District	Unit Cost* (US$)
3	Wall and roof made of bamboo with polythene covering	Plain land district	34
3	Wall and roof made of tin	Hard-to-reach district	43
5	Wall and roof made of bamboo with polythene covering	Plain land district	56
5	Wall and roof made of tin	Hard-to-reach district	69

**Procurement and installation cost*

The findings exhibit the fact that union parishad has provided the hardware free of cost under SHEWA-B programme. The transportation, installation of the hardware and construction of superstructure was on the account of the respective household. It is notable that the average unit cost of latrine hardware constituted the highest share among all broader cost components. Data also reveal that the cost of hardware not only varied depending on number of rings, it also varied by districts (see, Table 4.11).

Table 4.11: Unit cost of simple pit latrine by hardware, installation, transport and superstructure cost (in US$)

Simple pit latrine	Type of superstructure	District	Cost				
			Average total	Hardware	Installation	Transportation	Super-structure
3 rings and one slab	Wall and roof made of bamboo with polythene covering	Plain Land District	34	18	7	2	7
3 rings and one slab	Wall and roof made of tin	Hard to Reach District	43	19	7	4	13
5 rings and one slab	Wall and roof made of bamboo with polythene covering	Plain land District	56	29	14	4	9
5 rings and one slab	Wall and roof made of tin	Hard to Reach District	69	30	16	8	15

The facts emerge from key informant interviews with secretary that union parishads under its sanitation programme (under annual development budget allocation through LGD) provided 3 rings and a slab (hardware) where unit cost is US$ 10. However, the DPHE sources confirmed the unit cost of hardware of union parishad sanitation programme, and added that the parishad had to follow the circular on estimated cost of subsidized latrine (issued by LGD about 12 years back). Both union parishad secretary and DPHE officials admitted that because of poor normative allocation, the quality of hardware was also poor. It has been reported that within a year the slab use to crack. Even there are reports that in many instances the slabs cracked during transportation. However, the union parishad secretary has specifically mentioned that the quality of latrine hardware provided under SHEWA-B was much better than the earlier mentioned ones. The DPHE relevant personnel pointed out that as the allocation was much higher, both DPHE and SHEWA-B personnel were concerned and vigilant about the quality of the hardware.

BRAC WASH addressed the access to safe sanitation using 2 strategies: (i) installing 2 pit latrine with superstructure made of bamboo under a loan of US$ 39, and (ii) replacement of the broken goose neck with plastic made ones for existing latrines. The plastic goose necks are sold for about US$ 0.5 to the respective households, in addition the household also paid the replacement charge. There are instances that BRAC WASH programme provided latrine free of cost to hard core poor.

4.2.4 Unit cost: WASH in SCHOOL

SHEWA-B provided direct cash transfer for different packages for WASH activities (installation or rehabilitation of water points and latrines) in schools. Data collected from database of achievement did not provide disaggregation by capital cost, transportation cost, and installation cost for the transferred amount. The estimated unit cost of setting up water point (Hand pump with raised water storage chamber for running water inside latrine) in school is US $247, while unit cost of setting up a latrine with separate chambers (for male student and male teachers and female student and female teachers) is US $1,119 (Table 4.12). For BRAC WASH, the unit cost of latrine in school (hardware, transportation and installation) was US$ 1,189.

Table 4.12: Unit cost of WASH in Schools by cost-components (in US$)

Cost-components	Unit cost
Water Point in school	247
Latrine in school	1,119
Sanitation	168
CHP involvement	327

4.2.5 Unit cost: SOCIAL MOBILIZATION

During household survey, information on whether the household have own water points and latrines were collected. In case the household having water points and/or latrines, year of installation was documented. If the year of installation was found after 2006, then the respondent was asked about the source of motivation. In case if the respondent mentioned any one of the following answers: (a) motivated by CHP, (b) motivated through participating courtyard meeting, (c) motivated through participating tea-stall sessions, etc., in that case the respective latrine or water point was classified as water point or latrine installed after being motivated by SHEWA-B. Analysis shows that 61 per cent water points and 78 per cent

latrines were installed after 2006, and of them 68 per cent and 83 per cent of water points and latrines respectively were installed after being motivated by SHEWA-B. Extrapolating the results of household survey on total number of households covered under the rural part of SHEWA-B, the number of water points and latrines respectively were installed after being motivated by SHEWA-B by year has been obtained.

The yearly distribution of accumulated Social mobilization (SocMob) expenditure by year has been estimated from allocating and reallocating the expenditure entries of SHEWA-B data base using allocation rules and procedures explained in Chapter 2.

It needs to mention in connection with the matter that CHP – the frontline worker – was in touch with the community, mobilizing and motivating the community to attain safe WASH practices. Thus, CHP was the key actor for community motivation. During FGDs and key informant interviews with CHPs, they were requested to share their time allocation by routine activities. The time they reportedly spent respectively on activities related to (i) preparing MAP and CAP, (ii) school visits, (iii) motivating for making safe access to water, (iv) motivating for making safe access to sanitation, (v) providing knowledge on hygiene behavior has been considered as the share of respective activity out of total SocMob and hygiene promotional activities. Thus, a proportion of time spending has been obtained. As the exercise has been done involving a statistically representative number of CHPs, the proportion of time spending, thus obtained is also representative.

At this point, the SocMob and hygiene promotional expenditure is disaggregated by the following five activities: (i) preparing Map and CAP, (ii) school visits, (iii) motivating for access to safe water and water safety, (iv) motivating for access to improved sanitation and safe disposal of child feaces, (v) hygiene behavior change specially handwashing related events. The expenditures related to: (a) motivating for making safe access to water, and (b) motivating for making safe access to sanitation have been disaggregated further by respective number of water points and latrines installed by community by year.

Analysis reveals that the unit cost of motivation for installing water points vary over years. The same was about US$ 32 in 2007 and US$ 45 in 2012 (Table 4.13). Similarly, unit cost of motivation for installing latrine in 2007 and 2012 respectively was US$ 5.2 and US$ 4.9. The trends (2007-2012) in number and unit cost of water points and latrines installed by community after being motivated by SHEWA-B are depicted in Figures 4.4 and 4.5, respectively.

Table 4.13: Distribution of latrine and water points installed after being motivated by SHEWA-B and their unit cost (US$) by year, 2007-2012

Indicators	Year						Total	Average
	2007	2008	2009	2010	2011	2012		
Number of water points installed by community after being motivated by SHEWA-B	12394	10734	13721	8410	16045	3541	64,845	-
Unit cost of motivation for installing water point	32.3	32.9	34.0	39.1	34.7	45.4	-	35.0
Number of latrine installed by community after being motivated by SHEWA-B	229,600	229,851	273,000	217,000	353,135	98,000	1,400,586	-
Unit cost of motivation for installing latrine	5.2	4.6	5.1	4.5	4.7	4.9	-	4.9

Figure 4.4: Number of water points and latrines installed by community after being motivated by SHEWA-B, 2007-2012

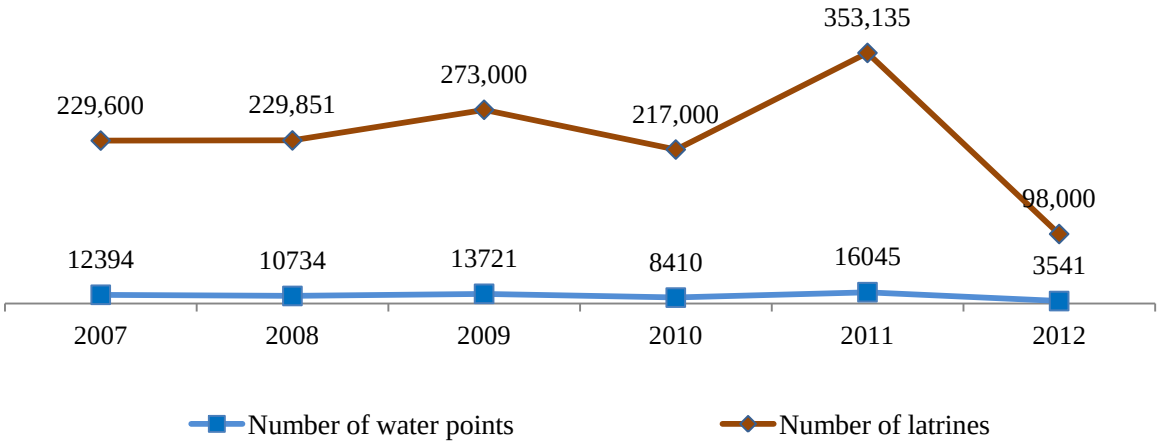
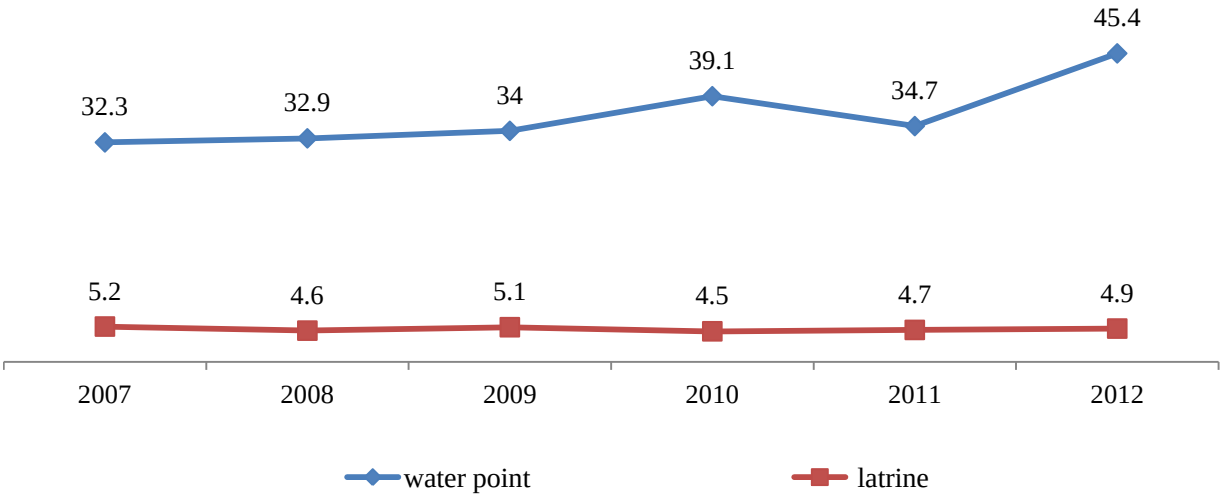


Figure 4.5: Unit cost for installing water points and latrines after being motivated by SHEWA-B, 2007-2012 (in US$)



The approach for preparing Community Action Plans (CAP) involves following a AAA method i.e., Assessment, Analysis and Action. The community analyzes their current situation, identifies and assesses their problems, and then makes a CAP for improvements in latrine coverage and usage; access to and use of arsenic-free water; and improved hygiene practices, especially handwashing with soap (HWS).

About 133,000 Community Mobility Action Plan (MAP) and Community Action Plans (CAP)/Para MAP and Para Action Plans (PAP) have been created under SHEWA-B rural component. CAP consists of 20-30 cluster of households for plain land areas and 20-80 HHs for CHT paras.

Expenditure for preparing and updating CAP by year was estimated by allocating respective years' SocMob expenditure according to the share of time involvement of CHP for CAP. Interaction with CHPs and union parishad secretary reveals that one CAP was prepared for the entire CHP unit. SHEWA-B originally had 10,000 CHPs/Para workers (2007-2010) with one CHP for 450-550 HHs. Assuming one CHP unit on average consists of 450 households,

there were a total of 8,070 CHP units under SHEWA-B rural programme. Thus, a total of 8,070 CAPs were prepared and updated on routine basis. Estimation shows that in 2007, the unit cost of preparation and updating of a CAP was US$ 9 and the same in 2012 was about US$ 4 within the average unit cost being US$ 8 (Table 4.14). During 2011-2012, SHEWA-B had 6,550 CHP/para development workers. Each CHP/para development worker was responsible for one ward of a union (ranging between 1,200 and 2,700 households).

Table 4.14: Unit cost of social mobilization by broad activities under SHEWA-B, 2007-2012 (in US$)

Activities	Year						Average
	2007	2008	2009	2010	2011	2012	
Preparing MAP	1.6	-	-	-	-	-	1.6
Preparing and updating CAP	7.4	7.9	10.5	7.4	12.5	3.6	8.2
Motivation for access to safe water	-	0.08	0.12	0.07	0.15	0.06	0.09
Motivation for access to sanitation	-	0.11	0.12	0.10	0.16	0.08	0.12
Motivation for hand washing practice	-	0.12	0.15	0.11	0.15	0.09	0.15

As mentioned earlier, the information on involvement of CHP in household visits, courtyard meeting (includes courtyard meeting, community meeting, mothers' meeting, adolescent girls' meeting), tea stall sessions, school visits (providing technical assistance in WinS) has been gathered through FGDs and KII. Using work-time analysis and extrapolation method it is revealed that an average CHP annually has made 1,220 household visits, conducted 260 courtyard meetings and 65 tea stall sessions and provided technical assistance to WinS 45 times (Table 4.15). CHP also did arsenic screening. Average unit cost of MAP preparation is US$ 1.6, while the same for CAP is US$ 8.2. The estimated average unit cost of motivation per person for access to safe water, sanitation and hand washing practices respectively are US$ 0.09, US$ 0.12, and US$ 0.15 (Table 4.14).

Table 4.15: Average broader activities of a CHP per year

Events	Number of events
HH visit	1,220
Courtyard meeting	260
Tea stall session	65
School visit	45

The estimated average unit cost of a household visit is US$ 0.42, the same of a courtyard meeting, a tea stall session and a school visit (for providing technical assistance to SSHE) respectively are US$ 2.83, US$ 1.58, and US$ 3.04 (Table 4.16).

Table 4.16: Unit cost of a household visit, courtyard meeting, tea stall session and school visit (in US$)

Events	Unit Cost
Household visit	0.42
Courtyard meeting	2.83
Tea stall session	1.58
School visit	3.04

4.2.6 Unit Cost: INSTITUTIONAL CAPACITY BUILDING

Under the Institutional Capacity Building (ICB) component altogether 192,049 persons drawn from various categories of SHEWA-B stakeholders were provided with training and/or orientation (Table 4.17). It is noteworthy that 129,286 WATSAN Committee members at various levels were provided with orientation. Table 4.16 shows number of persons by types of stakeholder who received institutional capacity building interventions and respective unit cost. Following activities were undertaken under The Institutional Capacity Development Programme (ICDP):

(i) Formation and functioning WASTSAN Committee at different levels;

(ii) Orientations and capacity building of GoB and LGI representatives on SHEWA-B and hygiene behavioral changes issues, project management, procurement, monitoring etc.;

(iii) Training to teachers and SMC for preparation of school level plan and formation of school brigade;

(iv) Preparation of integrated WASH plan for 96 Unions; and

(v) Piloting of direct cash transfer initiative for water facilities in 53 Unions.

It is to note that the unit cost of training/orientation has varied by type of stakeholders trained under SHEWA-B. The unit cost varied between a low at US$ 4 for WATSAN Committee members (a total of 129, 286 members trained) and as high as US$ 165 for the CHP/PDW with 10,000 trained (Table 4.17).

Table 4.17: Distribution of number of persons who received training by categories under institutional capacity component and unit cost of training by types

Types	Number of person trained	Unit cost (US$)
CHP/Para Development Workers	10,000	165
Primary school Teacher	27,561	22
Secondary school Teacher	3,250	22
SMC member	20,324	16
WATSAN Committee member	129,286	4
Chairman and Secretary of Union Parishad and Upazila Parishad	1,346	103
DPHE staff	282	Sufficient Data Not Available
Total	192,049	

4.3 Efficiency of SHEWA-B

This section provides a detailed analysis related to the various dimensions of efficiency of SHEWA-B by five broad components, namely, Water, Sanitation, WASH in School, Social Mobilization, and Institutional Capacity Building. In all relevant places necessary methodology issues have been delineated.

4.3.1 Efficiency: WATER

In the rural areas SHEWA-B installed a total of 19,624 different kinds of water points including 41 piped water system (Table 4.18). However, about 9 per cent of the water points installed are not functional. Some of the water points (tube wells) were tested positive for arsenic contamination and the rest are not properly functional.

Table 4.18: Efficiency of SHEWA-B installed water points by technology

Technology types	Number of total water points installed	Number of water points well functioning	Estimated number of beneficiaries	Expected number of beneficiaries	Efficiency of water points (%)	Functioning efficiency of water points (%)	Capital cost (US $)
Deep Tube Tara dev head pump/Tara pump	2,954	2,807	484,785	569,855	85.1	95.0	1,196
Deep Tube Tara pump	20	19	-	-	-	95.0	-
Deep Tube Well No. 6 pump	5,994	5,405	545,011	655,538	83.1	90.2	1,034
Gravity Flow System (GFS)	5	5	14,250	15,082	94.5	100.0	79,799
Pond sand filter (PSF)	15	15	7,695	9,255	83.1	100.0	615
Rain Water Harvester	29	29	5,814	6,992	83.2	100.0	3,350
Ring Well No.6 pump	2,423	2,265	330,235	397,194	83.1	93.5	1,321
Ring Well Tara dev head pump/Tara pump	1,267	1,187	162,336	195,253	83.1	93.7	1,476
Ring well Tara pump	1	1	110	110	100.0	100.0	-
Shallow Tube Tara dev head pump	2,797	2,650	171,000	205,567	83.2	94.7	917
Shallow Tube Well No. 6 pump	3,976	3668	251,096	302,008	83.1	92.3	215
Shallow Tube Tara pump	98	88	-	-	-	89.8	-
Infiltration gallery	4	4	2,189	2,632	83.2	100.0	182
Piped water system	41	-	-	87,000	-	-	-
Total	**19,624**	**17,805**	**1,974,521**	**2,446,486**	**80.7**	**90.7**	-

Note: According to SHEWA-B project design document, and key informant interview with DPHE personnel there was no provision for O&M cost in the project. It was anticipated that the direct beneficiaries of hardware installation will undertake the O&M cost.

Analysis show that the efficiency of SHEWA-B installed water points at community level is about 81 per cent. Assuming the same efficiency level in the rural areas and remaining water points are functional; estimates have been made for the total number of beneficiaries for installed water points. Such estimation has been made for each of the intervention districts

separately right after preparing the distribution of currently functional water points by type in each of the rural areas within intervention districts. SHEWA-B programme was targeted for 20.4 million rural people in Bangladesh as of 2007. Beneficiary estimation has been made using the same parameters. Accordingly beneficiary estimates have been made for each of the intervention districts separately. Combined estimates from primary data collected through household survey, SHEWA-B database of achievements, and DPHE Annual Progress report show that out of 20.4 million rural populations under the SHEWA-B programme, about 2 million people were directly benefited through water point installation (Table 4.19).

Table 4.19: Distribution of number of beneficiaries through water point installation by districts

District	Number of beneficiaries
Brahmanbaria	217,971
Chapai Nababganj	53,120
Comilla	374,705
Gaibandha	155,899
Maulvibazar	116,865
Meherpur	57,298
Mymensingh	110,300
Narail	118,298
Narsingdi	76,159
Pabna	99,675
Panchagarh	50,495
Rangamati	9,671
Rangpur	85,946
Shariatpur	101,944
Sherpur	89,171
Sirajganj	110,777
Sunamganj	146,229
Total beneficiaries	**1,974,521**
Total population	**20,400,000**

Primary data analysis shows that of all the water points (tube wells) at present in the intervention area, 10.8 per cent are attributed by SHEWA-B. Among the SHEWA-B installed water points 78.2 per cent are a range of tube wells and 20.5 per cent are ring wells *(with tara head or No. 6 pump)* that covered 94.5 per cent of the hard ware installation beneficiaries. The average number of beneficiaries for piped water system in rural areas was supposed to be 378 households[9] which are on average 25 times higher compared to tube wells and 20 times higher compared to ring wells. However, the average unit cost for installing piped water system is nearly US$ 39,000 while average unit cost for installing tube wells is US$ 720 and ring wells is US$ 849.

[9] Estimated from SHEWA-B data base of achievements.

Appropriateness of water point installation varies considering the geographical conditions of the area. SHEWA-B programme undertook the process of installing different types of water points. The distribution of types of water point installed by intervention areas (districts) by year is collected from SHEWA-B database of achievements. Analyzed data show that, Gravity Flow System was installed only in Bandarban and Rangamati districts (about 40 schemes); similarly Rain Water Harvester in Sunamganj and Pond Sand Filter in Brahmanbaria. Separate FGDs with communities having such water points reveal that most of the participants think that installed water points are more appropriate than conventional tube wells or ring wells. In case of installing tube well or ring wells, the FGD participants argued about the spot selection of installing the water points and said that those could have been installed in a better public place where beneficiary coverage could have been more. In response to such argument, the key informants mentioned about the depth of water availability as a consideration that affects overall installation cost. The key informants replied that the spot of water point installation have been selected not only for the higher coverage but also for cost minimization.

