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**WATER, SANITATION AND HYGIENE SERVICES BEYOND 2015:  
IMPROVING ACCESS AND SUSTAINABILITY**

**Sustainability of WASH practices: Hygiene behaviour in  
the rural settings of Bangladesh**

*N. C. Dey, L. Ghose, M. Rahman & A. Islam (Bangladesh)*

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*Hygiene behaviour is one of the most important conditions for keeping people healthy. To improve the situation in rural areas, BRAC and in collaboration with Govt. of Bangladesh, has been implementing phased water, sanitation and hygiene (WASH) program in 250 sub-districts since the mid-2006. To find out the impact of WASH implementation services in rural households, the BRAC Research and Evaluation Division conducted baseline (in 2006), midline (2009) and end-line (2011) surveys in 50 upazilas (sub-districts) of the first phase. Over 26,000 households were included in the study. Data were collected through face-to-face interview and observation using pre-tested questionnaire, and were analysed using standard method. Analysis revealed an improvement in hygiene behaviour including putting cover on water jar during carrying and storing water for drinking increased across the survey periods were observed, where ultra-poor households were practicing like non-poor households at the endline- a great achievement in the service delivery system of BRAC WASH mainly for the ultra-poor households. Service delivery for improving hygiene behavior related implementation works can be sustainable if community people are involved in the process with proper training and periodic monitoring is ensured even after completion of any project.*

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**Introduction**

Sustainability needs considerations about operation, maintenance, financing, use of the facilities and hygiene practices (Shordt et al., 2012). According to Abram, sustainability is defined as “whether or not something continues to work over time” (Abrams, 1998). The factors affecting sustainability are often related to socio-cultural, technological and institutional aspects. In access of safe water, sanitation and hygiene (WASH) facilities, significant progress has been made globally. Bangladesh, like many other countries, has made significant progress in increasing access to safe WASH facilities, especially encouraged on by the Millennium Development Goals (MDGs) in the past decade and a half.

Although there is an improvement in access to WASH facilities in this country, sustainability is a matter of concern for ensuring relevant target for post-2015 MDGs. Previous studies identified some challenges for ensuring sustainability of WASH services including switching of some households from sanitary to unsanitary latrines (Akter, Ali and Dey, 2014); a gap between knowledge and practice hygiene behaviour in rural settings (Rabbi and Dey, 2013). In the WASH sector development plan (2011-25) of the Government of Bangladesh, behaviour change by hand washing with soap or ash after using toilet and before eating has been identified as one of the key performance indicators for sector information system (GOB, 2011).

To address these challenges in water, sanitation and hygiene sector, BRAC WASH programme initiated a comprehensive intervention on water, sanitation, and hygiene (WASH) since 2006. It has been offering interventions in 250 *upazilas* (sub-districts) throughout the country- which makes up half of the Country. As a recognition of this important services, in the “World Toilet Day 2015”, BRAC received the "Hall of Fame Award" for significant contributions to the sanitation sector in Bangladesh.. The intervention is being offered in the community, religious and educational institutions. Village WASH Committees consisted of 11 members- 6 female & five male from the community participatory process to improve overall WASH situation in their respective villages through different activities. Some of the major activities of VWC are to

install tubewell and sanitary latrines, and assist in arranging health forum, folk song, public act, film show and video show to raise awareness in order to change people's hygiene behaviour. They select sites for community water sources, collect money and monitor usage and maintenance of household latrines. The BRAC programme organizers (PO) and programme assistants (PA) provide continuous support to the VWCs. They visit each VWC, oversee their meeting and organize their own meeting to encourage behavioural change among the community. Preventive home visits are frequently made by them to motivate the households about hygiene behaviour. During home visits demonstration on hand washing is shown among the household members.

Available information also reveals that many diseases in the rural areas spring from the lack of awareness about cleanness including hygiene behaviour, low cost infrastructure like tube wells and quality sanitary latrines (Dey et al. 2015). The present study attempts to explore changes overtime in hygiene behaviour in rural households of Bangladesh.

