

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



Prepared by

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Human Development Research Centre

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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”.

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

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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 19,579¹ 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 hardware 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.