The financial data analysis reveals steady increase in the unit cost for different water technology. The unit cost of installing Gravity Flow System out ranks all other water point installation by a vast margin. However, the number of Gravity Flow System installation is limited to Bandarban and Rangamati CHT districts due to its geographic nature; where other water point installation proved to be ineffective in the past. The estimated unit cost of Deep Tube well with No. 6 hand pump was US$ 877 in 2008 and US$ 916 in 2012 averaging US$ 858 throughout the project period (Table 4.20; for per capita unit cost see, Table 4.21). The estimated average number of beneficiary households for this installation was 16 households. However, such unit cost of Deep Tube well with No. 6 hand pump in BRAC WASH project was US$ 738 where average beneficiary was 31 households implying per capita unit cost US$ 4.18.

Table 4.20: Unit cost of different water technologies by year, 2008-2012 (in US$)

Technology types	2008	2009	2010	2011	2012	Increase over the years (%)
Shallow Tube Tara dev head pump	365	378	-	389	398	9.0
Shallow Tube Well No. 6 pump	156	160	175	189	198	26.9
Ring Well Tara dev head pump/Tara pump	920	940	965	987	1,015	10.3
Gravity Flow System (GFS)	12,232	14,109	-	15,325	16,235	32.7
Deep Tube Well No. 6 pump	810	846	877	895	916	13.1
Ring Well No.6 pump	798	823	850	890	899	12.7
Rain Water Harvester	-	429	-	478	493	-
Deep Tube Tara dev head pump	965	983	1,012	1,051	1,086	12.5
Pond Sand Filter (PSF)	922	-	-	-	-	-
Infiltration gallery	282	363	-	-	-	-

Table 4.21: Per capita unit cost of different water technologies by year, 2008-2012 (in US$)

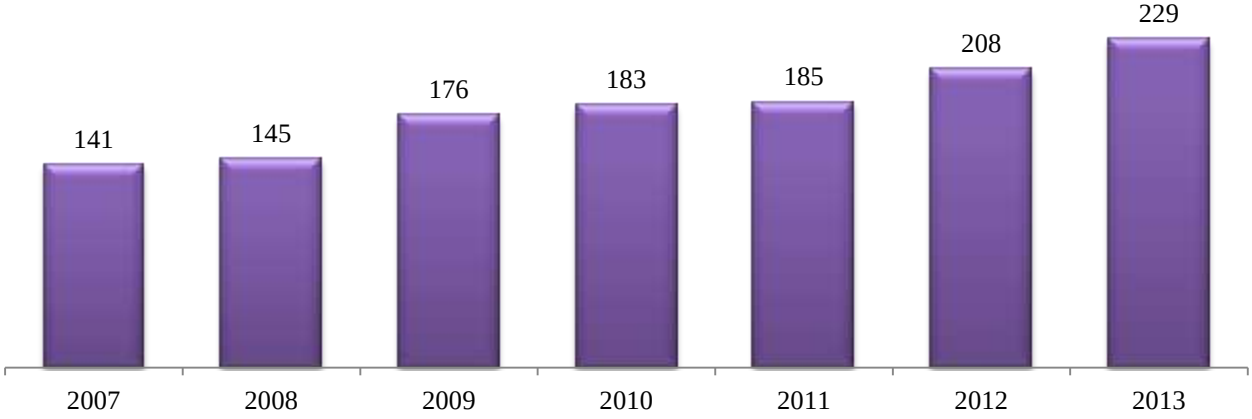
Technology types	2008	2009	2010	2011	2012
Shallow Tube Tara dev head pump	5.33	5.53	-	5.69	5.83
Shallow Tube Well No. 6 pump	2.28	2.35	2.56	2.77	2.89
Ring Well Tara dev head pump/Tara pump	10.09	10.31	10.58	10.82	11.13
Gravity Flow System (GFS)	21.46	24.75	-	26.89	28.48
Deep Tube Well No. 6 pump	8.88	9.27	9.62	9.81	10.05
Ring Well No.6 pump	5.83	6.02	6.21	6.51	6.57
Rain Water Harvester	-	18.83	-	20.95	21.62
Deep Tube Tara dev head pump	5.64	5.75	5.92	6.14	6.35
Pond Sand Filter (PSF)	1.80	-	-	-	-
Infiltration gallery	0.52	0.66	-	-	-

The annual operation and maintenance (O&M) cost for the newly installed water points (after 2007) and older water points are different. Such cost also show divergence for different type of water points. Data shows much higher average annual O&M cost for water points installed before the year 2000 (tube wells). Nearly one-fifth of the surveyed water points (shallow tube well and deep tube well) were installed before year 2000. Primary data indicate the average annual O&M cost for such deep tube wells is US$ 27.1 and shallow tube well is US$18.2.

Table 4.22: Average annual Operation and Maintenance (O&M) cost of households for the newly (after 2007) installed water points (in US$)

Technology types	Annual O&M cost
Shallow Tube Tara dev head pump	5.6
Shallow Tube Well No. 6 pump	8.8
Ring Well Tara dev head pump/Tara pump	5.5
Ring Well No.6 pump	5.9
Deep Tube Tara dev head pump	12.1
Deep Tube Well No. 6 pump	10.0

Figure 4.6: Average households cost of installing water points by year, 2007-2013 (in US $)



From the household survey, sufficient number of sample was found only for Shallow Tube well with No. 6 hand pump. The installation cost included cost of tube well, transportation cost, labour cost, platform building cost etc. According to collected data, the total installation cost increased by 43.4 per cent between 2007 and 2012 while SHEWA-B installation cost for similar water points increased by 26.9 per cent.

Every day the average water collection time saved by the households is estimated to be 25 minutes from primary data. Primary data analysis also suggests that 94 per cent households can collect adequate safe drinking water throughout the year.

4.3.2 Efficiency: SANITATION

According to the SHEWA-B programme documents, there were no provision of hardware interventions for latrine installation within sanitation component. The key concept of sanitation intervention was to motivate the rural people through explaining and demonstrating the benefits of using improved latrine and impede open defecation so that they install improved latrines in the households and use them regularly. However, 5,738 set (5 ring and a slab) of latrine hardware were distributed as subsidy among rural households under institutional capacity building of Local Government representatives. The unit cost for latrine subsidy was US$ 28.8. However, market survey reveals such unit cost from local market is US$ 31.4 (in 2013 price). The estimated unit cost for motivating a household to install a latrine is US$ 4.9 which implies unit cost US$ 0.85 per beneficiary.

4.3.3 Efficiency: WASH in SCHOOL

SHEWA-B programme interventions did not include installation of latrine at households in rural intervention areas. Findings reveal that SHEWA-B covered 87 per cent of all the primary school students and 9 per cent secondary school students through hygiene education promotion. According to SHEWA-B database of achievements a total of 7,807 primary schools (84.9% of all the listed primary schools in the intervention area) and 327 secondary schools (50.1% of all the listed secondary schools in the intervention area) received software intervention. A total of about 1.2 million primary and 159,644 secondary school students were benefited through hardware installation and rehabilitation through WASH in school (Table 4.23). According to database of achievements SHEWA-B installed 4,201 latrines in schools (combining 4 chambers and 2 chamber) and 327 latrines in secondary schools (Table 4.23).

Table 4.23: Distribution of school receiving SHEWA-B hardware intervention

School type	Number of school	Number of student benefited
Primary school	4,201	1,170,490
Secondary school	327	159,644
Total	**4,528**	**1,330,134**

All the surveyed schools had functional latrines with superstructure made of brick and cement. FGD with students reveal they use the latrines and after defecation wash their hands with soap near the water point. The surveyed water points under school survey are currently

functional (data collected through spot check) and they are maintained regularly through financial support from School Managing Committee (SMC). Some of the SMC members (20% among the surveyed schools) mentioned financial involvement of local elites. According to the school survey data (through spot check), the latrines and water points in the school are in convenient spots near the school building. The average annual operation and maintenance cost for the recently installed (after 2007) WATSAN facilities per school is US$ 41 of which US$ 15 for water point and remaining US$ 26 for latrines.

4.3.4 Efficiency: SOCIAL MOBILIZATION

All surveyed households received at least one hygiene promotion message. Data suggests that most hygiene promotion coverage was achieved through household visit followed by courtyard meeting and tea stall meeting. Though average number of participants and average duration was high for rallies and fairs, the overall coverage status through rallies and fairs is fairly small compared to household visit (see, Table 4.24).

Table 4.24: Households covered through different software interventions

Intervention type	Percentage of households covered	Number of households covered	Average number of participants	Average duration (in minutes)
Household visit	85.6	3,108,632	-	25
Courtyard meeting	69.1	2,509,421	16	40
Tea stall meeting	28.8	1,045,895	12	30
Interactive theatre	9.1	330,474	150	70
Fair	3.1	112,579	250	-
Rally	3.7	134,368	600	120

Analyzed data suggest that nearly 65,000 water points (mostly Shallow Tube wells with No.6 hand pump) and 1.5 million improved latrines were installed by the community people within the intervention area as a result of SHEWA-B social mobilization activities.

4.3.5 Efficiency: INSTITUTIONAL CAPACITY BUILDING

SHEWA-B provided institutional capacity development training pertinent to a large variety of stakeholders on different WASH-related aspects. Training was also provided to GoB officials at different levels to maximize the programme output and outcome.

The capacity building trainings for CHPs included appropriate ethical issues, observation and mapping techniques, household visit procedure, arranging and disseminating hygiene practices among population groups (adult male, adult female, adolescent girls, children etc.), demonstrating proper hand washing procedure, waste disposing process etc. Details about the outcomes of capacity building interventions along with cost per capita by persons trained are presented in Table 4.25.

Table 4.25: Beneficiaries of different capacity building interventions and per capita cost

Beneficiaries		Number trained	Per capita cost (US$)
Community Hygiene Promoters (CHP)		10,000	165
Upazila	Chairman	60	103
	Vice Chairman	60	103
	UNO	60	103
Union	Chairman	630	103
	Secretary	630	103
WATSAN committee members		129,286	4
Primary school teacher		27,561	22
Secondary school teacher		3,250	22
School Managing Committee member		20,324	16

Most of the replacement CHPs mentioned that they did not receive any comprehensive training which caused less efficiency. FGDs with CHPs suggest that the implementing NGOs were responsible for training. Group discussions with CHPs at different intervention areas reveal variation on training duration, methods and procedures. Preparing and practicing a predesigned set of rules on training would have made higher outputs and better outcomes. Evidence, gathered through qualitative survey, indicates that involving the religious leaders around the community would have ensured higher sustainability. Some of the KIIs were concerned about the quality of locally available ring and slab. They were even more concerned about the quality of ring and slab constructed by GoB at Upazila level.

Some of the water points were tested positive for arsenic contamination. The KIIs were looking for options that can purify such contaminated water. The estimated annual O&M cost for water points is not very high but typically the community people neglect the importance of O&M. The front line workers instructed community people about keeping the water points clean. They also instructed community people about operation and maintenance of water points. The CHPs would visit the water points some times and aware the responsible persons about negligence in maintaining. Many newly installed latrines did not have proper superstructure. The WATSAN committee members and CHPs instructed the household on building a decent superstructure at affordable cost.

According to KIIs and also the FGD participants, poor communication facilities in the rural areas obligated the maximization of SHEWA-B interventions. The key informants mentioned that interference of local elites and political leaders was a hurdle in maximizing the outputs and outcomes of hardware interventions.

4.4 Cost-effectiveness of SHEWA-B

Table 4.26 shows the major accomplishments of SHEWA-B. The project spent US$ 72 million under 5 broad components namely, Water (28.9%), Sanitation (13.0%), WASH in school (13.4%), Institutional capacity building (10.5%), and Social mobilization (34.2%). Such spending was inequitably distributed during the project period (2007-2012). Hence, the costs are inflation[10] adjusted for the year 2012. Such spending originated new hardware installation around community and significant changes in hygiene behavior.

[10] Source: Bangladesh Bank

Table 4.26: SHEWA-B accomplishments by five broad components, 2007-2012

Broad component	Input (in US$)	SHEWA-B activity	Output	Outcome
Water	20,792,938	Water points installation/renovation	19,579 water points	1,762,110 individuals
Sanitation **	9,391,291	Improved latrine installation	5,738 latrines	98,190 individuals
		Motivation	13,900 latrines	
WinS*	9,653,491	Hygiene education	8,800 primary school	2,716,350 individuals
			1,150 secondary school	
		Water point/Improved latrine installation	4,528 primary school	
			327 secondary school	
		Hygiene promotion	8,800 primary school	
			1,150 secondary school	
ICB*	7,542,964	Training/Orientation	10,000 CHP/para workers	All households within the project coverage area
			30,811 school teachers	
			149,610 community people	
			1,346 LGI representative	
			282 DPHE staff	
		Direct cash transfer	53 unions	
SocMob* and hygiene promotion	24,635,127	Hygiene promotion	All households within the project coverage area	All households within the project coverage area
		Motivation for improved latrine installation	1, 486,000 new latrines	8,472,000 individuals
		Motivation for water point installation	64,800 new water points	6,647,000 individuals
		Installation of latrine by UP	5,000 new latrine	
		Rehabilitation of water point by UP	1,200 platforms	
Total	72,015,810			

* WinS = WASH in School, ICB = Institutional Capacity Building, SocMoB = Social Mobilization.
**People received support for latrine installation and/or motivated to build their own improved latrine.

The beneficiaries vary not only by major components, but also by technologies used by broad component. For example, as shown in Table 4.27, the average number of people benefited varies widely for the water component by type of technologies (ranging between 19 persons per Rain Water harvester and 470 person per Gravity Flow System).

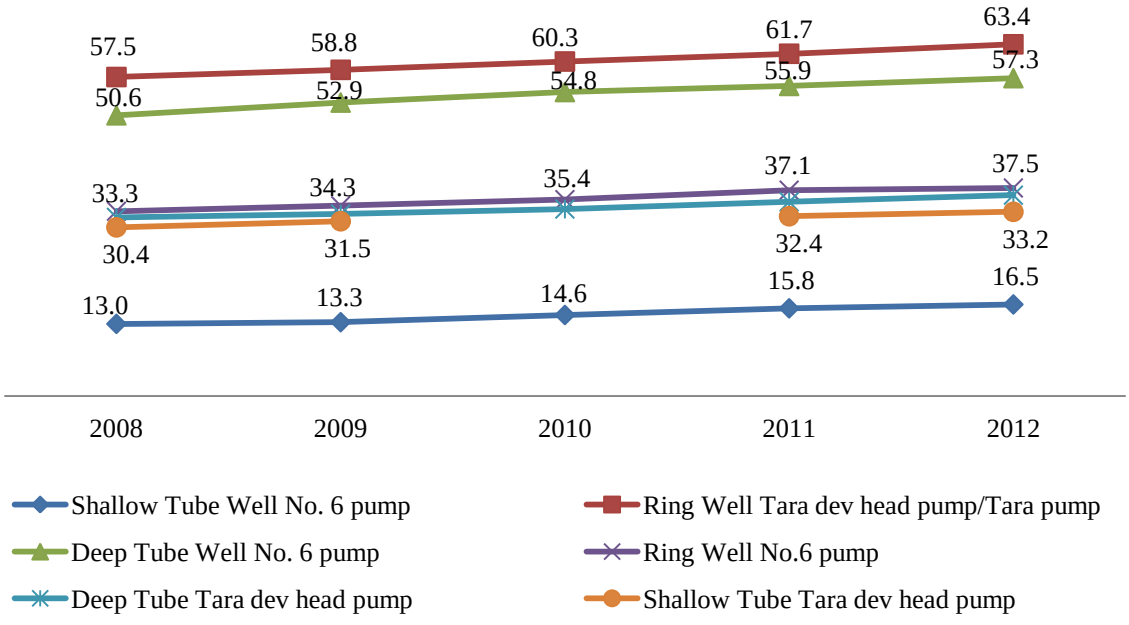
Table 4.27: Average number of beneficiaries per type of water technologies installed

Technology types	Average number of people benefited[11]
Shallow Tube Tara dev head pump	56
Shallow Tube Well No. 6 pump	56
Ring Well Tara dev head pump/Tara pump	75
Gravity Flow System	470
Deep Tube Well No. 6 pump	75
Ring Well No.6 pump	113
Rain Water Harvester	19
Deep Tube Tara dev head pump	141
Pond Sand Filter	423
Infiltration gallery	451

The 19,447 installed water points included a large variety of water points. As mentioned earlier, the water technologies were installed considering the geographical condition, appropriateness, past experience, maximization of beneficiary inclusion, and minimization of installation cost. However, there have been accusations of nepotism and political influence in installation of water points by some of the FGD participants. In response to such allegations, the LGI representatives shared that such incidents occurred but the incidence (the rate of occurrence) was reportedly at a minimum. The GoB official at the Upazila level mentioned such nepotism cannot be avoided. On average 18 households were benefited from a water point. The expected maximum number of beneficiary from a water point is the rural piped water system. An average of 378 households was supposed to be benefited from the rural piped water systems but according to DPHE information none of them are operational.

The estimated unit cost per beneficiary household for different water technologies increased over the project period (Figure 4.7). Such increase coincides with the increased inflation rates.

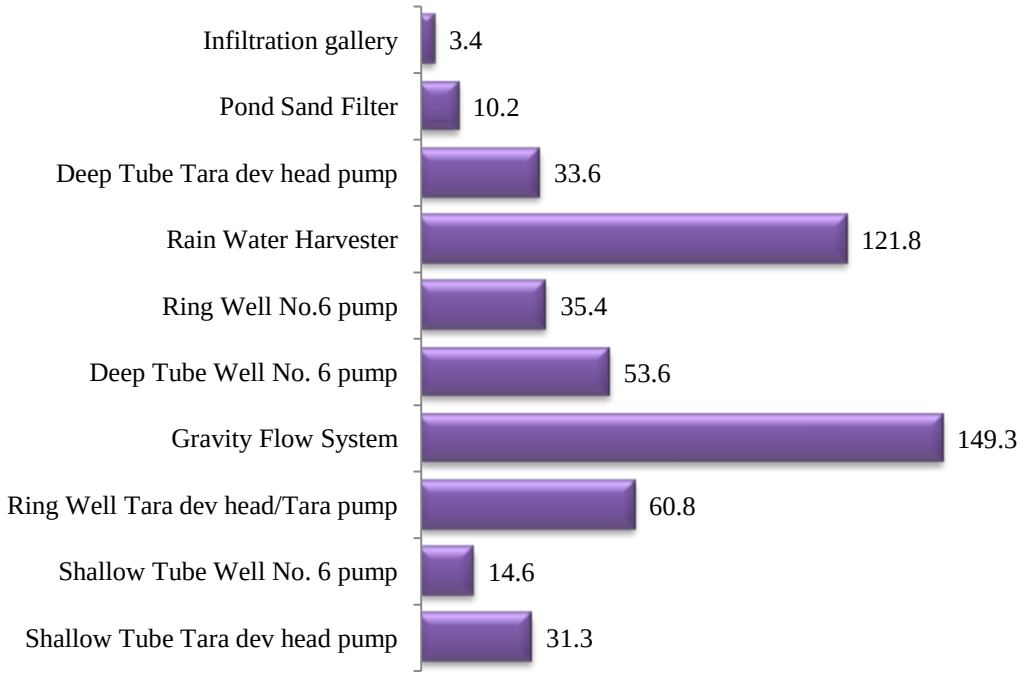
Figure 4.7: Trends in unit cost of water technologies by beneficiary household, 2008-2012 (in US$)



[11] Author's estimation based on analysis of primary data, DPHE annual report, and SHEWA-B data base of achievements.

The average unit cost of installed water points per beneficiary households is very high for Rain Water Harvester (US$ 121.8) and Gravity Flow System (US$ 149.3) compared to other water systems (Figure 4.8). Such water points are needed in areas where the environment do not support the natural tube well or ring well as convenient water source. Table 4.18 suggests that installation of such water points is very few compared to other water points. The unit cost for Infiltration Gallery is estimated the lowest (US$ 3.4) but installing an infiltration requires particular geographical and environmental advantages. Such cost for deep tube wells is higher (US$ 53.6) compared to shallow tube wells. Field observations reveal that the installed water points are used by the community people and hence there has been benefit around the community like health benefits, economic benefits, time saving, social development etc.