### **Methods**

The study followed a longitudinal cohort study design where the same households that were enrolled in the baseline were visited again the two follow-up visits.

### **Study area**

The study was conducted in 50 sub-districts of first phase where BRAC WASH I programme has been offering its interventions since middle of 2006. A multi-stage sampling design was followed in drawing the samples. Over 26,000 households were included in the study.

### **Data collection procedure**

The trained field interviewers collected data from households through face-to-face interview using pre-tested questionnaire. Data were collected in 2006 at baseline, in 2009 at midline and 2011 at end-line. Field interviewers were given adequate training on data collection before the fieldwork began. A training manual was developed where instructions were provided about data collection procedures. The field investigators used this manual as reference. The field interviewers worked in teams, each comprised of 8 on average. On each working day, they visited the study households, and in each household a female member competent to provide household information including use of safe water, sanitation and hygiene practices was interviewed. The reason of choosing female respondents was that the women are usually responsible for household activities and thus know more about water, sanitation and hygiene and related information.

### **Data management and analysis**

The filled in questionnaires were edited, entered in the computer, and cleaned using SPSS version 14. The analysis was performed on the matched households in all the three surveys. Chi-square and T-tests compared the differences between indicator values, and a binary logistic regression identified the determinants of outcome variable with corresponding 95% confidence interval.

### **Quality control**

Cross-checking of data was performed each day following the data collection for missing information or error if any made during the data collection. Whenever any such issues were evident re-interview was conducted on the following day. Several monitors were employed to oversee the data collection to ensure reliability of data. Besides, the researchers visited field regularly to check whether the data collection was done appropriately as instructed. Each team consisted of one field supervisor to check the accuracy of data daily.

### **Ethical considerations**

BRAC Research and Evaluation Division gave ethical approval of the study. Permission to conduct this research was obtained from BRAC WASH program. Informed verbal consent was obtained from each respondent after reading out the consent form and explaining the general purpose of the study. Each respondent was assured that she could withdraw from the interview at any time, and that refusal to participate in the study would not affect her receiving any services from BRAC. Strict confidentiality was maintained in data handling. The name and identity of the respondent were not disclosed while reporting personnel information.

## Results

### Background characteristics of the study samples

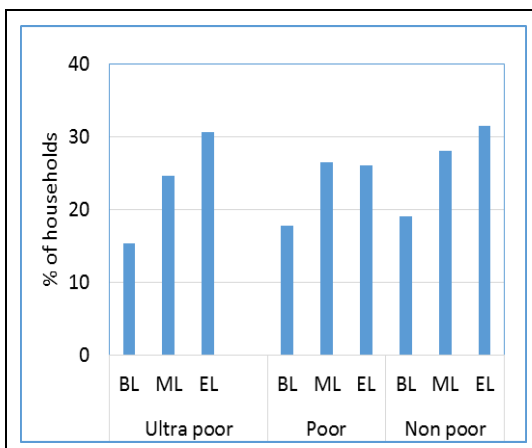
A total of 26,404 households were included in the study. In the endline survey, the background characteristics showed that majority of household heads were non-poor (59%) and more than half (55.3%) had attended school at some point (Table 1). About one-third of the household heads were involved in agricultural work, 31% in day labor and 13% in business. Over half of the households (56.1%) were not any NGO membership. About 37.5% respondents had access to media at home by radio and/or TV, while the majority (62.5%) did not own either.