Figure 4.8: Average unit cost of installed water points per beneficiary household (in US$)



According to the SHEWA-B programme documents, there was not supposed to be any hardware interventions for latrine installation. However nearly 5,500 sets (3 to 5 ring and slab) of latrine hardware were distributed as subsidy among rural households under institutional capacity building for the LGI representatives. The unit cost for latrine subsidy was US$ 28.8. However, market survey reveals such unit cost from local market is US$ 31.4 (in 2013 market price).

The key concept, underlying sanitation intervention involved motivating the people by means of explanation and demonstration of the benefits from the use of improved latrine and a halt to open defecation, so that they might installed improved latrines in the households and use them on a regular basis. Estimates show that there have been 1.5 million new latrine installations since the initiation of SHEWA-B (2007). The estimated unit cost for motivating a household to install a latrine is US$ 7.2 which implies unit cost of US$ 1.2 per beneficiary.

Household observation data suggest that installed latrines (after 2007) are functional and the household members use and clean them regularly. The households installed latrines back in 2008 or 2009, had emptied or relocated their pit once. There are a few hard-to-reach areas where conventional latrines are not very effective.

WASH in school included both software and hardware interventions in primary and secondary schools. The coverage of primary schools is higher compared to secondary schools. More than 8,000 primary schools and 300 secondary schools ware covered. Most of the secondary schools received both hardware and software interventions. Nearly half of the primary schools received only software interventions. The schools receiving hardware interventions received their benefits as a package of installation/repairing of water point/latrine (details see, Table 4.28).

Table 4.28: Hardware packages by type of school

Type of WASH facilities by school type	Latrine	Water point
Primary School		
New Water and Sanitation facilities	2 (one male student and male teacher and one female student and female teacher)	Hand pump with raised water storage chamber for running water inside latrine
Repair works	Repair works: Fixing door, repair wall, floor, running water inside latrine etc.	Motorized systems, Shallow TW for cleaning purpose (in some cases)
Secondary School		
New Water and Sanitation facilities	Latrine block (urinals for male student); separate chamber and access for boys and girls	Handpump for running water inside latrine
Repair works	Repair works: Fixing door, repair wall, floor, running water inside latrine, handwashing facilities etc.	Motorized systems, Shallow TW for cleaning purpose (in some cases)

The estimated unit cost of hygiene education (including cost of CHP technical assistance) per school is US$ 495 and for hardware intervention is US$ 1,366, combinedly totals a unit cost of US$ 1,861 per school. The unit cost per student is US$ 6.5 (Table 4.29). Such expenses brought positive changes in attendance and performance of students.

Table 4.29: Unit cost for WASH in school (in US$)

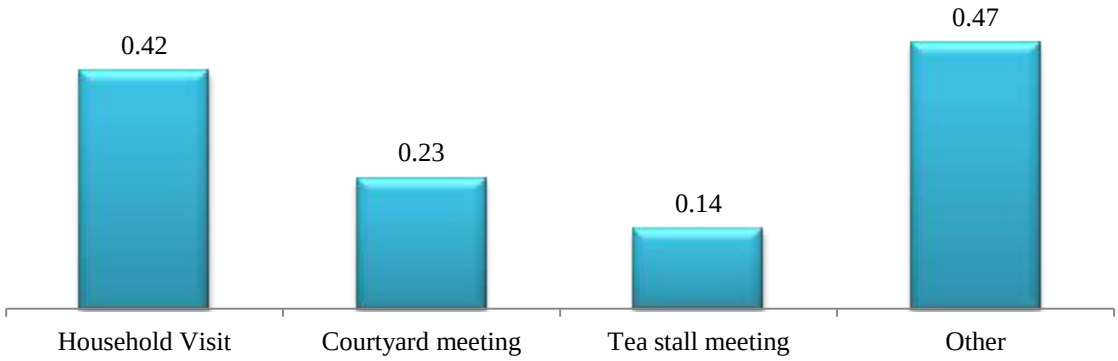
Student and school	Water point	Latrine	Hygiene education	Total
Per student	0.84	3.81	1.84	6.49
Per school	247	1,119	495	1,894

The average school attendance rate increased by 8.5 per cent (combining primary and secondary schools), enrolment rate by 9.5 per cent, and dropout rate decreased by 15 per cent. The primary school teachers mentioned that constructing school brigade introduces the sense of leadership, team work, and sincerity among the students. Nearly half of the surveyed primary schools did not have water points and more than three-fifth of them did not have latrines at all. The school teachers, SMC members and even the community people agreed that such intervention was supportive not only for the students but also for the guardians and other people around the community.

Social mobilization included a number of activities to enlighten the community people to proper hygiene education. The hygiene education included demonstration of proper hand washing practice, using latrine, cleaning and maintaining water points and latrines, household waste disposal, menstrual hygiene, disposing child feces etc.

The unit cost per household for household visits throughout the intervention period (2007-2012) is US$ 0.42 while for courtyard meeting it is US$ 0.23 (Figure 4.9). The highest estimated unit cost (US$ 0.47) belongs to "other" category comprising of fair, rally, interactive theater, film show, puppet show etc. The overall household coverage rate for such social mobilization activities are found to be very low which caused higher unit cost.

Figure 4.9: Unit cost of social mobilization per household (in US$)



According to the primary data, the reported hand washing practice with soap/ash after defecation has gone up to 95 per cent since the baseline survey. According to baseline survey such rate was 54 per cent. The behavior of hand washing before eating has increased to 41 per cent from 22 per cent since baseline survey. The respondents were asked to recall the hygiene behavior they were informed by SHEWA-B (unprompted). All the respondents could recall at least one and nearly 95 per cent of the respondents could recall three or more hygiene behaviors attributable to SHEWA-B.

SHEWA-B imparted training and orientation to a total of 192,049 community people, GoB officials, field workers, NGO officials, teachers, and School Managing Committee members. The FGDs with the Community Hygiene Promoters reveal that they were unhappy with their monthly salary and they did not receive their salary in time which caused less motivation among them. LGI representatives believed less number of CHPs with better packages would have been more effective. Evidence, through FGD, suggests that mass media campaign through television or printing media is not very efficient to motivate the poorest of the poor to improve WASH activities. Primary data suggest only 42.5 per cent of the households own television and they are not of the lowest three deciles. Moreover, only 16 per cent of the households constructed latrines through television campaign motivation compared to 83 per cent through different SHEWA-B social mobilization campaigns. The villages furthest to the Union Parishad or hard-to-reach areas were least benefited. Additional resources – both in hardware and software interventions – could have been deployed to cover such areas.

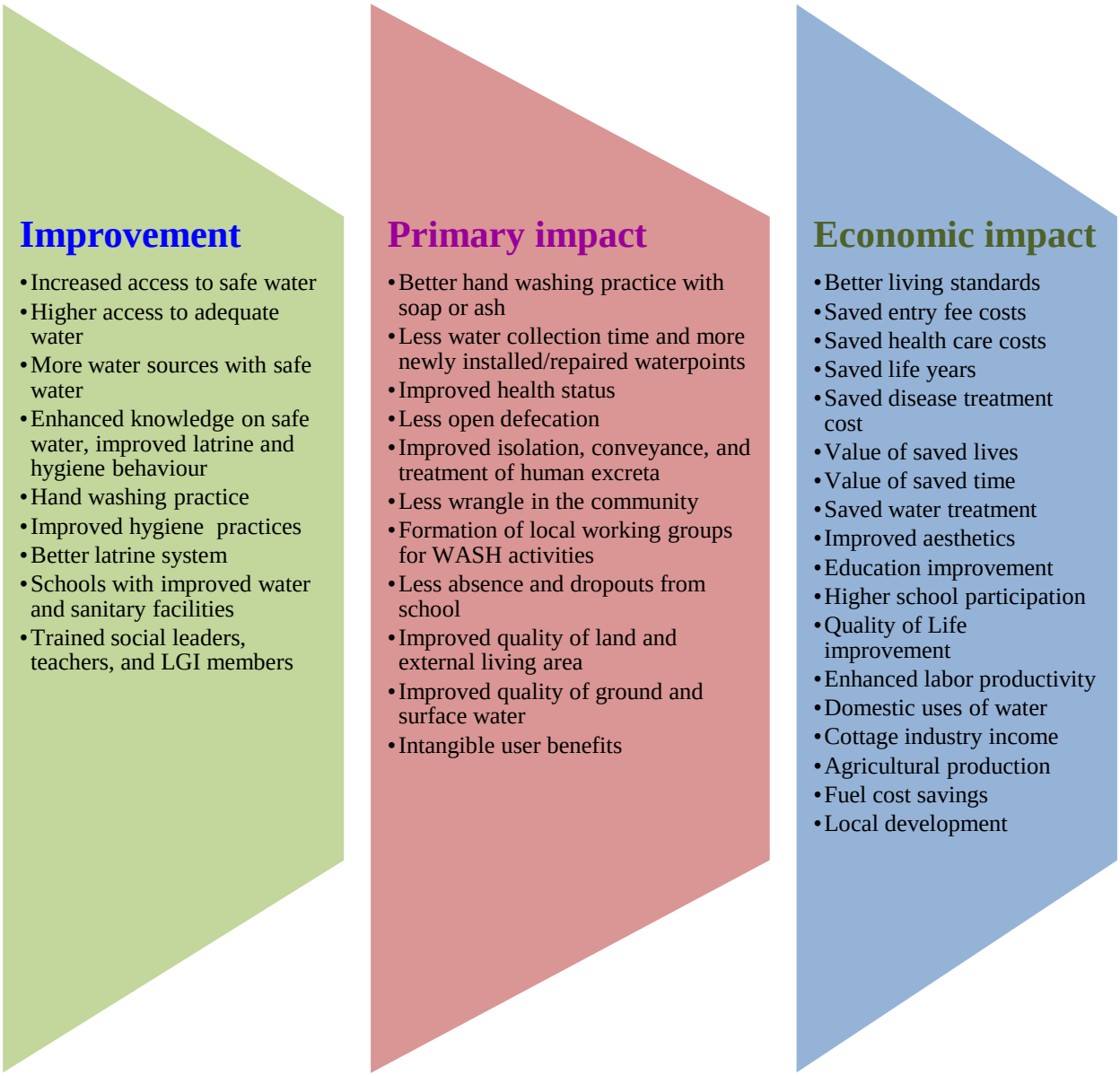
SHEWA-B trained Ward WATSAN Committee members to sustain the hardware and software interventions. A rural ward is comprised of a number of villages. As suggested by the key informants that preparing village committees with villagers could have been more effective.

4.5 Impact of SHEWA-B

Safe drinking water, sanitation and hygiene (WASH) are critical to people's health and well being. Access to safe drinking water and sanitation is considered to be a fundamental human right that acts as a safeguard of health and human dignity (OHCHR, United Nations, 2007). Consequences to poor WASH services include dreadful health situations, lacking education,

deficiency in socio-economic development etc. Evidence has been found that, the SHEWA-B WASH rural interventions covering 78 upazilas in 19 districts of Bangladesh have aided in improving the health, education and socio-economic conditions in the intervention localities. A framework depicting SHEWA-B impact is presented in Figure 4.10. The framework shows that the SHEWA-B interventions have been instrumental in multi-dimensionally improving the water, sanitation and hygiene situations, which, in turn, produced high utility primary impacts and through this process have generated meaningful economic impacts towards enhancing people's well-being.

Figure 4.10: Primary and economic impacts of SHEWA-B intervention



However, the impacts are not only limited to economic benefits. There have been impacts like peace, contentment within family and community which cannot be measured in monetary terms. Keeping such considerations the impact has been assessed separately for each of the SHEWA-B components following the Matrix 4.1 presented below:

Matrix 4.1: Key focus of SHEWA-B impact assessment by broad components

Broad component	Impact assessment	Key focus
Water points	Identifying and quantifying the impacts of the various interventions in terms of economic impact, spin-off effects, spin-off social-economic benefits.	1. Incidence of water borne diseases. 2. Time saved for water collection. 3. New business opportunities created.
	The leveraging impact of water points.	The increase in resources from the government, household or community, e.g., increased government allocation in areas where SHEWA-B was working and/or contribution from the community to rehabilitate other safe water and sanitation options increased access.
Sanitation	Identifying and quantifying the impacts of the various interventions in terms of economic impact, spin-off effects, spin-off social-economic benefits.	1. Incidence of diarrhea. 2. The impact of more latrines (directly or indirectly) – more time saving, less illness, more privacy, improved social status, less shame, more pride etc.
	The leveraging impact of sanitation.	1. Increased government spending at local level for WASH activities 2. Increased spending for WASH activities from the community. 3. New business opportunities created.
WASH in school	Identifying and quantifying the impacts of the various interventions in terms of economic impact, spin-off effects, spin-off social-economic benefits.	1. Incidence of diarrhea and water borne disease among pupils. 2. Enrolment in school and use of installed/ rehabilitated/ provided hardware facilities by SHEWA-B.
	The leveraging impact of water point and sanitation.	Involvement of DPE, DSHE or the SMC or parents to increase their investment in the school and/or in O&M as a result.
Social mobilization	Identifying and quantifying the impacts of social mobilization in terms of economic impact.	Change in knowledge, hygiene behavior, economic gain, social gain, and health conditions etc. due to access to improved water source, sanitation and social mobilization.
	The leveraging impact of water points and sanitation.	Steps from LGIs or communities to keep the practice/messaging going – information on hand washing stations, any sense of commitment, the UPs engagement CHPs involvement.
Institutional capacity building	Identify and quantify the impacts of Institutional capacity development in terms of economic impact.	The impact of training changes since the end of the project
	The leveraging impact of water points and sanitation.	Government's contribute any additional resources to sustain capacity building.

The components of SHEWA-B together made a positive impact on the intervention localities. The analysis of primary data suggests significant decrease in incidence of water borne disease especially diarrheal disease. The incidence of helminthes, malaria, and skin infections has also been decreased. Such health impacts lead to a number of compensation. The incidence of diarrheal disease mostly involved children aged less than 5 years. The incidence of diarrhea is down to 5.1 per cent in 2013 from 11 per cent in 2007. Fewer incidences indicate less

malnutrition among the children that allow possible escape from a number of other diseases. This also allows the families to save the expenses for treatment. Decreased incidence of diarrheal disease among the income earning persons not only saves the treatment cost but also increase their average earnings through sustaining productivity. Furthermore, any incidence of illness causes a miserable environment in a family that cannot be measured in numbers, let alone in financial terms.

Such improved health conditions resulted from newly installed water points and improved sanitation. Primary data suggest that 60 per cent of the water points found during the survey were installed after initiating the SHEWA-B interventions. Half (50%) of the newly installed water points were installed through investments from the households and another 10 per cent was installed through community investment. A 70 per cent of the respondents have said that such installation was inspired through SHEWA-B social mobilization activities. The remaining water points were installed by SHEWA-B and government support. The key informants expressed that they are receiving increased government support but argued that such increase do not meet their full requirements.

The increased number of safe water points resulted higher coverage of availability of safe drinking water that resulted in saving water collection time every day for the households. Primary data collected through household survey reveals that in 2013, nearly 95 per cent of the households in the SHEWA-B intervention area had access to adequate safe drinking water. On average a household collects 15 liters of drinking water and nearly 50 more liters of water for the daily household chores. Primary data suggest that, on average, a household can save 25 minutes in a day to collect safe drinking water. The female FGD participants believe cooking with clean water (free of arsenic and iron contamination) results tasty cooking for the household members. Water point observation data reveals that more than three-fourth (75.5%) of the tube wells was tested for arsenic contamination.

Higher rate of improved sanitation and less open defecation are another imperative impact of this programme. The proportion of households using improved latrine in the programme area in 2013 is 53 per cent which was only 23 per cent back in 2007 according to Baseline SHEWA-B Health Impact Study. The SHEWA-B interventions did not include hardware support for the rural community, rather the intervention was to motivate the community people to use improved latrine and quit open defecation. An impressive increase in improved latrine coverage expresses the success story of SHEWA-B intervention. An 83.2 per cent household changed their latrine using behavior and installed improved latrine during the intervention period. Among the respondents nearly 95 per cent had sufficient knowledge about hygiene practices. A 41.3 per cent of the respondents reported that they wash hand with soap before having food, and 95 per cent reported washing hand with soap, ash or soil after defecation.

Most of the households using improved latrines expressed that they feel socially elevated in the community after installing improved latrine. The household members also expressed that they were not aware of the great advantages an improved latrine can provide. Some of the economically disadvantaged people argued that financial supports should be provided for higher coverage of improved latrine around the community. They also argued that many of them quit open defecation but their latrines are not actually improved. It is to note that the rate of open defecation have come down to 3.1 per cent from 10 per cent since 2007. Open defecation has been a shame for the economically disadvantaged people. People expressed their pleasure in quitting open defecation and expressed that this gives them more self esteem. Quitting open defecation also saves time for the working people.

Latrines that are currently used by the households, 82.6 per cent have been installed after 2007 (i.e., after the initiation of SHEWA-B project). A little more than 90 per cent of these latrine installations were financed by households themselves. The government provides support to poor households by providing them a slab and three rings. Many of the key informants expressed their disappointment on the distribution compared to the requirement. Though they expressed their gratitude on the regular yearly increase of budget amount for WASH activities.

The newly installed water point and improved latrines created an opportunity for the locals to open up business of necessary goods and products for water points and latrines. With increased awareness on WASH, the possibility of flourishing the business is increasing. Data from market survey suggest the number of proprietors at local level involved in such business has been more than doubled during the SHEWA-B programme period.

SHEWA-B programme funded in establishing and repairing water points and latrines in primary schools within the intervention area. High schools were also involved in some locality. This intervention resulted increased attendance and enrollment in school (Table 4.30), decreased dropout rates from the school. Evidence suggest that increased enrolment in schools was mostly due to enrollment of girls. SHEWA-B covered almost 90 per cent of the primary school students in the intervention area. The installed water points in primary schools cover the local households also. The teachers mentioned the reason for increased attendance rate is the reduced rate of illness among the students. They also believe that the newly installed or repaired latrines are the reason for increased rate of enrolment.

Table 4.30: Estimated percentage increase in primary school attendance and enrolment

Grade	Attendance	Enrolment
Grade I	3.1	13.0
Grade II	2.9	17.6
Grade III	3.8	19.8
Grade IV	7.6	24.4
Grade V	7.2	36.2

The teachers and School Managing Committee members were trained under the SHEWA-B programme on hygiene education. The School Managing Committee (SMC) members keep watch on the water points and latrines. Observation checklists on schools reveal that all the schools have water points installed and they are functional. Most of the surveyed schools had at least two or more latrines. Most of the latrines were functional and clean. In most of the surveyed schools, hand washing points or water points are nearby (within 20 feet) the latrines. The teachers explained that the members of school brigade usually are responsible for cleaning the latrine regularly in a rotating order. Most of the latrines and water points were installed after 2007. The SMC bears all the expenses for keeping the water point and latrines functional. According to the collected data, schools spent on average nearly US$ 18 as maintenance cost for a tube well over the past year.

SHEWA-B undertook a number of activities under the social mobilization. Such activities included household visit, courtyard sessions, tea stall sessions, interactive theater, film show, rally, fair etc. Among the surveyed households, 85.6 per cent positively responded to CHP visit in the household. Combining the different activities under the social mobilization, SHEWA-B covered 100 per cent of the surveyed households through social mobilization. The accomplishment of such coverage resulting 95.2 per cent coverage of adequate

knowledge on hygiene practices. The local WATSAN committee has been trained by the SHEWA-B and responsible to keep the message on going. Since the WATSAN committee is primarily comprised of local people, this strategy should keep the messages on going.

The LGI representatives are aware of the benefits of WASH activities. According to them the increasing demand of support among the people is much higher than the supply. They sometimes attempt to manage additional funds from other GoB expenditure sources but managing additional sources from other funds do not fulfill the demand. The LGI representatives argued that they receive bunch of applications demanding support for the betterment of water and sanitation activities but they receive limited sanctions for such applications. The LGI representatives with the help of WATSAN committee members advise people to help themselves with proper hygiene practice, install water points through community partnership, and request the local elites to help out the economically disadvantaged people around their community.

4.6 Benefits of SHEWA-B

Safe water, good sanitation and proper hygiene practices can make major differences in people's health, education and socio-economic development. A range of diseases occur and spread because of unsafe water, poor sanitation and hygiene practices. The progress of two Millennium Development Goals (MDGs) will be accelerated by promoting adequate sanitation, hygiene, and access to safe drinking water:

Goal 4: Reduce the under-five mortality rate by two-thirds between 1990 and 2015.

Goal 7: The proportion of the population without sustainable access to safe drinking water and basic sanitation halved by 2015 (United Nations, 2005).

4.6.1 Estimating the benefits

This study attempts to estimate the nonmonetary, financial, and economic benefits of SHEWA-B intervention in the areas of health, drinking and domestic water, development of education and capacity building. The framework of possible impact along with financial cost and non-monetary cost by impact categories (health, water, sanitation, school, institutional capacity building, and social mobilization) is depicted in Table 4.31. The basic concept of benefit estimation is to estimate cost due to different WASH related actions back in 2007 and in 2012 and estimate gain (deducting estimated total cost in 2007 from 2012 and extrapolating this estimate for 6 years) from such incidences. The estimated total benefit is the sum total of gains due to all WASH related activities. The benefits are distinguished in two types from one another as follows.

Financial benefits: Financial benefits refer to direct financial gain in financial terms due to reduced rate of illness, increased proportion of households receiving adequate safe water, treatment of water for drinking etc. A schematic view of financial benefits from SHEWA-B is presented in Figure 4.11.

Nonmonetary benefits: Nonmonetary benefits consist of both longer-term financial impacts, such as having fewer or less educated children and losing working people due to premature death or relevant morbidity, and nonfinancial impacts. Non-monetary impacts include intangible costs, such as: (1) The value of loss of life (death averted due to Diarrhea/ARI incidence); (2) Time use by adults and children; (3) Patient time lost due to illness (work hours); (4) Time spent accompanying patients to seek health care; (5) Time spent caring for ill persons; (6) Time spent to treat water,

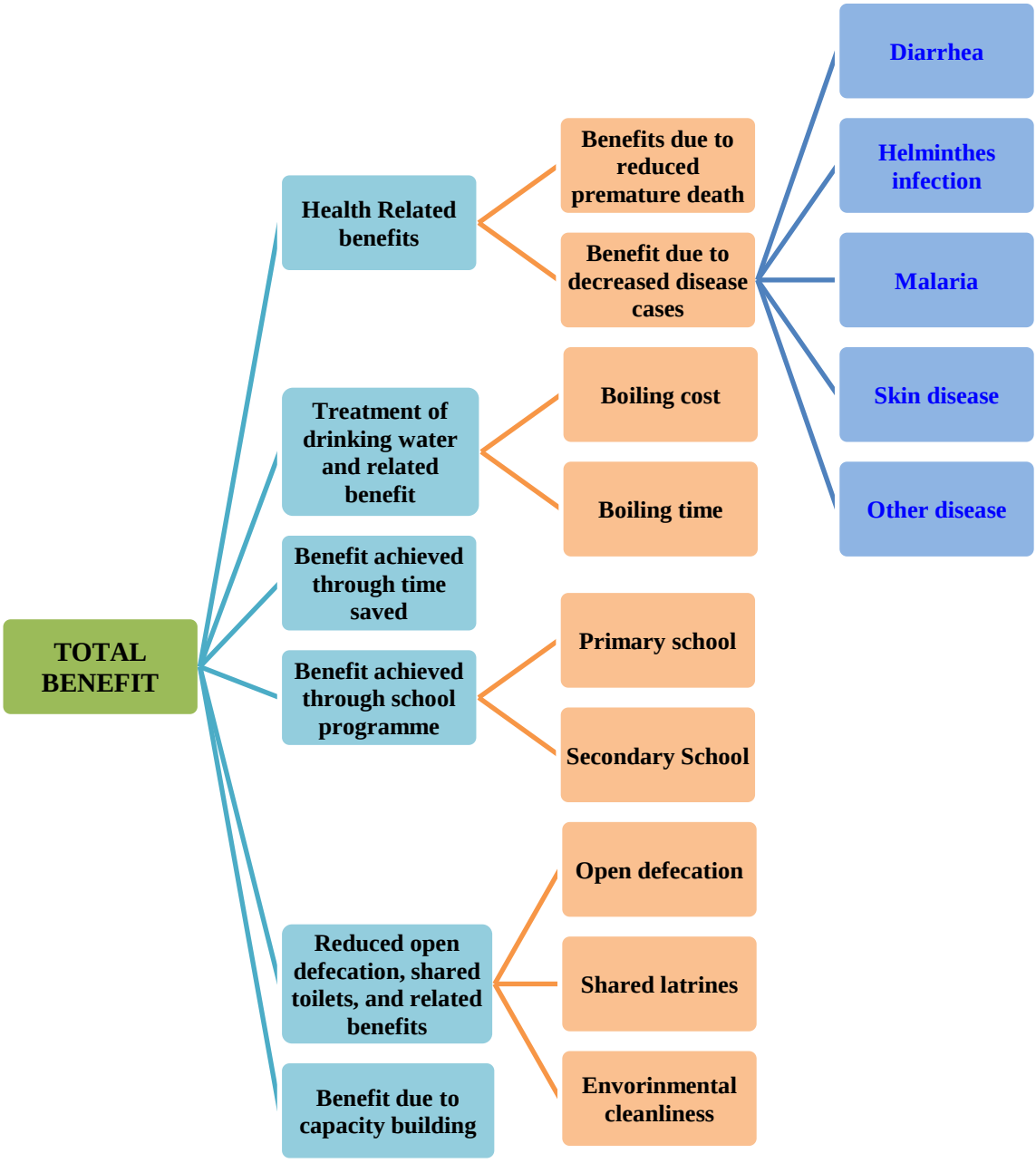
storing treated water, and fetching safe water; (7) Time spent using unimproved latrines; (8) Days absent from school and work; and (9) Added value of capacity building.

In most cases, financial values have been assigned to such nonmonetary impacts. In these cases this study tries to describe the nonmonetary impacts using available evidence. In some cases, due to lack of proper evidence and data, it was not possible to assign financial values to certain nonmonetary impacts; for example, it was not possible to do so for loss of dignity and lack of comfort due to open defecation.

Table 4.31: List of possible impact, and financial and nonmonetary costs to estimate gain by broad impact categories

Impact categories	Possible impact	Financial cost	Non-monetary cost
Health	Premature death averted, death averted	Present value of future income	-
	Treatment cost	Doctor's fee, medicine, transport, and diagnostic test cost	Time spent for accompanying patient to seek health care
	Productivity cost	Value of possible income lost due to illness	1. Patient time loss because of illness 2. Time spent taking care of ill person
Water	Treatment cost	Wood fuel (lakri) purchasing/collection cost	Time for collecting wood fuel (lakri) and storing treated water
	Fetching cost	-	Time for fetching safe water
Sanitation	Social status; gender dimension (dignity, security), environmental /ecological improvement	-	-
School	Loss of attendance	-	Cost of absent days from school
	Increased rate of admission	-	Present value of future income
Institutional capacity building	Increased WASH activities in locality	Added contribution to WASH activities	Possible gain in future for the trained personnel
Social mobilization	Enhanced knowledge on safe water; improved latrine and hygiene behavior; enhance social capital; poor's voice; people's participation etc.	-	Possible gain in future for the enlightened people

Figure 4.11: Schematic view of SHEWA-B financial benefit



Secondary data sources for the estimates: The household survey for this study contained much information for the estimation. However, majority of those data were appropriate for the year 2012. In order to find similar estimates for the year 2007 in the SHEWA-B intervention area secondary information were used. In addition, necessary information to estimate cost was also collected from various secondary sources. The major sources of secondary data include: (1) Bangladesh Demographic and Health Survey 2007 and 2011; (2) Health Bulletin (2007 and 2012), Ministry of Health and Family Welfare; (3) Household Income and Expenditure Survey data (2010); (4) Population Census 2011 – Community Series data; (5) Labor Force Survey 2010; and (6) SHEWA-B database of achievements.

This study has made maximum use of all available relevant data sources. It reviewed international, regional and local studies, reports, and other relevant materials to make final estimations. Among other relevant research studies, the most important ones include: (1) Barkat, A. et al. (2009). *Advancing Sustainable Environmental Health (ASEH): Impact Study*. Dhaka: Unpublished report submitted to Unicef; (2) ICDDR'B. (2008). *SHEWA-B Health Impact Study: Baseline survey results*. Dhaka: Unpublished report submitted to Unicef; (3) Eusuf and Associates. (2008). *Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) Project: Monitoring Baseline Survey*. Dhaka: Unpublished report submitted to Unicef; (4) Barkat, A. et al. (2010). *Baseline Survey: Urban Component of SHEWA-B (GOB-UNICEF) Project.* Dhaka: Unpublished report submitted to Unicef; (5) Barkat, A. and A. Hussam (2008). *Provisioning of Arsenic-Free Water in Bangladesh: A Human Rights Challenge; and* (6) Barkat, A. et al. (2013). *Lifecycle cost of water points and affordability of the poor people to access safe water in the urban and rural areas in Bangladesh*. Dhaka: Unpublished report submitted to Water Aid.

4.6.2 Health-related benefits

Unsafe water, poor sanitation and improper hygiene practices lead to a range of disease conditions that have both direct and indirect economic effects. Some diseases are directly related to poor water and sanitation and some are indirectly related. Diarrhea, schistosomiasis, trachoma, typhoid, and different skin diseases are directly related to water and sanitation. Diarrhea causes malnutrition, and malnutrition leads to other diseases like acute lower respiratory infections (ALRI), malaria, measles, and jaundice.

This study estimates the treatment cost due to illness from diarrhea, malaria, helminthes infection, and skin disease. This estimation includes the cost of treatment at medical facilities, at pharmacies, and by traditional health care. However, not all relevant data related to cost estimation are available, so expert opinions and assumptions are also used to estimate the total cost of treatment.

According to the Labour Force Survey 2010, the unemployment rate among the economically active population (15+ populations) is 4.3 per cent. Also according to the Household Income and Expenditure Survey 2010, the monthly income per income earner in the rural area is Tk.7,592. The 2011 Population Census Community Series data for the intervention areas show that 60 per cent of the population in the survey area is between 15-64 years.

Benefits due to reduced premature death: Estimates show that in Bangladesh more than 50,000 people died due to diarrheal disease in 2007 of whom 98 per cent were children aged below 5 years[12]. The same source shows 1,771 deaths occurred due to malaria, 328 due to helminthes and 775 due to skin disease. Premature deaths for those diseases are only accounted for this benefit analysis.

The present value of future income for the year 2007 is calculated as[13]:

(a) For children under age 5: Tk. 2,362,674 (US$ 37,040)
(b) For persons over age 5: Tk. 1,553,020 (US$ 24,346)

It is to note that necessary inflation adjustments have been made to estimate the present value of future income for the year 2012.

Benefit due to decreased disease cases: According to the World Health Organization (2002), lack of adequate sanitation, lack of hygiene, and lack of supply of safe water are the most significant risk factors for poor health in developing countries.

Diarrheal disease: In the SHEWA-B intervention areas 11 per cent children aged below 5 years had specific symptoms of diarrhea[14]. The primary data estimates for this survey reveal that 5.13 per cent children and 0.83 per cent of the remaining people suffered from diarrheal disease in the past three months preceding the survey. The 2011 Population Census Community Series data for the intervention areas have been used to estimate the age distribution[15] of the population and applied to estimate the total number of illness episodes. The information available for the baseline survey is limited to children under age 5. However, assuming the similar rate of decrease in the diarrheal disease, estimates have been made for the remaining age groups. According to the primary data from the household survey, average treatment cost for diarrheal disease is Tk.120 and the duration of illness is 3 days.

Among the income earning diseased persons the gain was estimated through income gain and treatment cost; for the non-earning persons only treatment cost is considered. In case of estimating gain of care givers only income generating persons are considered.

Helminthes infection: Helminthes infections cause malnutrition, anemia, growth reduction, and poor health, especially among children. Baseline data on reported case of helminthes infection was collected from Health Bulletin 2008 (Directorate General of Health Services, 2008). It is assumed that all the reported cases are those that were treated, since these data were collected from hospitals and out-patient facilities. Primary data indicate almost all helminthes infections (95.5%) occurred to persons aged fewer than 15 years. According to the primary data from the household survey, average treatment cost for diarrheal disease is Tk.30 and the duration of illness is 2 days.

Malaria: Malaria cases are indirectly related to WASH practices through malnutrition induced by diarrhea that is in turn attributable to poor sanitation. There has been only handful malaria cases found during the survey. All the diseased were income earning persons. According to National Health Bulletin 2007, Malaria incidence rate per 1,000

[12] Barkat. A. (2012). 'Economic Impacts of Inadequate Sanitation in Bangladesh: Flagship report'. pp.26. Water and Sanitation Programme, World Bank.
[13] ibid. pp. 30.
[14] Baseline Survey Results: SHEWA-B Health Impact Study. 2008.
[15] The distribution was created using four age categories: 0-4 years, 5-14 years, 15-64 years, and 64+ years.

population was 0.34. The attributable function for Malaria benefit estimate is 8.5 per cent (Barkat 2012). According to the primary data from the household survey, average treatment cost for Malaria is Tk. 600 and the duration of illness is 7 days.

Skin disease: Skin disease is related to hygiene practices. Only treatment cost for the skin disease is estimated for benefit. The decrease rate for skin disease is assumed to be equivalent to that of diarrheal disease. Primary data from the household survey reveals average treatment cost for skin disease is Tk. 200.

4.6.3 Water-related benefits: Water treatment and time savings

The Monitoring Baseline Survey reveals that 88 per cent of the households had access to adequate safe drinking water while the primary data collected through household survey suggest that 94 per cent of the households have such access. So, necessity of treating drinking water is reduced for 7 per cent households.

Three kilograms of wood are needed per day for cooking for one household of five members (estimated through Delphi exercises among the locals). The cost per kilogram of wood on average is Tk. 4 (US$ 0.06; opinion from locals), and the boiling time for one pitcher/pot *(hari)* (usually contains 7-10 liter of water) of drinking water using wood is assumed to be 45 minutes.

Benefit achieved through time saved for fetching water: All the rural households do not own their own water points. Households often go out of their premises to collect water. Since there has been hardware intervention in the SHEWA-B programme, household members spend less time to this task. Primary data reveals that on average a household can save 25 minutes in a day due to increased number of water points in the area.

4.6.4 Benefit achieved through school programme

Primary data analysis shows that there has been substantial increase in the attendance rate of students in primary and secondary schools under SHEWA-B intervention. Also there has been significant increase in admission (15.8%) and decrease in dropout (14.6%) rates over past few years (2008-2012) in primary schools. Estimates show that there have been 2.9 million primary school students and more than 1.8 million secondary school students within the SHEWA-B covered rural area. The SHEWA-B database of achievements reveals that more than 2.5 million primary school students and 160,000 secondary school students were covered under the SHEWA-B WASH in School Programme. This implies, 86.7 per cent of primary school students and 8.7 per cent of secondary school students within the intervention area was covered.

Analysis of Household Income and Expenditure Survey (HIES) 2010 data was done to estimate average yearly expenses for school going students for separate grades. Interviews with school teachers reveal that classes are held on average for 230 school days in a year. Benefit estimates are made based on the increased grade specific attendance rates and average cost for education.

4.6.5 Sanitation-related benefits: Reduced open defecation and use of shared toilets

The rate of open defecation in Bangladesh is showing decreasing trend for the past couple of decades. According to baseline SHEWA-B health impact study, 23 per cent household used improved latrine and 10 per cent were involved in open defecation. Data from the field survey suggest such rates as 53 per cent and 3.1 per cent respectively. Proportion of households using shared latrine is estimated to be 15.4 per cent.

This study assumes that for open defecation, one person spends 15 extra minutes (per latrine use). It is also assumed that the extra time needed for travel and the waiting time to use shared latrines adds up to 5 extra minutes (again per use). Before making such assumptions Delphi exercises were performed with Community Hygiene Promoters (CHPs). Benefit estimated for the time saved due to decreased use of shared latrine and open defecation. Estimates are made for 15-64 year population.

4.6.6 Capacity building-related benefits

The LGI representatives and WATSAN committee members received training and orientation under the SHEWA-B programme. The benefit of capacity building is estimated considering additional resources accomplished to WASH activities and inflation adjusted over the years. In addition, the currently trained LGI representatives and WATSAN committee members would prove to be an asset if the LGI representatives are elected for a second time. This study assumes one-fourth of representatives will be re-elected. So present expenses for training reelected LGI representatives would be a benefit. Moreover, few of the CHPs were elected LGI representatives recently. Such development was also considered as benefit. Benefit for the trained primary school teachers has also been calculated in the following manner.

The benefits are distributed among five broad components. In order to find best possible distribution, the FGD respondents were asked to distribute them. Such data was analyzed and then brought to key informants attention. The key informants made necessary suggestions and comments on the distribution prepared from FGD data analysis. After performing iterative validation exercise with the key informants, the following distribution was prepared (details see, Table 4.32). The estimated benefits were then distributed among the five broad components for Benefit-cost Ratio (BCR) estimation.

Table 4.32: Assumptions of distributing benefits by five broad components

Broad components	Assumptions
Sanitation	Most of the economic gain (80%) due to improved health status has been attributed to Sanitation[16].
Water	1. Proportion of economic gain (by proportion of expenditure for water) due to improved health status (after attributing 80% of it to sanitation). 2. Proportion of economic gain (by proportion of expenditure for water) due to saved water collection time (after attributing 10% of it to WinS). 3. Proportion of economic gain (by proportion of expenditure for water) due to increased access to adequate safe water.
WinS	Economic gain due to WASH in School was entirely attributed to WinS
SocMob	1. Proportion of economic gain (by proportion of expenditure for SocMob) due to improved health status (after attributing 80% of it to sanitation). 2. Proportion of economic gain (by proportion of expenditure for SocMob) due to saved water collection time (after attributing 10% of it to WinS). 3. Proportion of economic gain (by proportion of expenditure for SocMob) due to increased access to adequate safe water.
ICB	Assumed that on average 10 per cent gain in each of the remaining four broad components was achieved due to ICD

[16] Barkat. A. (2012). *Economic Impacts of Inadequate sanitation in Bangladesh*. Flagship report. Dhaka: World Bank.

4.6.7 Disability Adjusted Life Years (DALY)

Disability-adjusted life year (DALY) is a measure of overall disease burden. It is expressed as the number of years lost due to ill-health, disability or early death. Such health liabilities were expressed using two measures: 'Years of Life Lost' (YLL) and 'Years Lived with Disability' (YLD). DALY is calculated by summing these two components.

Years of Life Lost (YLL)

In case of estimating DALY for SHEWA-B project, the consideration is to estimate the years of life saved due to SHEWA-B interventions. That is, the number of deaths averted due to SHEWA-B interventions. Due to limited availability of data, such estimates were made only for diarrheal disease among children aged less than 5 years.

According to Population Census 2001, the total population under SHEWA-B intervention was 16,974,021 (16,598,221 in plain land[17] and 375,800 in CHT) and total population of Bangladesh was 130.5 million[18]. Total number of estimated deaths due to diarrheal disease in 2007 was 55,297[19] of which 49,007 (88.6%) were children aged less than 5 years. Using such proportion, the estimated deaths within the SHEWA-B intervention area in the year 2007 due to diarrheal disease was 6,346. Bangladesh Demographic Health Survey (BDHS) 2011 reveals 475 deaths of under 5 children among 18,000 surveyed households of which 2 per cent death occurred due to diarrheal disease. Such information leads to an estimation of 1,917 diarrheal deaths within the SHEWA-B intervention area in 2011. Assuming a minimum number of 6,346 deaths would have occurred each year (2007-2012) estimations were made.

Separate estimates have been made assuming exponential and geometric rate of decrease in total number of death due to diarrheal disease among children aged less than 5 years (see, Table 4.33).

Table 4.33: Estimated number of deaths averted with different assumptions, 2007-2012

Deaths averted: Geometric and exponential		2007	2008	2009	2010	2011	2012	Total
Number of deaths averted	Geometric	0	1,080	2,160	3,240	4,320	5,400	16,200
	Exponential	0	1,592	2,777	3,559	4,317	4,806	17,151

The average life expectancy of children aged under 5 years of age is 71.2 years in Bangladesh[20]. The total estimated DALY assuming geometric rate of decrease is 1.1 million years and exponential rate of decrease is 1.2 million.

Years Lived with Disability (YLD)

The consideration in this case is the number of days lost due to suffering diarrheal disease. In the field survey, 21 diarrheal cases were found among children aged under 5 years of 1,055 households within 3 months preceding the survey. Such rate was 46 cases of 850 households within 2 weeks preceding survey[21]. Such information gives an estimated DALY of 235,000.

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17 Baseline Survey Results, 2008, SHEWA-B health impact study, pp.7.
18 Population and Housing Census 2011, Preliminary results, pp.3.
19 Barkat. A. (2012). 'Economic Impacts of Inadequate Sanitation in Bangladesh: Flagship report'. pp. 26. Water and Sanitation Programme. World Bank
20 Data source: http://apps.who.int/gho/data/view.main.60120 accessed on 08 January 2013
21 Baseline Survey Results, 2008, SHEWA-B health impact study, pp. 65.