<b>Table 1. Socioeconomic profile of samples in baseline, midline and end line surveys</b>						
<b>Indicators</b>	<b>Baseline, % 2006</b>	<b>N</b>	<b>Midline, % 2009</b>	<b>N</b>	<b>End line, % 2011</b>	<b>N</b>
<b>Education of household head</b>						
<i>Ever schooling</i>	55.4	14629	54.6	14410	55.3	14591
<i>Never schooling</i>	44.6	11994	45.4	11994	44.7	11813
<b>NGO membership of household</b>						
Yes	45.6	12016	47.5	12489	43.9	11477
No	54.4	14327	52.5	13800	56.1	14684
<b>Main occupation of household head</b>						
Agriculture	33.2	8778	32.7	8622	33.4	8827
Labour	32.6	8598	30.5	8047	30.9	8150
Service	6.5	1707	5.9	1571	6.1	1623
Business	16.9	4474	15.8	4168	14.5	3821
Household work	7	1846	10.4	2735	9.5	2505
Disable	2.2	578	3	781	3.8	1015
Others	1.6	423	1.8	480	1.7	462
<b>Economic status of household head</b>						
Hardcore poor	18.8	4959	18.8	4959	16.8	3361
Poor	26.9	7115	26.9	7115	24.2	4964
Non-poor	54.3	14330	54.3	14330	59	18079
<b>Access to media at home</b>						
Yes	37.4	9884	37.9	9994	37.5	9903
No	62.6	16520	62.1	16410	62.5	16501
<b>Total</b>	<b>100</b>	<b>26,404</b>	<b>100</b>	<b>26,404</b>	<b>100</b>	<b>26,404</b>

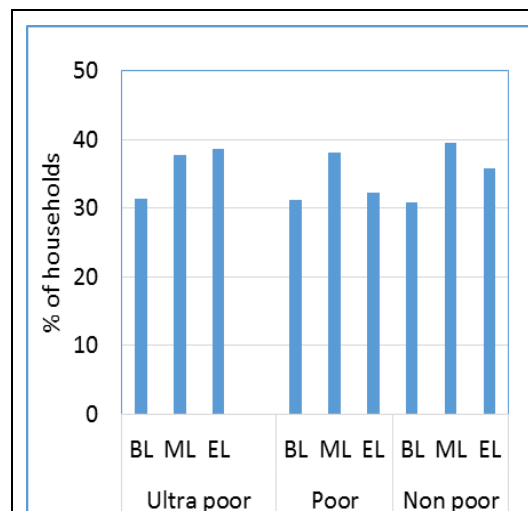
## Hygiene behaviour

### Putting coverage of water jar

Putting cover on water jar during carrying and storing water for drinking increased significantly across the surveys except poor in the endline (Table 1 & 2). Ultra-poor households were practicing like non-poor households in case of putting coverage on the water jar for drinking during transporting and storing at the endline.



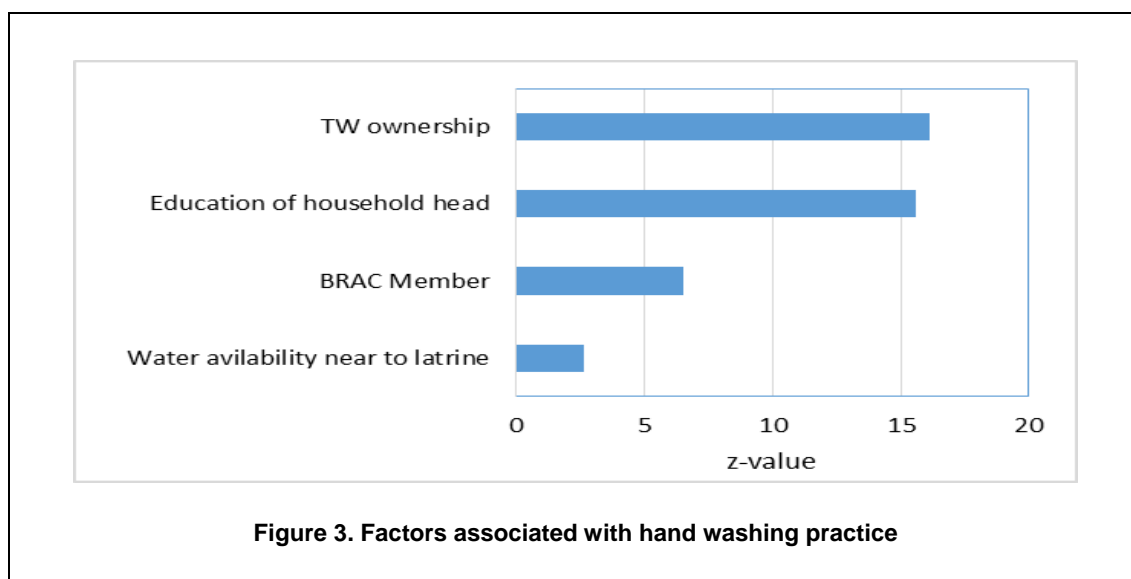
**Figure 1. Covered water jar during transporting for drinking in the economic class**