4.6.8 Total benefits by broad components

Estimates reveal that SHEWA-B rural interventions altogether have generated a total benefit of US$ 2.3 billion during its implementation period, 2007-2012 (Table 4.34). The Highest amount of benefit has generated due to saved water collection time totaling US$ 1.4 billion (60.7% of total benefit). The second highest amount of benefit has generated due to improved health status totaling US$434 million (18.6% of total benefits). This is followed by other three sources of benefit with US$ 233 million (10% of total benefit) for Institutional Capacity Building, US$ 141 million (6.1% of total benefit) for increased access to adequate safe water, and US$ 106 million (4.6% of total benefit) due to WASH in School.

Table 4.34: Estimated total benefit[22] by sources during 2007-2012 (in US$)

Source of benefit	Estimated benefit
Economic gain due to improved health status	434,046,079 (18.6)
Economic gain due to increased access to adequate safe water	141,286,618 (6.1)
Economic gain due to saved water collection time	1,414,292,051 (60.7)
Economic gain due to WASH in School	105,625,976 (4.6)
Economic gain due to Institutional Capacity Building	232,805,636 (10.0)
Total	**2,328,056,360 (100)**

Note: Parentheses show percentage of total benefit.

Table 4.35: Percentage distribution of total benefits by benefit type by broad components[23]

Benefit type	Water	Sanitation	WinS	SocMob	ICB
Economic gain due to improved health status	2.5	6.2	1.2	3.0	*on average 10 per cent gain in each of the remaining four broad components was achieved due to ICB*
Economic gain due to saved water collection time	17.4	0.0	4.2	20.6	
Economic gain due to increased access to adequate safe water	19.1	0.0	0.0	22.6	
Economic gain due to WASH in School	0.0	0.0	3.1	0.0	

4.7 Benefit-Cost Ratio Analysis

The benefit-cost analysis compares the total benefits of a project with its total costs. Before presenting the results of the benefit-cost ratio analysis of SHEWA-B rural interventions, it would be appropriate to put forward the relevant methodological issues. It is worth mentioning that the benefits and costs of SHEWA-B rural interventions have been evaluated from economic and social perspective (health, education, social development etc.). Analysis has been made following the steps below:

[22] Detailed primary estimate in Bd. Tk. is presented in Annex Table 5.
[23] Detailed absolute amount in monetary terms can be seen in Table 6.

1. Determining the useful life of the project: The number of years over which the benefits and costs of the project was evaluated. In case of SHEWA-B rural intervention, it is 6 years between 2007 and 2012.
2. Estimating the physical units of all benefits and all costs of the project for each year of its useful life.
3. Once the values of benefits and costs are compiled for each year, their present values were calculated, using 15 per cent discount rate (*considering risk free rate and market risk premium*)[24].
4. Add up the present values of annual benefits to determine the total benefits (B) of the project. Similarly, add up the present values of annual costs to determine the total cost (C).
5. Calculate the *Benefit-Cost Ratio (BCR)*, dividing total estimated benefit by total estimated cost, i.e., BCR = $\frac{B}{C}$

As stated earlier, a total amount of US$ 72 million has been spent in SHEWA-B rural interventions during 2007-2012 that generated a total of US$ 2.3 billion as total benefit. After adjusting inflation and discounting total cost by year, the present value of cost is US$ 58.7 million while present value of benefit is US$ 583.8 million (Table 4.36). Thus, the benefit - cost ratio (BCR) of SHEWA-B rural interventions is 9.9. Disaggregated analysis of present value of cost and benefit by five broad components is presented in Table 4.36. The findings reveal that highest BCR is obtained from social mobilization (SocMob) in intervention (40.3), which is followed by Water interventions (13.4), WASH in school (10.6), Sanitation (5.9), and Institutional capacity building (2.5). It is noteworthy to mention the estimated BCR for WASH in school is 10.6.

Table 4.36: Total cost and total benefit (in US$) by broad component, and Benefit-Cost Ratio (BCR): SHEWA-B (Rural project)

Components	Total cost (adjusted and discounted)*	Total benefit (adjusted and discounted)	BCR
Water	13,601,967	181,671,304	13.4
Sanitation	9,017,661	53,250,521	5.9
WASH in school	7,095,040	75,263,777	10.6
Social mobilization**	5,345,639	215,241,138	40.3
Institutional capacity building	23,655,023	58,380,749	2.5
SHEWA-B rural intervention	58,715,333	583,807,489	9.9

**Adjustment rate used CPI of respective year and discount rate: 15%*
***Hand washing/hygiene included in* Social mobilization, WASH in school, Institutional capacity building

Note: The future household loss due to illness of an income earner is not considered as benefit.

[24] Information collected from www.bangladesh-bank.org

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) is a unique programme implemented by GoB and UNICEF Bangladesh that addressed WASH-related needs of people living in both rural and urban areas in a comprehensive bottom-up manner. The accompanying study focused on Value for Money (VfM) analysis of SHEWA-B rural component. The rural component was implemented in areas that were either under-served or hard-to-reach (including Chittagong Hill Tracts). The major thrust of the project was the software component for attaining hygiene behaviour change of the people living in coverage area. However, under hardware component different types of water points were installed in some areas to meet-up acute community needs, and number of school toilets and water points constructed and/or renovated.

With a view to attaining hygiene behaviour change of the people living in coverage areas, the project had undertaken the strategies like community mobilization, training of frontline workers, school teachers and local government institutions.

All these interventions taken together (constituted total cost) supplemented and complemented each other and played an important role in generating the total benefits of SHEWA-B.

For conducting a value for money of a project, it is a common practice to compare the unit cost, efficiency, cost effectiveness, impact, benefit, and benefit-cost ratio with perfectly compatible projects. It is to note that no perfect match to SHEWA-B was found. Although BRAC WASH-I project, in terms of population and area coverage, is close to that of

SHEWA-B. The project components are also similar. However, there is much dissimilarity between the two projects. For example, all components of BRAC WASH-I was implemented by exclusively by BRAC (including Institutional capacity building, Monitoring and Research), while in SHEWA-B Social mobilization (SocMob) and Institutional capacity building components were contracted out to the local partner NGOs and NGOs providing training respectively. ICDDR,B was contracted to conduct the research aspects and local consultancy organizations dealt with monitoring aspects. In regards to hardware component for enhancing access to water, BRAC WASH-I has installed only deep tube wells and distributed limited number of Sono Filters (made for using by a single household) in selected arsenic prone areas. On the contrary, SHEWA-B has installed the whole gamut of water options considering the applicability of the technology in the area. An approach to enhancing access to safe sanitation of the two projects sharply differed. BRAC WASH-I emphasized providing pit latrines with five rings, one slab and superstructure mainly under micro-credit. A limited number of project grant supported latrines were provided to extreme poor households. In addition to installation of new latrines, repairing the existing latrines (including replacement of broken seal goose-necks) was also an important part under this initiative. SHEWA-B approach was focused to motivate the community and household in such a manner that they build improved latrines. The project also linked the eligible households to *Union Parishad* for receiving GoB supported subsidized hardware for pit latrine (three rings and one slab).

Thus, it will not be justified to compare the VfM analysis of the above mentioned two projects. Rather the analysis of SHEWA-B presented in Chapter 4 needs to be examined as a standalone product with due attention. SHEWA-B rural interventions altogether has generated a total benefit of US$ 2.3 billion during its implementation period (2007-2012) against a total cost of US$ 72 million. The highest amount of benefit has generated due to saved water collection time totaling US$ 1.4 billion (60.7% of total benefit). The second highest amount of benefit has been generated due to improved health status totaling US$ 434 million (18.6% of total benefits). This is followed by other three sources of benefit with US$ 233 million (10% of total benefit) for Institutional Capacity Building, US$ 141 million (6.1% of total benefit) for increased access to adequate safe water, and US$ 106 million (4.6% of total benefit) due to WASH in School.

The present value of benefit and cost after inflation adjustment and discounting are US$ 400.5 million and US$ 58.7 million respectively. The estimated benefit-cost ratio (BCR) for SHEWA-B rural interventions is 9.9. The overall and component-wise BCR is commendable, which, in turn, permits to draw the conclusion that the investment to SHEWA-B was worth financing. This conclusion further strengthens by the fact that many of the well-being oriented substantive outcomes and impacts have been generated through SHEWA-B, which are real but difficult to measure in terms of their money value.

5.2 Recommendations

The ‘Value for Money’ (VfM) analysis of SHEWA-B bears ample testimony that the programme should continue. However, the implementation agencies of SHEWA-B (DPHE and UNICEF) need to consider following recommendations for improvement in future programming towards generating more and more high utility outcomes – measurable and unmeasurable, tangible and intangible, short term and long term:

1. Both the two agencies need to synchronize programme progress and financial reporting mechanism, so that project expenditure by head/sub-head/sub-sub-heads can

be linked up with component and sub component-wise interventions. Developing such linkage between activities and expenditure would be of higher utility.

2. Project Management Information System (MIS) and Financial Information System (FIS) need to be designed in such a manner that relevant information may be reproduced by administrative units by period when necessary.
3. All the future projects need to develop an inbuilt strong, systematic and dynamic monitoring and documentation mechanism of its own which, in turn, will help both the agencies to enhance the organizational memory make use of the best practices and learning.

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ANNEX 1

DATA TABLES

Table 1: SHEWA-B programme expenditure in details, 2007-2012 (in US$)

SL	Main heads of expenditure	Amount
1	Baseline Survey	19,442
2	Different types of water options	14,870,052
3	Construction of WatSan facilities in Primary School	3,010,724
4	Repair of WatSan facilities in Primary Schools	146,180
5	Construction of WatSan facilities in Secondary High School	1,149,203
6	Jeep	89,413
7	Motor cycle	79,986
8	Bicycle (for Mechanics)	3,022
9	Computer with printer	474,255
10	Laptop	62,035
11	Photo copies	17,115
12	Multimedia projector	5,514
13	Over head projector	2,424
14	Other machinery and accessories	3,372,139
15	Fax machine	3,155
16	Equipments for caretakers of water points	153,977
17	Water quality testing and surveillance	353,465
18	SSHE software activities in Primary Schools	1,308,410
19	SSHE software activities in Secondary Schools	90,466
20	Institutional Capacity Building (ICB)	4,927,470
21	Carrying cost for materials	409,332
22	SOCMOB-AB	26,019,164
23	Research and Development	5,550,968
24	Monitoring and Evaluation	4,281,366
25	Staff salary	5,616,534
26	**Total**	**72,015,810**

Source: Compiled by study team using Annual Progress Reports of DPHE: FY2007/8-FY2012/13 and Database of Achievements, SHEWA-B, UNICEF.

Table 2: SHEWA-B programme expenditure by components by year, 2007-2012 (in US$)

	2007	2008	2009	2010	2011	2012	Total
Water	24,289	1,633,474	2,918,521	723,396	409,921	8,209,968	13,919,568
Sanitation*	0	0	0	0	0	0	0
Wins	94,803	856,561	1,492,439	1,232,800	777,814	2,201,049	6,655,466
ICD	585,353	286,329	407,554	658,546	856,452	2,133,235	4,927,470
SocMob	5,427,873	4,518,216	6,634,320	3,286,540	4,730,987	1,421,228	26,019,164
Other	663,380	1,253,567	648,607	2,968,457	5,183,879	9,776,252	20,494,142
Total	6,795,697	8,548,149	12,101,441	8,869,738	11,959,054	23,741,732	72,015,810

* SHEWA-B did not have any direct allocation for sanitation components.
Source: Compiled by study team using Annual Progress Reports of DPHE: FY2007/8-FY2012/13 and Database of Achievements, SHEWA-B, Unicef.

Table 3: SHEWA-B programme expenditure by components by year, 2007-2012 (with other costs proportionately redistributed in all components) (in US$)

	2007	2008	2009	2010	2011	2012	Total
Water	26,916	1,914,185	3,083,805	1,087,278	723,563	13,957,190	20,792,938
Sanitation	1,660,153	1,461,328	1,934,771	1,363,366	2,304,821	666,852	9,391,291
Wins	105,058	1,003,760	1,576,960	1,852,922	1,372,942	3,741,848	9,653,491
ICD	648,675	335,535	430,635	989,807	1,511,748	3,626,564	7,542,964
SocMob	4,354,894	3,833,339	5,075,269	3,576,366	6,045,980	1,749,278	24,635,127
Total	6,795,697	8,548,149	12,101,441	8,869,738	11,959,054	23,741,732	72,015,810

Source: Compiled by study team using Annex Table 1 and Table 2.

Table 4: Population in Bangladesh by SHEWA-B Area, 2001 and 2011 (Districts are in alphabetic order)

District	Upazilla	2001	2011
Bandarban*	Total	147,538	190,288
	Alikadam	35,264	49,317
	Sadar	68,693	88,282
	Roma	26,589	29,098
	Thanchi	16,992	23,591
Brahmanbaria	Total	974,770	1,117,817
	Akhaura	130,319	145,215
	Ashuganj	145,828	180,654
	Bancharampur	278240	298430
	Nabinagar	420,383	493,518
Chapai Nawabganj	Total	1,200,865	1,397,593
	Gomastapur	240,123	275,823
	Sadar	452,650	530,592
	Shibganj	508092	591178
Comilla	Total	2,392,629	2,156,196
	Chandina	306,054	350,273
	Daudkandi	450,052	349,910
	Debidwar	378,401	431,352

Contd...

District	Upazilla	2001	2011
	Homna	191,449	206,386
	Laksam	598,593	294,719
	Muradnagar	468,080	523,556
Gaibandha	Total	1,085,494	1,196,756
	Sadar	392,311	437,268
	Gobindaganj	461,428	514,696
	Polashbari	231,755	244,792
Khagrachari*	Total	305,217	246,221
	Dighinala	92,743	1,03,392
	Mohalchari	44,086	50,757
	Manikchari	50,061	61,589
	Panchari	64,510	62,198
	Ramgar	53,817	71,677
Moulvibazar	Total	656,671	749,416
	Borolekha	233,720	257,620
	Kamolnagar	229,648	259,130
	Rajnagar	193,303	232,666
Meherpur	Total	501,550	556,249
	Sadar	232,465	256,642
	Gangni	269,085	299,607
Mymensingh	Total	2,168,218	2,441,065
	Dhobaura	172,152	196,284
	Fulbaria	396,019	448,467
	Fulpur	524,720	601,766
	Ishawrganj	338,080	376,348
	Muktagasa	366,397	415,473
	Nandail	370,850	402,727
Narail	Total	429,024	448,796
	Kalia	208,024	220,202
	Lohagara	221,000	228,594
Narshingdi	Total	782,622	1,433,407
	Belabo	164,038	190,086
	Sadar	164,038	707,525
	Raipura	454,546	535,796
Pabna	Total	1,523,459	1,797,225
	Bera	231,430	256,793
	Chatmohor	239,973	291,121
	Sadar	476,932	590,914
	Sujanagar	251,192	278,096
	Santhia	323,932	380,301
Panchagarh	Total	520,565	621,870
	Debiganj	185,960	224,709
	Sadar	229,237	271,707
	Tetulia	105,368	125,454

Contd...

District	Upazilla	2011	2001
Rangamati*	Total	348,269	307,791
	Bilaichari	28,525	24,154
	Borokol	47,523	39,781
	Juraichari	27,786	22,277
	Kaptai	59,693	66,135
	Kawkhali	59,578	48,240
	Longadu	81,548	68,014
	Nanianchar	43,616	39,190
Rangpur	Total	1,278,511	1,237,869
	Badarganj	119,927	257,846
	Sadar	718,203	600,240
	Gagngacara	297,869	259,856
	Taraganj	142,512	119,927
Shariatpur	Total	476,927	439,673
	Damudda	109,003	116,643
	Sadar	210,259	199,016
	Goshairhat	157,665	124,014
Sherpur	Total	938,225	882,155
	Nakla	189,685	179,422
	Nalitabari	251,361	252,935
	Sreebardi	497,179	449,798
Sirajganj	Total	1,088,267	829,958
	Chowhali	160,063	1,55,260
	Kamarkhand	138,645	127,839
	Kajipur	274,679	266,950
	Raiganj	317,666	267,522
	Tarash	197,214	167,647
Sunamganj	Total	936,986	744,915
	Bishawmbharpur	156,381	126,259
	Dhormopasha	223,202	182,969
	Shalla	113,743	101,298
	Dowarabazar	228,460	179,201
	Taherpur	215,200	155,188
Grand Total (SHEWA-B Area)		19,420,084	17,130,983

Source: Bangladesh Population Census 2001 and 2011.

* Districts in the Chittagong Hill Tracts

Table 5: Distribution of benefits by source without adjustment and discounting (in Tk.)

Sources of benefits	Amount in Tk. (without adjustment and discounting)	Percentage
Reduced illness episode	3,351,204,429	5.8
Reduced water collection time	40,533,122,517	70.6
Reduced water boiling cost (increased access to safe water)	911,962,105	1.6
Reduced water boiling time	3,137,263,637	5.5
WASH activities in primary school	2,772,423,992	4.8
WASH activities in secondary school	254,780,034	0.4
Reduced premature death	6,191,767,273	10.8
Reduced open defecation	41,205,159	0.1
Reduced use of shared latrine (increased improved latrine)	240,568,609	0.4
Total	57,434,297,755	100.0

Source: Authors estimates

Table 6: Distribution of adjusted and discounted SHEWA-B benefits by broad components and by broad source (in US$)

Broad source / SHEWA-B broad components	Reduced Illness Episodes	Water collection and access to safe water[1]	Hardware installation and hygiene promotion in school[2]	Averted premature death	Improved sanitation[3]
Water	18,004,423	712,005,911	-	77,417,682	-
Sanitation	190,778,554	-	-	34,966,294	10,924,136
WASH in School	8,358,874	172,842,074	117,362,195	35,942,535	-
Social Mobilization	21,331,341	843,572,757	-	91,723,182	-
Institutional Capacity Building	10% of all benefits estimated above				

[1] *Water collection and access to safe water = Reduced water collection time + Reduced water boiling cost + Reduced water boiling time*
[2] *Hardware installation and hygiene promotion in school = WASH activities in primary school + WASH activities in secondary school*
[3] *Improved sanitation = Reduced open defecation + Reduced use of shared latrine (increased use of improved latrine*

ANNEX 2

DATA COLLECTION INSTRUMENTS (DCIs)

DCI 1: Household Interview Schedule
DCI 2: Household Checklist
DCI 3: Focus Group Discussion (FGD) with community people
DCI 4: Focus Group Discussion (FGD) with Community Hygiene Promoters (CHPs)
DCI 5: Focus Group Discussion (FGD) with Para Development Workers (PDWs)
DCI 6: Observation Checklist for School
DCI 7: School Information Collection Schedule (Secondary data compilation format)
DCI 8: In-depth Interview with School Teachers
DCI 9: In-depth Interview with School Managing Committee (SMC) member
DCI 10: Focus Group Discussion (FGD) with Students
DCI 11: Key Informant Interview (KII) with Knowledgeable Persons/Experts
DCI 12: Key Informant Interview (KII) with LGI Representative
DCI 13: Key Informant Interview (KII) with DPHE Officials
DCI 14: Key Informant Interview (KII) with Local Dealers
DCI 15: Household Listing Format (September 2013)
DCI 16: Market Survey Format

Household ID | | | |

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 1: Household Interview Schedule

Location Information		
District	Name:	Code:
Upazila	Name:	Code:
Union/ Ward	Name:	Code:
Village/Mahallah	Name:	Code:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

1	Name of the Respondent:
2	Relation with the HHH:
3	Age of the respondent:

Section 1: Household Members' Demography*							
Sl.	Name**	Age[1]	Sex Male=1 Female=2	Marital Status[2]	Education (Highest class passed)[3]	School attending Status[4]	Occupation[5]
1	2	3	4	5	6	7	8
01.							
02.							
03.							
04.							
05.							
06.							
07.							
08.							
09.							
10.							
11.							
12.							
13.							
14.							
15.							