**Figure 2. Covered water jar during storing for drinking**

### Knowledge and practice

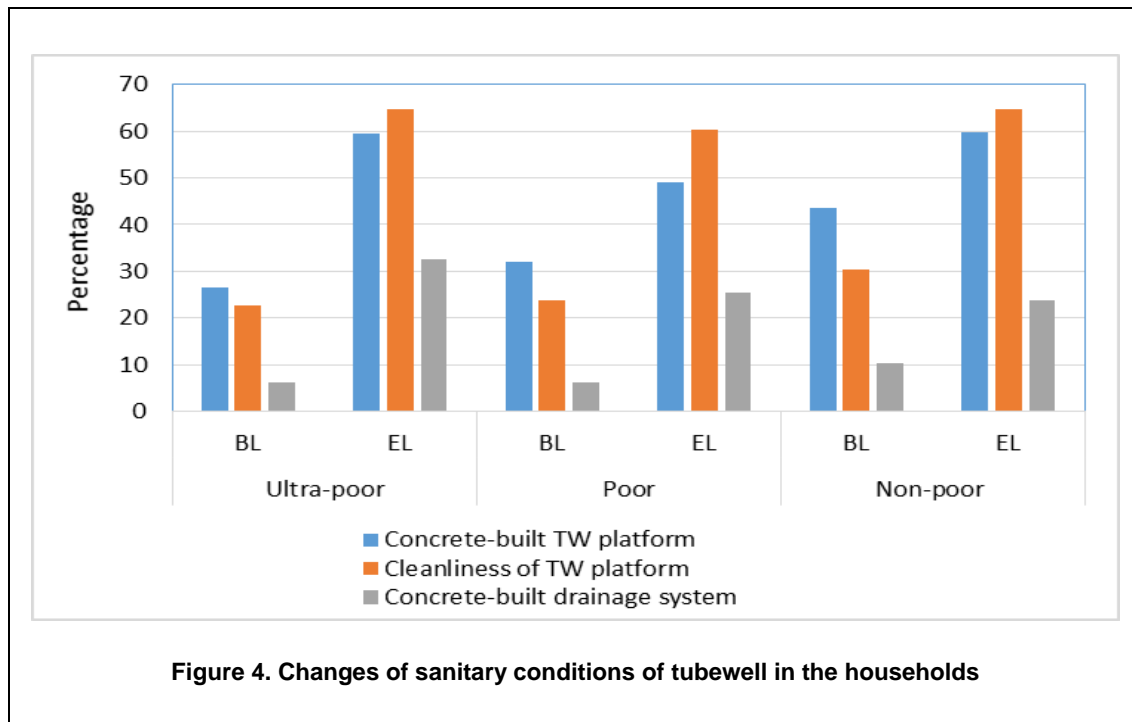
Although hand washing with soap before eating improved according to our previous study findings, a gap between perception and practice of proper hand washing with soap was identified in the study area (Rabbi and Dey 2013). Knowing the importance of washing hands with soap does not necessarily mean that people actually wash their hands. Analysis revealed that ownership of tubewell followed by education of household head, water availability nearby latrine significantly associated with hand washing practice (Figure 3).



**Figure 3. Factors associated with hand washing practice**

**Sanitary conditions**

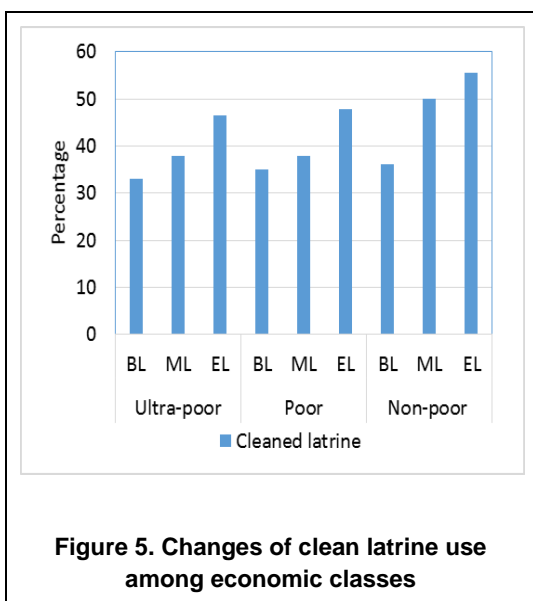
A significant improvement in sanitary conditions including concrete-built and cleanliness of tubewell’s platform were observed where ultra-poor and non-poor households practiced similar proportion at the endline (Figure 4).



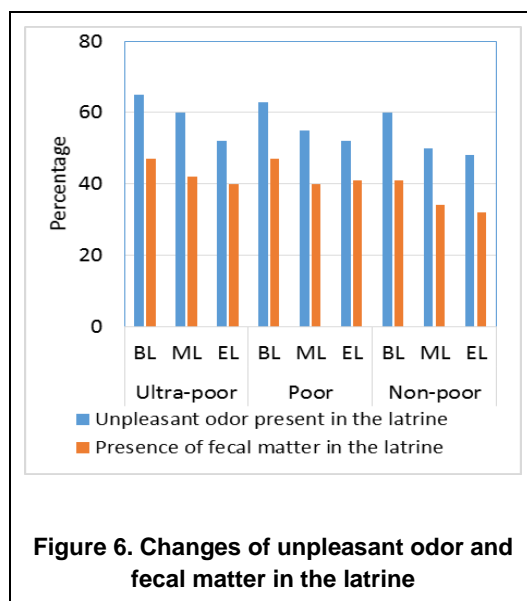
**Figure 4. Changes of sanitary conditions of tubewell in the households**

**Use of clean latrine**

The proportion of households with clean (sanitary) latrine increased significantly over time across the economic groups, where non-poor households show more cleaned latrine at the endline (Figure 5). The unpleasant odor in the latrine and presence of fecal sludge on the toiletpan decreased overtime in all economic groups, where maximum decrease shows in non-poor households at end-line (Figure 6).



**Figure 5. Changes of clean latrine use among economic classes**



**Figure 6. Changes of unpleasant odor and fecal matter in the latrine**

## Conclusions

Improvement in hygiene behaviour including putting cover on water jar during carrying and storing water for drinking increased across the survey periods were observed, where ultra-poor households were practicing like non-poor households at the endline- a great achievement in the service delivery system of BRAC WASH mainly for the ultra-poor households. The longer BRAC WASH worked in the area, the more people changed hygiene behaviour. Service delivery options for hygiene relevant implementation works can be sustainable if community people are involved in the process with proper training and periodic monitoring is ensured even after completion of any project.

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## Contact details

Nepal C. Dey, PhD  
 Research and Evaluation Division, BRAC  
 BRAC Centre, 75 Mohakhali, Dhaka 1212  
 Tel: +880-2-9881265, Ext-3710  
 Fax: + 880-2-8823542  
 Email: [nepal.cd@brac.net](mailto:nepal.cd@brac.net)

Dr. Lucky Ghose,  
 Senior Medical Officer  
 Health, Nutrition and Population Programme,  
 BRAC  
 BRAC Centre, 75 Mohakhali, Dhaka 1212  
 Tel: +880-2-9881265  
 Fax: + 880-2-8823542  
 Email: [lucky.ghose@brac.net](mailto:lucky.ghose@brac.net)