*	*Household member: Takes food from the same 'Chula (stove)`, generally sleep at night under the same roof at least once in the last 6 months; guests will not be included.*
**	*Start from 'respondent' then use age sequence in a descending order*
1	*in completed years*
2	*Marital Status: Unmarried=01, Married=02, Separated=03, Widower/Widow=04, Divorce/Abandoned=05*
3	*Write numbers for each class attended. e.g., if completed class 4, write '4' etc.*
4	*Currently attending =1, Not attending =2*
5	***Occupation code:*** *Farmer/cultivator =01, Homemaker (housewife) =02, Agri-laborer = 03, Non-agri-laborer = 04, Salaried job =05, Mason =06, Carpenter =07, Rickshaw/van puller =08, Fisherman = 09, Boatman =10, Blacksmith =11, Potter =12, Cobbler =13, Shopkeeper =14, Petty trader =15, Business =16, Tailor =17, Umbrella Repairer =18, Driver =19, Cottage Industry =20, Village doctor/Quack =21, Homeopath/ Aurvedic/ Unani =22, Imam/priest = 23, Electrician/ mechanics =24, Barber =25, Housekeeping aid at other's house =26, Birth attendant/TBA =27, Butcher =28, Teacher =29,Retired service holder/ older person =30, Student =31, Unemployed =32, Children (0-6 years) =33, Assistance in household works=34, other _____ (specify) =39*

Section 2: Housing characteristics and possession of materials/assets		
SL	**Questions and filters**	**Categories**
2.1	Main material of the floor of the primary dwelling *Record observation*	☐ Earth/sand……1 ☐ Wood planks……2 ☐ Bamboo……..…3 ☐ Ceramic tiles……4 Cement/ concrete……..5 ☐ Other (specify)_____6
2.2	Main material of the roof of the primary dwelling *Record observation*	☐ No roof……1 ☐ Thatch/palm leaf……...2 ☐ Bamboo……3 ☐ Wood planks……4 ☐ Cardboard…….....5 ☐ Tin……6 Ceramic tiles……7 ☐ Cement/ concrete……..8 Other (specify)_____9
2.3	Main material of the walls of the primary dwelling *Record observation*	☐ No walls……1 ☐ Cane/palm/trunks……..2 ☐ Bamboo/stone with mud……...3 ☐ Plywood/ cardboard/ bamboo…...4 ☐ Wood planks/hines……5 ☐ Tin……6 ☐ Cement/brick……7 ☐ Stone with lime/cement……8 ☐ Other (specify) _____9
2.4	Does your household have the followings mentioned in the right side? *Multiple responses possible*	☐ Electricity……..1 ☐ Radio……2 ☐ Television……..3 ☐ Mobile telephone……...4 ☐ Land phone……5 ☐ Refrigerator……6 ☐ Almirah /wardrobe/showcase……7 ☐ Table……..8 ☐ Chair……..9 ☐ Bicycle……10 ☐ Motorcycle……..11 ☐ Animal-drawn cart……..12 ☐ Car or Jeep……13 ☐ Boat with a motor……...14 ☐ Rickshaw/van……..15 ☐ Scoter/CNG/ tempo……16 ☐ Swing machine……17 ☐ Air conditioner……...18 ☐ Computer/laptop……19 ☐ Agricultural land (cultivable)…..20 ☐ Pond for pisciculture……...21 ☐ Live stock (cow, goat etc.)……..22

Section 3: Information regarding water source		
SL	**Question**	**Response**
301	Does this household have a water source of its own? *Note: Households involved in rural piped water system will be considered as having own water source.*	☐ Yes ☐ No
302	Does this household collect water from community based water source?	☐ Yes ☐ No
303	Does this household collect drinking water from other households?	☐ Yes ☐ No
304	What is the main water source (*for drinking water*) of this household?	☐ Piped water into dwelling…....1 ☐ Public tap/stand point…….. 2 ☐ Tube well…….....3 ☐ Borehole……..... 4 ☐ Protected dug well……....5 ☐ Protected spring……....6 ☐ Rain water harvesting…….....7 ☐ Pond sand filter……....8 ☐ Unprotected dug well……... 9 ☐ Unprotected spring……..... 10 ☐ Gravity Flow System (GFS).....11 ☐ Infiltration Gravity……..... 12 ☐ Bottled water……..... 13 ☐ Surface water …….... 14
305	What is the main water source (*for household chores*) of this household?	☐ Piped water into dwelling…....1 ☐ Public tap/stand point……...2 ☐ Tube well…….....3 ☐ Borehole……..... 4 ☐ Protected dug well……....5 ☐ Protected spring……....6 ☐ Rain water harvesting…….....7 ☐ Pond sand filter……..... 8 ☐ Unprotected dug well……... 9 ☐ Unprotected spring……..... 10 ☐ Gravity Flow System (GFS).... 11 ☐ Infiltration Gravity……..... 12 ☐ Bottled water……..... 13 ☐ Surface water …….. 14
306	What was main water source (*for drinking water*) of this household 5 years ago?	☐ Piped water into dwelling…….1 ☐ Public tap/stand point…….. 2 ☐ Tube well……..3 ☐ Borehole…….. 4 ☐ Protected dug well……... 5

		☐ Protected spring…… 6 ☐ Rain water harvesting…… 7 ☐ Pond sand filter…… 8 ☐ Unprotected dug well…… 9 ☐ Unprotected spring…… 10 ☐ Gravity Flow System (GFS). 11 ☐ Infiltration Gravity……..… 12 ☐ Bottled water…… 13 ☐ Surface water …… 14
307	When was this water source that you use currently for drinking water established? *(you may ask how many years before was the water point established)*	☐
308	Who funded for the establishment of this water source?	☐ Self ……....1 ☐ Community members…… 2 ☐ SHEWA-B……3 ☐ Other GoB project……. 4
309	What was the expense for this establishment? (cost from this household)	☐ Taka
310	Is the water source functional?	☐ Yes ☐ No
311	Has the water source been tested for arsenic?	☐ Yes ☐ No
312	Does the water source provide drinking water throughout the year?	☐ Yes ☐ No
313	If the water source does not provide drinking water, what is the alternative source for drinking water (during dry season)?	☐ Piped water into dwelling…….1 ☐ Public tap/stand point…….. 2 ☐ Tube well……..3 ☐ Borehole……... 4 ☐ Protected dug well……....5 ☐ Protected spring……... 6 ☐ Rain water harvesting…….. 7 ☐ Pond sand filter……..... 8 ☐ Unprotected dug well…….. 9 ☐ Unprotected spring…….. 10 ☐ Gravity Flow System (GFS).... 11 ☐ Infiltration Gravity……..…… 12 ☐ Bottled water……... 13 ☐ Surface water ……...14 ☐ Not applicable…….. 15
314	If the water point does not provide drinking water, what is the alternative source for drinking water (during wet season)?	☐ Piped water into dwelling…….1 ☐ Public tap/stand point…….. 2 ☐ Tube well……..3 ☐ Borehole……... 4

		☐ Protected dug well……....5 ☐ Protected spring……... 6 ☐ Rain water harvesting……...7 ☐ Pond sand filter…….....8 ☐ Unprotected dug well……... 9 ☐ Unprotected spring……... 10 ☐ Gravity Flow System (GFS).... 11 ☐ Infiltration Gravity……..... 12 ☐ Bottled water……..... 13 ☐ Surface water ……..... 14 ☐ Not applicable……..... 15
315	How many households collect drinking water from this water source?	☐
316	Who in the household initiated the process of establishing the water point? *(Relationship with the respondent / Age)*	☐ ☐
317	How did that person get inspired to establish this water source? *(Multiple response possible)* ☐ Television Programmes and campaigns ☐ Radio Programmes and campaigns ☐ Courtyard meeting in the community ☐ Tea stall meeting ☐ School children in the households ☐ School children in the community ☐ Improved economic status ☐ Awareness campaigns in the primary school ☐ Awareness campaigns in the community ☐ Community Hygiene Promoter (CHP) ☐ Other social mobilization activities by SHEWA-B (interactive theatre, rally, fair, etc.)	
318	How much maintenance cost occurred for the water source last year?	☐ Taka
319	How much operation cost occurred for the water source last year?	☐ Minor repair ☐ Taka ☐ Spare parts ☐ Taka ☐ Electric bill ☐ Taka ☐ Fuel expenses ☐ Taka ☐ Salary ☐ Taka ☐ Other ☐ Taka
320	How often the water source breaks in a year?	Times in a year
321	Whether spare parts for the water points available in the local market (upazila)?	☐ Yes ☐ No
322	Who is engaged to repair water source?	☐ Self ……1 ☐ Community people…….2 ☐ SHEWA-B…….....3 ☐ Hired mechanic……4

		☐ GoB staff……...5 ☐ Not repaired……..6 ☐ Not applicable……...7 ☐ Other (specify)……..8
323	On average how much time is saved (in minutes) in a day to collect water after installing this water point/facility?	☐ minutes
324	On average how much water do you collect from water points every day? (in number of pitcher)	For drinking ☐ For household chores ☐

Section 4: Information regarding sanitation		
SL	**Question**	**Response**
401	What kind of sanitary latrine do the household use?	☐ Individual ☐ Shared ☐ Community
402	What type of sanitary latrine does the household use?	☐ Flash pour to septic tank…...……1 ☐ Flash pour to pit…….……...2 ☐ Ventilated improved pit latrine…….3 ☐ Pit latrine with slab…….…..4 ☐ Composite toilet……...5 ☐ Flush pour to open space……..6 ☐ Pit latrine without slab or open pit...7 ☐ Hanging toilet or latrine……...8 ☐ No facilities or bush or field……....9
403	When was this sanitary latrine established? *(you may ask how many years before was the water point established)*	☐
404	Who funded for the establishment of this sanitary latrine? *(Multiple options possible)*	☐ Self ……1 ☐ SHEWA-B……..2 ☐ Other GoB project……...3
405	What was the cost for this establishment? (cost from this household)	☐ Taka
406	Is the latrine functional?	☐ Yes ☐ No
407	Is the latrine clean?	☐ Yes ☐ No
408	Who in the household initiated the process of establishing the sanitary latrine? *(Relationship with the respondent and Age)*	☐ ☐
409	How did that person get inspired to establish this water source? *(Multiple response possible)* ☐ Television Programmes and campaigns ☐ Radio Programmes and campaigns ☐ Courtyard meeting around the community ☐ Tea stall meeting around the community ☐ School children in the households ☐ School children in the community ☐ Improved economic status	

	☐ Awareness campaigns in the primary school ☐ Awareness campaigns in the primary school ☐ Community Hygiene Promoter (CHP) ☐ Other social mobilization activities by SHEWA-B (interactive theatre, rally, fair etc.)	
410	How many households use this latrine? *(Applicable for shared latrines)*	☐
411	How much maintenance cost occurred for the latrine last year?	☐ Taka
412	How much operation cost occurred for the latrine last year?	☐ Repair ☐ Taka ☐ Replacement ☐ Taka ☐ Others ☐ Taka
413	How often the latrine needs repairing in a year?	☐ Times in a year
414	Have you ever emptied/replaced your septic tank/pit?	☐ Yes ☐ No
415	How often did the septic tank /pit need replacement?	☐ months
416	How did you emptied/replaced your septic tank/pit?	☐ Remove manually (through sweepers)……1 ☐ Remove with mechanical device engaging sweepers……...2 ☐ Abandon the septic tank/pit…….3 ☐ Not applicable……4 ☐ Other (specify)_____5

Section 5: Hand washing Practice

SL	Question	Response
501	Do you wash hand before having food?	☐ Yes ☐ No
502	Do you wash both hands before having food?	☐ Yes ☐ No
503	What do you use to wash your hands before having food?	☐ Only water ☐ Soap and water
504	Do you wash hand after defecation?	☐ Yes ☐ No
505	Do you wash both hands after defecation?	☐ Yes ☐ No
506	What do you use to wash your hands after defecation?	☐ Only water ☐ Soap and water ☐ Ash and water

Section 6: Information on the Incidence of disease
If there were multiple incidences for same person fill in such information in separate rows

Name of the HH members	Age	Contribute to HH income *Yes = 1, No = 2*	Average Duration of suffering (in days)	Whether taken to health facility/ doctor *Yes =1, No=2*	Cost of treatment (Tk.) *(Including travel, medicine, doctor's fee, hospital fee etc.)*	Who was involved to take care of the diseased	Caregiver contribute to HH income *Yes = 1, No = 2*
Information on the Incidence of Diarrhea in the Household (last 3 months)							

Information on the Incidence of Helminthes in the Household (last 3 months)							
Information on the Incidence of Malaria in the Household (last 3 months)							
Information on the Incidence of Skin disease in the Household (last 3 months)							
Information on the Incidence of other water borne disease in the Household (last 3 years)							

Section 7: Participation and coverage in Social mobilization activities		
SL	**Question**	**Response**
701	Did you/any other household members participate in any of the following activities? *Multiple responses possible*	☐ Courtyard sessions……1 ☐ Tea stall sessions……2 ☐ Interactive theater …….3 ☐ Film show……...4 ☐ Rally……...5 ☐ Fair……6 ☐ Others……..…7 ☐ None…….. 8
702	What was the average duration of your participation in a session (in minutes)	☐ Courtyard sessions ☐ minutes ☐ Tea stall sessions ☐ minutes ☐ Interactive theater ☐ minutes ☐ Film show ☐ minutes ☐ Rally ☐ minutes ☐ Fair ☐ minutes ☐ Others ☐ minutes
703	What was the average number of participants in sessions?	☐ Courtyard sessions ☐ persons ☐ Tea stall sessions ☐ persons ☐ Interactive theater ☐ persons ☐ Film show ☐ persons ☐ Rally ☐ persons ☐ Fair ☐ persons ☐ Others ☐ persons

704	Whether this household was visited by CHP?	☐ Yes ☐ No
705	How frequently were the visits made?	Once in a week……1 Once in two weeks……..2 Once in a month……..3 Once in 3 months……4 Once in a quarter…….5 Once in 6 months……6 Once in a year…….7
706	Average duration of each visit	☐ minutes
707	How many hygiene practices can the respondent recall (unprompted)? *(Count the number of proper hygiene practice the respondent can recall)*	☐ Wash both hands with water and soap before eating/handling food…….1 ☐ Wash both hands with water and soap (or ash) after defecation…….2 ☐ Wash both hands with water and soap (or ash) after cleaning baby's bottom……3 ☐ Manage menstruation period safely…….4 ☐ Use hygienic latrine by all family members including children……5 ☐ Dispose of children feces into hygienic latrine by men and women……..6 ☐ Clean and maintain latrine by men and women in the household……...7 ☐ Construct a new latrine if the existing one is full and fill the pit with soil (or ash). The top ring and the slab may be used for the new latrine……8 ☐ Safe collection and storage of drinking water for household……9 ☐ Draw drinking water from arsenic safe water point by men and women……10 ☐ Wash raw fruits and vegetables with safe water before eating…….....……..11 ☐ Cover food properly after preparing……...12

Section 8: Question for school going children in the household (only one from a household)
Instruction:
Please check from section 1, are there any school going students (between grade 5 and 9) in the household? Interview eldest of them if available otherwise interview one who is available during interviewing the household

Name of student:_____

Name of School:_____

Grade:_____

SL	Question	Response
801	Did you notice any visit from the CHPs in your school?	☐ Yes ☐ No
802	Did you receive hygiene knowledge from CHPs in school?	☐ Yes ☐ No
803	Did any of your teachers taught you on hygiene practice?	☐ Yes ☐ No
804	Can you recall the proper way to wash hands? *(listen the proper way of hand washing and then fill in the check box)*	☐ Yes ☐ No
805	Does your school have hand washing stations?	☐ Yes ☐ No
806	Is the hand washing station functional?	☐ Yes ☐ No
807	Does the hand washing station have soap beside it?	☐ Yes ☐ No
808	Does your school have a water source that provides safe drinking water?	☐ Yes ☐ No
809	Is the water source functional?	☐ Yes ☐ No
810	Does your school have improved latrine for students?	☐ Yes ☐ No
811	How many latrines are there in your school?	
812	Does your school have separate latrine for boys and girls?	☐ Yes ☐ No
813	Are all the latrines functional?	☐ Yes ☐ No
814	How many of them are currently functional?	☐
815	Are the currently functional latrines clean?	☐ Yes ☐ No
816	Are the latrines user-friendly?	☐ Yes ☐ No
817	Did your school have school brigade?	☐ Yes ☐ No
818	Did you ever participate in school brigade?	☐ Yes ☐ No
819	How many times did you participate in school brigade?	☐

Section 9: Benefit Incidence due to SHEWA-B intervention			
Benefit		Code *	% Contribution of SHEWA-B
Access to Improved Water			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Access to Improve Sanitation			
11			
12			
13			
14			
15			
16			
Hygiene Behavior Change			
17			
18			
19			
20			
21			
22			
23			
Others			
24			
25			
26			
27			
28			
29			
30			
**Will be used while data coding*			
Add extra pages if necessary			

Household ID | | | |

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 2: Household Checklist

Location Information		
District	Name:	Code:
Upazila	Name:	Code:
Union/ Ward	Name:	Code:
Village/ Mahallah	Name:	Code:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Observation check list for the water point		
SL	**Questions and filters**	**Categories**
	What type of water point the household have?	☐ Piped water into dwelling……...…...1 ☐ Public tap/stand point……..2 ☐ Tube well……..……....3 ☐ Borehole……..…….....4 ☐ Protected dug well……..…….…..5 ☐ Protected spring……..….....6 ☐ Rain water harvesting…….…….....7 ☐ Pond sand filter…….……....8 ☐ Unprotected dug well…… 9 ☐ Unprotected spring…….……..... 10 ☐ Gravity Flow System (GFS)...…..... 11 ☐ Infiltration Gravity……..……..... 12 ☐ Bottled water……..... 13 ☐ Surface water ……..... 14
	Is the water point functional?	☐ Yes ☐ No
	Is the platform of the water point in order?	☐ Yes ☐ No ☐ There is no platform ☐ Not applicable
	Is the platform of the water point clean?	☐ Yes ☐ No
	Does the water point have a proper drainage system?	☐ Yes ☐ No
	Has the water point been tested for Arsenic?	☐ Yes ☐ No
	Is the water point provided by SHEWA-B?	☐ Yes ☐ No

Observation check list for latrine		
SL	**Questions and filters**	**Categories**
	What type of latrine the household has?	☐ Flash pour to septic tank…..……1 ☐ Flash pour to pit…….……...2 ☐ Ventilated improved pit latrine…….3 ☐ Pit latrine with slab…….…..4 ☐ Composite toilet……...5 ☐ Flush pour to open space……..6 ☐ Pit latrine without slab or open pit...7 ☐ Hanging toilet or latrine……...8 ☐ No facilities or bush or field……....9
	Main material of the roof of the latrine	☐ No roof…….1 ☐ Thatch/palm leaf……...2 ☐ Bamboo…….3 ☐ Wood planks…….4 ☐ Cardboard…….....5 ☐ Tin…….6 ☐ Ceramic tiles…….7 ☐ Cement/ concrete……..8 ☐ Other (specify)_____9
	Main material of the walls of the primary dwelling	☐ No wall (polithine, sack etc.)……1 ☐ Cane/palm/trunks……..2 ☐ Bamboo/stone with mud……...3 ☐ Plywood/ cardboard/ bamboo…...4 ☐ Wood planks/hines……5 ☐ Tin…….6 ☐ Cement/brick…….7 ☐ Stone with lime/cement…….8 ☐ Other (specify) _____9
	Latrine functional?	☐ Yes ☐ No
	Latrine clean?	☐ Yes ☐ No
	Arrangement of water and soap for hand washing near (within 20 feet) the latrine?	☐ Yes ☐ No
	Latrine(s) provided by SHEWA-B?	☐ Yes ☐ No

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 3: Focus Group Discussion (FGD) with Community People

Village:	Union:
Upazila:	District:

Name of the Facilitator	.....	Date	...../10/ 2013
Note taker	.....	Date	...../10/ 2013
Observer	.....	Date	...../10/ 2013

Identification of participants

Sl#	Name	Age	Marital status: Unmarried=1, Married=2, Separated=3, Widower/Widow=4, Divorce/Abandoned=5	Religion: Islam=1, Hindu=2, Buddhist=3, Christian=4, Others (Specify)=5	Education (Highest class passed)
1.			1 2 3 4 5	1 2 3 4 5	
2.			1 2 3 4 5	1 2 3 4 5	
3.			1 2 3 4 5	1 2 3 4 5	
4.			1 2 3 4 5	1 2 3 4 5	
5.			1 2 3 4 5	1 2 3 4 5	
6.			1 2 3 4 5	1 2 3 4 5	
7.			1 2 3 4 5	1 2 3 4 5	
8.			1 2 3 4 5	1 2 3 4 5	
9.			1 2 3 4 5	1 2 3 4 5	

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Focus Group Discussion (FGD) with

1. Did you all receive knowledge on hygiene practice? How did you receive such knowledge?
   From whom did they receive such knowledge?
   How was the knowledge administered (only verbal training sessions/practical sessions/ use of pictograms and charts etc.);
   What different type of social mobilization activities took place in your community;
   How often such activities were arranged;
   What is the average number of participants in such activities;
   Did any one made individual visits to your households;
   How often were such visits made;
   Was there any one who followed up (reminded) on your knowledge and practice on hygiene behavior

2. What are the benefits due to access to improved water source?
   List all the benefits mentioned by the community people (personal, financial, social, political etc.);
   Find out was there any discrimination while providing the hardware (water point installation and repairing) of SHEWA-B project (if there is, list all of them)

3. What are the benefits due to improved sanitation?
   (List all the benefits mentioned by the community people (personal, financial, social, political etc.);
   Find out was there any discrimination while providing the hardwares (latrine(s) or components for latrine installation) of SHEWA-B project (if there is, list all of them)

4. Do you believe there has been positive change in hygiene practice around the community?
   If yes, ask for evidence how /why they claim such positive change (list all such evidence)

5. What are the benefits due to positive change in hygiene change?
   List all the benefits mentioned by the community people (personal, financial, social, political etc.)

6. Do the community people think the social mobilization activities (mention all the social mobilization activities one by one and enlist their opinion) are well administered?
   If not, why they believe the activities were not properly administered (what were the draw backs) and how they should have been administered;
   If yes, could there have been more appropriate social mobilization activities and how they should have been administered

7. How the SHWA-B installed/repaired/rehabilitated hardware is maintained?
   Do the installed/repaired/rehabilitated hardware maintained regularly;
   How often are they put to maintenance;
   How are the costs managed (separately at community level and individual household level) for maintenance;
   Collect the amount of expenditure for such maintenance last year

8. Are you aware of the WinS programme in the schools in this locality? How did you come to know of such programme? What is your perception regarding this programme? Do you think such programme is beneficial for the children around the community? How?

Community's opinion on the SHEWA-B Project Implementatiom

Water point installation/ repairing	
Latrine installation/ repairing	
Social Mobilization	
Wash in School (WinS)	

Contribution of SHEWA-B Project in these benefits

SL	Name of benefit *(Will be collected from the benefit mentioned earlier by the participants)*	Contribution of SHEWA-B using a 100 point scale

(Add extra pages if necessary)

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 4: Focus Group Discussion (FGD) with Community Hygiene Promoters (CHPs)

Village:	Union:
Upazila:	District:

Name of the Facilitator	.....	Date	...../10/ 2013
Note taker	.....	Date	...../10/ 2013
Observer	.....	Date	...../10/ 2013

Identification of participants

SL.	Name	Age	Education (Highest class passed)	Sex (Male=M, Female=F)	Duration of working as CHP (Month, Year to Month, Year)
1.				M F	
2.				M F	
3.				M F	
4.				M F	
5.				M F	
6.				M F	
7.				M F	
8.				M F	
9.				M F	

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Focus Group Discussion (FGD) Guideline

In order to know about a particular issue it is necessary to conduct a Focus Group Discussion (FGD) with people related to that particular topic. For example, to understand issues related to agriculture FGD is required with people related to agriculture, for an understanding of health issues FGD with people related to healthcare, etc.

Objective

- To gain full understanding of the topic of discussion (since all the participants are directly related to the topic, the discussion becomes lively and it gives practical outcomes).
- To understand the participants' experiences and take suggestions from them on this regard.

Method:

1. Firstly, the number and identification of those who are familiar with the topic and able to participate in the discussion have to be completed. (Select around 7-9 people; the selection could be a mix of people from different economic status).
2. The discussion topic, expected time and duration of discussion and the venue have to be decided in discussion with the expected participants.
3. All preparatory measures required at the venue have to be taken prior to the discussion.
4. FGD team members will only play the role of facilitators while the discussion is on.
5. All participants will have to be given equal opportunity to express their opinions and the issues raised and opinions expressed will have to be written down.
6. Any decision (s) or opinion (s) has to be reviewed prior to finalizing so that any new opinion could be included even at the end.

Prior Preparation:

1. Determining the topic of discussion and its objectives
2. Preparing set of questions for proper facilitation of the discussion.
3. Arranging stationeries and other items required during the discussion.
4. Deciding on the participants, venue and time of the discussion.
5. Distribution of responsibilities among the team members, such as, discussant(s), facilitators, note-taker, and a coordinator for overall supervision.

The DOs:

1. Making every participant understand the topic and objective(s) before the discussion starts.
2. Creating a healthy, amiable and positive environment for discussion
3. Creating such an environment that every participant gets the opportunity to express their opinion.
4. In case the discussion gets drooping at any stage, the facilitator(s) should steer the discussion and put again it on the right track
5. In case of any debate in the discussion, an opportunity should be created for the participants to resolve the matter among themselves, and no intervention should be made except for any unavoidable reason.
6. If a new issue creeps into the discussion, it should not be instantly resisted. In case the discussion goes on in a different track for a long time, it should be steered back to the right track.

The DONTs:

1. Predetermining the timeframe for discussion
2. Prohibiting the participants from having an appropriate conclusion/closure to the discussion
3. Supporting or nullifying any particular opinion
4. Creating interruption in between a discussion
5. Creating confusion or misunderstanding asking multiple questions together
6. Conversing to someone during the discussion in such a way that it interrupts the flow of discussion.

Focus Group Discussion (FGD) with Community Hygiene Promoters (CHPs)

1. Tell us about your recruitment process.
   How did they come to know of such an opportunity;
   How were they selected as CHPs (how did they apply, to whom did they apply, was there an interview, how was their selection confirmed etc.);
   Who did they had to report about your activities

2. Training under SHEWA-B project
   Did you receive any training under SHEWA-B project;
   When and where did they receive training (list all type of training received by each of the respondents separately);
   Do the newly appointed CHPs received training;
   Who were the trainers;
   How long did they receive training;
   What were the contents of their training;
   How was the training administered (only verbal training sessions/practical sessions/use of pictograms and charts during the training etc.);
   Was there any demonstration on how to properly enlighten the community people/students on relevant issues;
   Was there any gap between your recruitment and training (if there was how many months?)

3. Tasks as CHPs in the community
   How many households did you cover during beginning and towards the end of the programme.
   What were their broad tasks as CHPs;
   What were the specific tasks under the broad tasks;
   Whom did they report to about competition of your tasks;
   What type of social mobilization activities did they perform around this community;
   How often did you perform such activities (once or twice in a month or once in a year etc.);
   Please let us know about the average number of participants and duration of such activities
   Were you supplied with different visual aids (pictograms, charts etc.) for community awareness development

4. Experience working as a CHP in the community
   How did the community people behave;
   Find out whether the locals were reluctant or positive towards the social mobilization activities;
   Find out whether the locals were reluctant or positive towards the learnt knowledge;
   Did they show interest in changing hygiene behavior towards positive changes;
   Any one installed or rehabilitated water points or latrines in their household due to motivation through social mobilization;
   Has there ever been any interruption in your work as CHP; reason of such interruption; how many working days was lost due to such interruption

5. If you were to distribute your effort in social mobilization work, how would you distribute them:

SL	**Social mobilization activities** *(fill in the list with activities stated for questions above)*	**% distribution**
01.		
02.		
03.		
04.		
05.		
06.		
07.		
08.		
09.		
10.		
	Total	**100**

6. Current status of the installed/repaired hardware by SHEWA-B
   Did you ever check on the status of the installed/repaired hardware by SHEWA-B after installation/repairing;
   If yes, were they regularly maintained; how were they maintained; did they teach the community people how the water points/latrines should be maintained;
   If no, why did not

7. Tell us about your experience working in the SHEWA-B project
   What were the problems/difficulties faced form the officials (list all of them);
   Why do you think such problems/difficulties created;
   How did you overcome such problems/difficulties

8. Benefits due to access to improved water source
   List all the benefits mentioned by the CHPs (personal, financial, social, political etc.)

9. Benefits due to improved sanitation
   List all the benefits mentioned by the CHPs (personal, financial, social, political etc.)

10. Change in hygiene practice around the community
    Do you believe there has been positive change in hygiene practice around the community;
    If yes, ask for evidence how /why they claim such positive change (list all such evidence)

11. Benefits due to positive change in hygiene practice
    List all the benefits mentioned by the CHPs (personal, financial, social, political etc.)

12. Appropriateness of software interventions
    Could there have been more appropriate software interventions for this locality

13. Appropriateness of hardware interventions
    Were the installed/repaired hardware interventions proper considering this locality;
    If yes, why do they think so;
    If no, can they mention any alternative hardware interventions;
    Do they believe this intervention could have been given at a lesser cost

14. Limitation of the SHEWA-B project
    List all the mentioned limitations in details

15. Minimizing SHEWA-B limitations
    List all the mentioned remedial measures in details

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 5: Focus Group Discussion (FGD) with Para Development Workers (PDWs)

Para:	Union:
Upazila:	District:

Name of the Facilitator	.....	Date	...../10/ 2013
Note taker	.....	Date	...../10/ 2013
Observer	.....	Date	...../10/ 2013

Identification of participants

SL.	Name	Age	Education (Highest class passed)	Sex (Male=M, Female=F)	Duration of working as PDW with SHEWA-B (Month, Year to Month, Year)
1.				M F	
2.				M F	
3.				M F	
4.				M F	
5.				M F	
6.				M F	
7.				M F	
8.				M F	
9.				M F	

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Focus Group Discussion (FGD) Guideline

In order to know about a particular issue it is necessary to conduct a Focus Group Discussion (FGD) with people related to that particular topic. For example, to understand issues related to agriculture FGD is required with people related to agriculture, for an understanding of health issues FGD with people related to healthcare, etc.

Objective

- To gain full understanding of the topic of discussion (since all the participants are directly related to the topic, the discussion becomes lively and it gives practical outcomes).
- To understand the participants' experiences and take suggestions from them on this regard.

Method:

1. Firstly, the number and identification of those who are familiar with the topic and able to participate in the discussion have to be completed. (Select around 7-9 people; the selection could be a mix of people from different economic status).
2. The discussion topic, expected time and duration of discussion and the venue have to be decided in discussion with the expected participants.
3. All preparatory measures required at the venue have to be taken prior to the discussion.
4. FGD team members will only play the role of facilitators while the discussion is on.
5. All participants will have to be given equal opportunity to express their opinions and the issues raised and opinions expressed will have to be written down.
6. Any decision (s) or opinion (s) has to be reviewed prior to finalizing so that any new opinion could be included even at the end.

Prior Preparation:

1. Determining the topic of discussion and its objectives
2. Preparing set of questions for proper facilitation of the discussion.
3. Arranging stationeries and other items required during the discussion.
4. Deciding on the participants, venue and time of the discussion.
5. Distribution of responsibilities among the team members, such as, discussant(s), facilitators, note-taker, and a coordinator for overall supervision.

The DOs:

1. Making every participant understand the topic and objective(s) before the discussion starts.
2. Creating a healthy, amiable and positive environment for discussion
3. Creating such an environment that every participant gets the opportunity to express their opinion.
4. In case the discussion gets drooping at any stage, the facilitator(s) should steer the discussion and put again it on the right track
5. In case of any debate in the discussion, an opportunity should be created for the participants to resolve the matter among themselves, and no intervention should be made except for any unavoidable reason.
6. If a new issue creeps into the discussion, it should not be instantly resisted. In case the discussion goes on in a different track for a long time, it should be steered back to the right track.

The DONTs:

1. Predetermining the timeframe for discussion
2. Prohibiting the participants from having an appropriate conclusion/closure to the discussion
3. Supporting or nullifying any particular opinion
4. Creating interruption in between a discussion
5. Creating confusion or misunderstanding asking multiple questions together
6. Conversing to someone during the discussion in such a way that it interrupts the flow of discussion.

Focus Group Discussion (FGD) with Para Development Workers (PDWs)

1. Training under SHEWA-B project

   Did you receive any training under SHEWA-B project;
   When and where did they receive training (list all type of training received by each of the respondents separately);
   Do the newly appointed PDWs received training;
   Who were the trainers;
   How long did they receive training;
   What were the contents of their training;
   How was the training administered (only verbal training sessions/practical sessions/use of pictograms and charts during the training etc.);
   Was there any demonstration on how to properly enlighten the community people on relevant issues;
   Was there any gap between your recruitment and training (if there was how many months?)

2. Tasks as PDWs in the community

   How many households did you cover during beginning and towards the end of the programme.
   What were their broad tasks as PDWs;
   What were the specific tasks under the broad tasks;
   Whom did they report to about competition of your tasks;
   What type of social mobilization activities did they perform around this community;
   How often did you perform such activities (once or twice in a month or once in a year etc.);
   Please let us know about the average number of participants and duration of such activities
   Were you supplied with different visual aids (pictograms, charts etc.) for community awareness development

3. Experience working as a PDW in the community (for SHEWA-B)

   How did the community people behave;
   Find out whether the locals were reluctant or positive towards the social mobilization activities;
   Find out whether the locals were reluctant or positive towards the learnt knowledge;
   Did they show interest in changing hygiene behavior towards positive changes;
   Any one installed or rehabilitated water points or latrines in their household due to motivation through social mobilization;
   Has there ever been any interruption in your work as PDW; reason of such interruption; how many working days was lost due to such interruption

4. If you were to distribute your effort in social mobilization work, how would you distribute them:

SL	Social mobilization activities *(fill in the list with activities stated for questions above)*	% distribution
01.		
02.		
03.		
04.		
05.		
06.		
07.		
08.		
09.		
10.		
	Total	**100**

5. Current status of the installed/repaired hardware by SHEWA-B

   Did you ever check on the status of the installed/repaired hardware by SHEWA-B after installation /repairing;
   If yes, were they regularly maintained; how were they maintained; did they teach the community people how the water points/latrines should be maintained;
   If no, why did not

6. Tell us about your experience working in the SHEWA-B project

   What were the problems/difficulties faced form the officials (list all of them);
   Why do you think such problems/difficulties created;
   How did you overcome such problems/difficulties

7. Benefits due to access to improved water source

   List all the benefits mentioned by the PDWs (personal, financial, social, political etc.)

8. Benefits due to improved sanitation

   List all the benefits mentioned by the PDWs (personal, financial, social, political etc.)

9. Change in hygiene practice around the community

   Do you believe there has been positive change in hygiene practice around the community;
   If yes, ask for evidence how /why they claim such positive change (list all such evidence)

10. Benefits due to positive change in hygiene practice

    List all the benefits mentioned by the PDWs (personal, financial, social, political etc.)

11. Appropriateness of software interventions

    Could there have been more appropriate software interventions for this locality

12. Appropriateness of hardware interventions

    Were the installed/repaired hardware interventions proper considering this locality;
    If yes, why do they think so;
    If no, can they mention any alternative hardware interventions;
    Do they believe this intervention could have been given at a lesser cost

13. Limitation of the SHEWA-B project

    List all the mentioned limitations in details

14. Minimizing SHEWA-B limitations

    List all the mentioned remedial measures in details

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 6: Observation Checklist for School

Name of School:_____ Contact number:_____	
Village:	Union:
Upazila:	District:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Section 1: Dwelling structure of the school (observation checklist)		
SL	**Questions and filters**	**Categories**
1.1	Main material of the floor of the primary dwelling	☐ Earth/sand……1 ☐ Wood planks……2 ☐ Palm/bamboo……3 ☐ Ceramic tiles……4 ☐ Cement/ concrete……..5 ☐ Other (specify)_____6
1.2	Main material of the roof of the primary dwelling	☐ No roof……1 ☐ Thatch/palm leaf……...2 ☐ Bamboo……3 ☐ Wood planks……4 ☐ Cardboard…….....5 ☐ Tin……6 ☐ Ceramic tiles……7 ☐ Cement/ concrete……..8 ☐ Other (specify)_____9
1.3	Main material of the walls of the primary dwelling	☐ No walls……1 ☐ Cane/palm/trunks……..2 ☐ Bamboo/stone with mud……...3 ☐ Plywood/ cardboard/ bamboo…...4 ☐ Wood planks/hines……5 ☐ Tin……6 ☐ Cement/brick……7 ☐ Stone with lime/cement……8 ☐ Other (specify) _____9
1.4	Does the school have hand washing points point?	☐ Yes ☐ No
1.5	Does the school have water point?	☐ Yes ☐ No
1.6	Does the school have latrine?	☐ Yes ☐ No

Section 2: Observation checklist for the water point		
SL	**Questions and filters**	**Categories**
2.1	What type of water point the school has?	☐ Piped water ……..……1 ☐ Public tap/stand point……2 ☐ Tube well……...3 ☐ Borehole……....4

		☐ Protected dug well…….5 ☐ Protected spring……6 ☐ Rain water harvesting……....7 ☐ Pond sand filter……..8 ☐ Unprotected dug well…….9 ☐ Unprotected spring……...10 ☐ Surface water ……...11
2.2	Is the water point functional?	☐ Yes ☐ No
2.3	Is the platform of the water point in order?	☐ Yes ☐ No ☐ There is no platform ☐ Not applicable
2.4	Is the platform of the water point clean?	☐ Yes ☐ No
2.5	Does the water point have a proper drainage system?	☐ Yes ☐ No
2.6	Has the water point been tested for Arsenic?	☐ Yes ☐ No
2.7	Is the water point provided by SHEWA-B?	☐ Yes ☐ No

Section 3: Observation check list for latrine		
SL	**Questions and filters**	**Categories**
3.1	What type of latrine the school has?	☐ Flash pour to piped water system.…1 ☐ Flash pour to septic tank…..……2 ☐ Flash pour to pit……...3 ☐ Ventilated improved pit latrine…….4 ☐ Pit latrine with slab…….…..5 ☐ Composite toilet…… ..6 ☐ Unimproved…….…….....7
3.2	Main material of the roof of the latrine	☐ No roof……1 ☐ Thatch/palm leaf……...2 ☐ Bamboo…….3 ☐ Wood planks…….4 ☐ Cardboard…….....5 ☐ Tin…….6 ☐ Ceramic tiles…….7

		☐ Cement/ concrete……..8 ☐ Other (specify)_____9
3.3	Main material of the walls of the primary dwelling	☐ No wall (polithine, sack etc.)……1 ☐ Cane/palm/trunks……..2 ☐ Bamboo/stone with mud……...3 ☐ Plywood/ cardboard/ bamboo…...4 ☐ Wood planks/hines……5 ☐ Tin……6 ☐ Cement/brick……7 ☐ Stone with lime/cement……8 ☐ Other (specify) _____9
3.4	How many latrine(s) in the school?	☐
3.5	Latrine(s) functional?	☐ Yes ☐ No
3.6	How many are functional?	☐
3.7	Functional latrine(s) clean?	☐ Yes ☐ No
3.8	Students use latrine?	☐ Yes ☐ No
3.9	Arrangement of water and soap for hand washing near (within 20 feet) the latrine?	☐ Yes ☐ No
3.10	Latrine(s) provided by SHEWA-B?	☐ Yes ☐ No

Section 4: Observation checklist for hand washing station		
SL	**Questions and filters**	**Categories**
4.1	How many hand washing station does the school has?	☐
4.2	Hand washing station(s) functional?	☐ Yes ☐ No
4.3	How many hand washing station(s) functional?	☐
4.4	Does the hand washing station have water?	☐ Yes ☐ No
4.5	Hand washing station(s) has soap nearby?	☐ Yes ☐ No
4.6	Hand washing station(s) provided by SHEWA-B?	

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 7: School Information Collection Schedule
(Secondary data compilation format)

Name of school: Name of the Respondent: Designation: Contact number:	
Village:	Union:
Upazila:	District:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Please let us know the number of students in this school.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the average percentage of attendance of students in this school.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the number of enrolled students in this school.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the number of dropped out students in this school.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the number of students took part in school brigade.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the number of students failed to promote to next class.

Class / Year	Class 1	Class 2	Class 3	Class 4	Class 5
2008					
2009					
2010					
2011					
2012					

Please let us know the total number of teachers in this school.

Year	Number of teachers	Number of teachers received training
2008		
2009		
2010		
2011		
2012		

Please let us know the number of School Managing Committee (SMC) members	
Please let us know the number of School Managing Committee (SMC) members received training under SHEWA-B intervention?	
How many times did the CHPs visit this school last year?	
Let us know the average duration (in minutes) of visits from CHP last year.	
The water point in this school established in...	
How much operation and maintenance cost occurred for the water source last year?	☐ Maintenance ____ taka ☐ Repair ____ taka ☐ Spare parts ____ taka
The latrine(s) established in…	
How much operation and maintenance cost occurred for the latrine last year?	☐ Maintenance ____ taka ☐ Repair ____ taka ☐ Replacement ____ taka

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 8: In-depth Interview with School Teachers

Name of school: Name of the Respondent: Designation: Contact number:	
Village:	Union:
Upazila:	District:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

In-depth Interview with School Teacher

1. Did you receive training under SHEWA-B project? Please share with us the training details.
   When and where did s/he receive training;
   Do the newly appointed teachers receive training; who were the trainers;
   How long did s/he receive training;
   How was the training administered (only verbal training sessions/practical sessions/ use of pictograms and charts during the training);
   Was there any demonstration on how to properly enlighten the students on relevant issues; did s/he aware the students of the benefit of proper hygiene practice

2. Did you demonstrate your knowledge from training among your students? How did you demonstrate knowledge among the students?
   Find out how often s/he demonstrated such knowledge to students;
   Is there any material for demonstrating knowledge among the students;
   Does s/he follow up regularly on this issue;
   Did s/he observe any behavior change among the students after such demonstration

3. Did you share the knowledge learned from the training among the locals? What was their attitude towards such knowledge?
   Find out whether the locals were reluctant or positive towards the learnt knowledge;
   Did they show interest in changing hygiene behavior towards positive changes;
   Any one installed or rehabilitated water points or latrines in their household

4. Do you think the installed hardwares (latrine(s) and water point) are most appropriate for this school considering the locality, geographical condition and location of the school?
   Find out respondent's opinion: Were the latrine blocks too small, too big, can't maintain properly, placed improperly, and inappropriate for kids to use etc.;
   Were the water points maintained regularly, provided clean drinking water, placed in a suitable place for every student's use etc.;
   Were the hand washing stations properly used

5. Do the students use the installed latrine(s) and water points regularly?
   If the students are unable to use them regularly find out the reason(s);
   Are there any alternatives available

6. Do the community people use the water point or latrine(s) installed in this school?
   If yes, find out why;
   Does this create trouble for the students;
   Can you suggest any remedial measures for such incidence?

7. If there could have been more appropriate hardware technologies used in this school, what is your suggestion?

8. Could there have been more appropriate software interventions for this locality (also in this school)?

9. In your opinion what are the benefits of installing water point in your school?
   List all the benefits mentioned: social, political, individual
   Also list the extent of positive changes (i.e. % increase in the school enrolment, % decrease in dropout rates; % decrease in school absence due to sickness etc.

10. In your opinion what are the benefits of installing latrine(s) in your school?
    List all the benefits mentioned: social, political, individual
    Also list the extent of positive changes (i.e. % increase in the school enrolment, % decrease in dropout rates; % decrease in school absence due to sickness etc.

11. Has DPE, DSHE or the SMC or parents increased their investment in the school?

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 9: In-depth Interview with School Managing Committee (SMC) Member

Name of school: Name of the Respondent: Designation: Contact number:	
Village:	Union:
Upazila:	District:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

In-depth interview with School Managing Committee (SMC) Member

1. Did you receive training under SHEWA-B project? Please share with us the training details.

   When and where did s/he receive training;
   Do the new SMC members receive training;
   Who were the trainers;
   How long did s/he receive training;
   How was the training administered (only verbal training sessions/practical sessions/ use of pictograms and charts during the training);
   Was there any demonstration on how to properly enlighten the students on relevant issues;
   Did s/he aware the students of the benefit of proper hygiene practice

2. Did you demonstrate your knowledge from training among your students? How did you demonstrate knowledge among the students?

   Is there any material for demonstrating knowledge among the students;
   Did s/he observe any behavior change among the students after such demonstration

3. Did you share the knowledge learned from the training among the locals? What was their attitude towards such knowledge?

   Find out whether the locals were reluctant or positive towards the learnt knowledge;
   Any one Showed interest in changing hygiene behavior towards positive changes;
   Any one installed or rehabilitated water points or latrines in their household

4. What was the procedure for installing/repairing hardwares (water points/latrine (s)) in school?

   How the decision was taken;
   What was the procuring procedure;
   From whom you received fund for installing/repairing hardwares (water points/latrine (s));
   How installation/repairing was monitored etc.
   list step by step procedures.

5. Do you think the installed hardwares (latrine(s) and water point) are most appropriate for this school considering the locality, geographical condition and location of the school?

   Find out respondent's opinion: Were the latrine blocks too small, too big, can't maintain properly, placed improperly, and inappropriate for kids to use;
   Were the water points maintained regularly, provided clean drinking water, placed in a suitable place for every student's use;
   Were the hand washing stations properly used

6. Do the students use the installed latrine(s) and water points regularly?

   If the students are unable to use them regularly find out the reason(s);
   Are there any alternatives

7. Do the community people use the water point or latrine(s) installed in this school?

   If yes, find out why;
   Does this create trouble for the students;
   Can you suggest any remedial measures for such incidence

8. If there could have been more appropriate hardware technologies (latrine(s) and water point) used in this school, what is your suggestion?

9. Could there have been more appropriate software interventions for this locality (also in this school)?

10. In your opinion what are the benefits of installing water point in your school?

    List all the benefits mentioned: social, political, individual
    Also list the extent of positive changes (i.e. % increase in the school enrolment, % decrease in dropout rates; % decrease in school absence due to sickness etc.)

11. In your opinion what are the benefits of installing water point in your school?

    List all the benefits mentioned: social, political, individual
    Also list the extent of positive changes (i.e. % increase in the school enrolment, % decrease in dropout rates; % decrease in school absence due to sickness etc.)

12. Have you taken any initiative for the betterment of WASH conditions?

    If yes, what?
    If no, why? (What are the obstacles for such initiatives)

13. Has DPE, DSHE or the SMC or parents increased their investment in the school?

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 10: Focus Group Discussion (FGD) with Students

Name of school:	
Village:	Union:
Upazila:	District:

Name of the Facilitator	.....	Date	...../10/ 2013
Note taker	.....	Date	...../10/ 2013
Observer	.....	Date	...../10/ 2013

Identification of participants

Sl#	Name	Age	Grade	Sex (Male=M, Female=F)
1.			1 2 3 4 5 6 7 8	M F
2.			1 2 3 4 5 6 7 8	M F
3.			1 2 3 4 5 6 7 8	M F
4.			1 2 3 4 5 6 7 8	M F
5.			1 2 3 4 5 6 7 8	M F
6.			1 2 3 4 5 6 7 8	M F
7.			1 2 3 4 5 6 7 8	M F
8.			1 2 3 4 5 6 7 8	M F
9.			1 2 3 4 5 6 7 8	M F

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House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Focus Group Discussion (FGD) Guideline

In order to know about a particular issue it is necessary to conduct a Focus Group Discussion (FGD) with people related to that particular topic. For example, to understand issues related to agriculture FGD is required with people related to agriculture, for an understanding of health issues FGD with people related to healthcare, etc.

Objective

- To gain full understanding of the topic of discussion (since all the participants are directly related to the topic, the discussion becomes lively and it gives practical outcomes).
- To understand the participants' experiences and take suggestions from them on this regard.

Method:

1. Firstly, the number and identification of those who are familiar with the topic and able to participate in the discussion have to be completed. (Select around 7-9 people; the selection could be a mix of people from different economic status).
2. The discussion topic, expected time and duration of discussion and the venue have to be decided in discussion with the expected participants.
3. All preparatory measures required at the venue have to be taken prior to the discussion.
4. FGD team members will only play the role of facilitators while the discussion is on.
5. All participants will have to be given equal opportunity to express their opinions and the issues raised and opinions expressed will have to be written down.
6. Any decision (s) or opinion (s) has to be reviewed prior to finalizing so that any new opinion could be included even at the end.

Prior Preparation:

1. Determining the topic of discussion and its objectives
2. Preparing set of questions for proper facilitation of the discussion.
3. Arranging stationeries and other items required during the discussion.
4. Deciding on the participants, venue and time of the discussion.
5. Distribution of responsibilities among the team members, such as, discussant(s), facilitators, note-taker, and a coordinator for overall supervision.

The DOs:

1. Making every participant understand the topic and objective(s) before the discussion starts.
2. Creating a healthy, amiable and positive environment for discussion
3. Creating such an environment that every participant gets the opportunity to express their opinion.
4. In case the discussion gets drooping at any stage, the facilitator(s) should steer the discussion and put again it on the right track
5. In case of any debate in the discussion, an opportunity should be created for the participants to resolve the matter among themselves, and no intervention should be made except for any unavoidable reason.
6. If a new issue creeps into the discussion, it should not be instantly resisted. In case the discussion goes on in a different track for a long time, it should be steered back to the right track.

The DONTs:

1. Predetermining the timeframe for discussion
2. Prohibiting the participants from having an appropriate conclusion/closure to the discussion
3. Supporting or nullifying any particular opinion
4. Creating interruption in between a discussion
5. Creating confusion or misunderstanding asking multiple questions together
6. Conversing to someone during the discussion in such a way that it interrupts the flow of discussion.

Focus Group Discussion with Students

1. Do you know of any hygiene practice?
   (Find out the hygiene practice the participants know and list them; do they know about health consequences (water borne diseases) for unhygienic practices; do they know about any remedial measures for such disease etc.)

2. Where did you come to know of the hygiene practices?
   (List all sources mentioned by the participants; where did they came to know of water borne diseases)

3. Did any of your teachers taught you about hygiene practice?
   (Find out whether their teachers taught them about hygiene practices in the class; how did they demonstrate such knowledge; do the teachers follow up on their knowledge about hygiene practice; how often do they follow up etc.)

4. Did CHPs taught you about hygiene practices? (find out where
   (Find out whether the CHPs taught them about hygiene practices in the class; how did they demonstrate such knowledge etc.)

5. Do you use the _____ (mention the type of water point available in the school) to collect drinking water during school period?
   (Find out how often they use the water source during school period)

6. Do the people around the community use the water point in your school?
   (Find out how often do they see the community people collecting water from the water point; when do the community people (morning/noon/evening) collect water from the water point most; do the community people's water collection from the water point create ambiguity for them to use the water point during school period etc.)

7. Do you use the latrine(s) regularly?
   (Find out how often the students use the latrine; are the latrines always open for the students; is there any discrimination among the male and female students on using the latrine(s); where do they wash hands after using the latrine(s) etc.)
   (If the students do not use the latrine(s), list reasons for such occurrence)

8. How appropriate is the installation of the latrine(s)?
   Find out their perception on the place of the latrine (latrine(s) too far away from the school compound; are the latrine(s) stress-free to use (is the latrine too small); is there water source nearby (within 20 feet) etc.)

9. Is the latrine(s) dirt free?
   (Find out whether the latrines are cleaned regularly; how often they are cleaned etc.)

10. Do you use the hand washing station for hygiene practice while at school?
    (Find out the current functionality status of the hand washing station; do the hand washing station always have water to use; is there soap nearby (within 5 feet) the hand washing station etc.)
    (If the students do not use hand washing station, list reasons for such occurrence)

11. If any of the latrine(s) or water point is not functional, did they report to the school authority? What did the authority do? Did their parents take interest in such incidence?

12. Were they ever part of the school brigade? What did they do as a part of the school brigade?

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI-11: Key Informant Interview (KII) with Knowledgeable Persons/Experts

Name of the Respondent:_____
Name of organization:_____
Designation:_____
Contact number:_____
E-mail address:_____

Name of the Interviewer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Key Informant Interview (KII) with Knowledgeable Persons/Experts

Discussion with knowledgeable persons may include (but not limited to) the topics listed below

1. SHEWA-B initiated WASH interventions in 19 selected districts (add few more details). Please let us know your thoughtful understanding to such initiative.
2. Expected outputs and outcomes of SHEWA-B hardware interventions (in rural areas):
3. Efficiency of currently using technologies (hardware) in the intervention (rural) areas:
4. Limitations and strength of the currently using technologies (hardware):
5. Alternatively available hardware technological options, their efficiency (expected, if not yet known) compared to SHEWA-B and their cost implications for the intervention (rural) areas:
6. Expected outputs and outcomes of SHEWA-B hardware interventions (in rural areas):
7. Effectiveness of currently using software interventions in the intervention areas:
8. Alternatively available software interventions, their effectiveness compared to SHEWA-B software interventions with their cost implications (if possible)
9. Training for the front line workers (CHPs), LGI representatives:
10. Government's responsibility towards achieving higher WASH coverage:
11. Community's responsibility towards achieving higher WASH coverage:
12. SHEWA-B initiated WinS (WASH in School) programme. Please express your opinion such an initiative:
13. What is the best possible way to achieve maximum WASH coverage (irrespective of cost implications):

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI-12: Key Informant Interview (KII) with LGI Representative

Name of the Respondent:_____	
Upazila/union:_____	District:_____
Designation:_____ Contact number:_____	

Name of the Interviewer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Key Informant Interview (KII) with LGI Representative

1. About SHEWA-B programme
   Collect all details of SHEWA-B programme known to the respondent

2. Training from SHEWA-B programme
   When and where did s/he receive training;
   Do the newly appointed/elected teachers receive training;
   who were the trainers;
   How long did s/he receive training;
   How was the training administered (only verbal training sessions/practical sessions/ use of pictograms and charts during the training);

3. Roles and responsibilities in SHEWA-B programme (interventions).

4. WATSAN committee
   Existence of WATSAN committee in the locality;
   Role of WATSAN committee (members) in WASH behavior changes;

5. Distribution of water and sanitation related hardwares in the community.
   Who received benefits of sanitation related hardwares in the community;
   How were they selected;

6. Resources from the government, household or community for WASH activities.
   Did the government increase their allocation in areas where SHEWA-B was working or has the community contributed to rehab other wells based on the increased access etc.

7. Any new initiatives related to WASH activities:
   Have the WASH plans been updated, what has been the result of the activities;
   What activities have taken place on the basis of the improved capacity

8. Gap(s) in WASH service provision
   Have the LGIs been able to identify gaps in WASH service provision?
   What are the possible ways to fill in such gaps?
   Has there been any initiative taken to fill in the gaps in WASH service provision?
   Did the government provide any additional resources to fill in the gaps in WASH service provision?

9. Limitation of the SHEWA-B project
   List all the mentioned limitations in details

10. Minimizing SHEWA-B project imitations
    List all the mentioned remedial measures to minimize the limitations in details

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI-13: Key Informant Interview (KII) with DPHE officials

Name of the Respondent:_____
Designation:_____
Contact number:_____
E-mail address:_____

Name of the Interviewer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Key Informant Interview (KII) with DPHE officials

Discussion with knowledgeable persons may include (but not limited to) the topics listed below

1. Involvement with the SHEWA-B programme:
2. Management system of SHEWA-B programme:
3. Financial transfers (system) of SHEWA-B programme:
4. Expected outputs and outcomes of SHEWA-B hardware interventions (in rural areas):
5. Efficiency of currently using technologies (hardware) in the intervention (rural) areas:
6. Limitations and strength of the currently using technologies (hardware):
7. Alternatively available hardware technological options, their efficiency (expected, if not yet known) compared to SHEWA-B and their cost implications for the intervention (rural) areas:
8. Expected outputs and outcomes of SHEWA-B hardware interventions (in rural areas):
9. Effectiveness of currently using software interventions in the intervention areas:
10. Alternatively available software interventions, their effectiveness compared to SHEWA-B software interventions with their cost implications (if possible)
11. SHEWA-B initiated WinS (WASH in School) programme. Please express your opinion such an initiative:
12. What is the best possible way to achieve maximum WASH coverage (irrespective of cost implications) in this locality:
13. Gap(s) in WASH service provision:
14. Limitation of the SHEWA-B project:
15. Minimizing SHEWA-B project imitations:

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI-14: Key Informant Interview (KII) with Local Dealers

Name of the Respondent:_____
Name of outlet/office:_____
Designation:_____
Contact number:_____

Name of the Interviewer	.....	Date	...../10/ 2013
Name of the Supervisor	.....	Date	...../10/ 2013
Name of the Observer	.....	Date	...../10/ 2013

Conducted by

Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September 2013

Key Informant Interview (KII) with Local Dealers

1. Experience of dealing with water and sanitation related hardwares.
2. Price and quality of water and sanitation related hardwares available in the local market.
3. Quality of water and sanitation related hardwares installed in SHEWA-B.
4. Price trend of water and sanitation related hardwares in the local market over the past few years (preferably 5-6 years).
5. Trend of purchasing water and sanitation related hardwares by the local people over the past few years (preferably 5-6 years).
6. Seasonal trend (increase/decrease) sell of water and sanitation related hardwares in the locality.
7. Any better water and sanitation hardwares alternative available (considering price also).

DCI 15: Household Listing Format

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

September, 2013

Geographical Location	
District:	Union:
Upazila:	Village:

Name of the Lister:	Date:

SL	Name of Head of HH	HH have own water source	Year of establishment	HH can collect clean drinking water	HH have improved latrine	Year of establishment
		Yes =1, No=2		*Yes =1, No=2*	*Yes =1, No=2*	
1						
2						
3						
4						
5						
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27						

Contd...

SL	Name of Head of HH	HH have own water source	Year of establishment	HH can collect clean drinking water	HH have improved latrine	Year of establishment
		Yes =1, No=2		*Yes =1, No=2*	*Yes =1, No=2*	
28						
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Contd...

SL	Name of Head of HH	HH have own water source	Year of establishment	HH can collect clean drinking water	HH have improved latrine	Year of establishment
		Yes =1, No=2		*Yes =1, No=2*	*Yes =1, No=2*	
67						
68						
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74						
75						

Value for Money Study on Sanitation Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) Interventions

DCI 16: MARKET SURVEY FORMAT

Dealer/Agent	Name:	Code:
Proprietor	Name:	Code:
District	Name:	Code:
Upazila	Name:	Code:
Union/ Ward	Name:	Code:
Village/ Mahallah	Name:	Code:
Contact Number	Name:	Code:

Name of the Enumerator	.....	Date	...../10/ 2013
Supervisor	.....	Date	...../10/ 2013
Quality Control Officer	.....	Date	...../10/ 2013

Conducted by

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House 5, Road 8, Mohammadia Housing Society, Mohammadpur, Dhaka 1207
Phone: (+88 02) 811 6972, 815 7621, Fax: (+88 02) 815 7620
E-mail: hdrc.bd@gmail.com, info@hdrc-bd.com
Website: www.hdrc-bd.com

Dhaka: September, 2013

Materials	Normal		Standard	
	Unit	Price	Unit	Price
1. Handle				
2. Head (6 No)				
3. Body				
4. Base				
5. Nut				
6. Rod				
7. Plunger set				
8. Check valve/ball				
9. Weight				
10. Washer/bucket				
11. Pipe (iron)				
12. Pipe (plastic)				
13. Filter (iron)				
14. Filter (plastic)				
15. Tap				
16. Gum				
17. Socket				
18. Spanner				
19. Screw-driver				
20. Pipe-range				
21. Slide-range				
22. Labor cost				
23. Labor cost (self)				
24. Other……				
25. Other……				
26. Other……				
Construction of Platform and Drainage System				
27. Cement				
28. Brick				
29. Sand				
30. Mason				
31. Labor cost				
32. Brick chips				
33. Other……				
34. Other……				
35. Other……				

ANNEX 3

MEMBERS OF THE STUDY TEAM

Team Leader, Economist

Prof. Abul Barkat, PhD

Consultants

Avijit Poddar, *PhD*
Md. Sogir Hossain Khandoker, *M.Com*
Golam Mahiyuddin, *MBBS, MPH*
Asmar Osman, *MSS*
Mohammad Badiuzzaman, *MA, MSS*
Md. Abdullah, *MA*

Research Associate

Muhammad Nazim Ud Dowlah, MSS
Faisal M Ahamed, MS

Systems Analyst

ASM Obaidur Rahman, MSS
Ajoy Kumar Saha, MBA

Finance and Administrative Support

Abu Taleb
Arif Miah, Sabed Ali, Mozammel Hoque

Field Coordinator

Md. Kabiruzzaman

Research Assistants

Md. Arifuzzaman
Ataur Rahman
Md. Zahidul Rahman
Sayeduzzaman
Syed Azharul Islam
Md. Anamul Hoque
Minati Bala
Nilufa Khatun
Amamullah Akanda
Shaikhul Abedin
Muhammad Auled Hosain
Md. Asraful Alam
Mamun or Rashid
Rakibul Hasan
Md. Mominul Haque
Romena Afroz
Tania Tazrin
Sorwar Ahmed
Md. Abdul Wahed
Md. Joynal Aebdin
Md. Gias Uddin
Azim Khana Tuhin
Ramjan Ali Khan
Md. Hamidul Islam
Abdul Baten
Mohammad Shamim Aurangzeb
Md. Asaduzzaman
S Z M Huzzatul Islam
S. M. Parvej
Md. Shamsul Haq
Shankar Kumar Paul
Rafiqul Islam
Matiur Rahman
Md. Azad Hossain
Nuhl Amung
Boy George
Kishore Moy Chakma