

## APPENDIX III – ANALYSIS OF BRAC’S WASH II MONITORING SYSTEM

### 1. Introduction

BRAC’s WASH II project is jointly funded by the Embassy of the Kingdom of The Netherlands (EKN/DGIS) and the Bill & Melinda Gates Foundation (the Foundation), and is implemented by BRAC, with technical monitoring system inputs provided by the International Water and Sanitation Resource Centre (IRC, Netherlands). During August 2011, BRAC, IRC, DGIS, and the Foundation agreed to treat WASH II as a single project (Sijbesma et al. 2012). The WASH II project’s monitoring system was developed jointly by IRC, Netherlands and BRAC during 2012.

The WASH II project aims for “sustained change in personal/family hygiene, sanitation, and water safety”. More specifically, the project’s sanitation arm aims to provide a hygienic latrine to as many people as possible, with special consideration given to ultra-poor and poor households. As a result, under its WASH II project, BRAC targets hardware subsidies equivalent to 2500 BDT (received by the household as cement rings, cement slab/cover, water seal, and superstructure materials) for ultra-poor households, and loans totalling 1500 BDT for poor households. In order to track progress made toward the achievement of pro-poor project targets, IRC established and BRAC maintains a project monitoring system that tracks the distribution and receipt of latrine hardware subsidies intended for ultra-poor households, and loan support intended for poor households.

As requested by the Bill & Melinda Gates Foundation, we conducted a review and subsequent analysis of BRAC’s WASH II project monitoring system. The system review provided verification staff an opportunity to gain more insight into project monitoring system infrastructure prior to verifying the results of the system. Specifics related to the monitoring system, such as the indicators that are being collected, how those indicators are being collected, and how data are compiled and aggregated at regional offices before being collated and synthesized at the central office were reviewed, with an eye toward potential system improvements.

### 2. Methods

The monitoring system review commenced with the gathering of a narrative progress report and results framework from the Foundation, as well as a series of documents from BRAC that served to provide evidence of the monitoring system’s performance. Table 1 enumerates the list of resources referenced during the monitoring system desk review. As part of the iterative review process, verification staff posed clarifying questions to BRAC’s senior project managers via email and in person during meetings convened in March 2014. Verification staff directly observed WASH II project activities and reviewed monitoring system records at BRAC’s Kapasia field office during the same month.

Subsequent to conducting the desk review of relevant project documents, and observing the project in action in the field, verification staff objectively evaluated various monitoring system attributes. The process we used to evaluate system attributes mirrors standard guidelines used for surveillance system evaluations (German et al. 2001). Although there are differences between surveillance and project monitoring systems, the methods used for assessing various system attributes are transferrable.

Much of the documentation BRAC provided for its WASH II project’s monitoring system related to sanitation indicators. As the purpose of the verification exercise was to assess sanitation outcomes, this seemed appropriate. While we endeavoured to analyse the WASH II project’s monitoring system,

as a whole, this system assessment should not be interpreted as a comprehensive assessment of the project's overarching monitoring system, but rather an assessment of the segment of the system that tracks sanitation process and outcome indicators.

#### **Resources referenced during the monitoring system review**

- Documents describing/providing an overview of the monitoring system
  - *QIS monitoring guidelines for the sample study 2012*
- List of QIS upazilas, unions, and VWCs
  - WASH project Division and Region allocations
  - List of the 52 upazilas included in the QIS sample
  - List of all WASH II VWCs
- QIS survey instrument
- Management Information System (MIS) summary data tables for ultra-poor latrine and poor loan distribution during October 2012 – November 2013
- QIS sampling strategy for the BRAC WASH I and II project
- Personal communications
  - Personal communications with Babar Kabir, BRAC
    - Inquiries and clarifications regarding the overall project monitoring system
  - Personal communications with several BRAC project management staff and quality controllers both at the central office and at the Kapasia field office
  - Personal communications with Kristof Bostoan, IRC
    - Inquiries regarding study design and QIS monitoring dataset variables
- QIS monitoring dataset

### **3. Description of BRAC's WASH II monitoring system**

The description of the system provided herein reflects verification staff's understanding of the monitoring system gleaned through review of project documentation, personal communications, and limited direct observation in the field. Inconsistencies between the description provided herein and the way in which the monitoring system is intended to work may reflect a lack of clarity in documentation, inconsistencies in understanding between central office and field staff, and/or deviations in practice from standard system implementation and administration guidance.

#### **System infrastructure**

The overarching project monitoring system is comprised of two separate monitoring sub-systems that operate via two different monitoring approaches:

1. The Management Information System (MIS) managed by BRAC's WASH Monitoring Unit that routinely tracks project performance indicators related to direct hardware intervention distribution and receipt, by financing strategy; and
2. The Qualitative Information System (QIS) developed jointly by IRC and BRAC that quantifies qualitative process indicators such as participation and inclusiveness, and project outcome indicators such as behaviour change via measurement through progressive scales (ladders). Each rung of the ladder is accompanied by a description of a scenario that would warrant the given ladder score. A QIS survey is completed once per year on a sample basis

#### **Objectives**

The objective of the overarching WASH II project monitoring system is to monitor project progress. The MIS operates with the primary objective of collecting and synthesizing routine monitoring data to track monthly latrine subsidy and loan distribution against monthly targets. The purpose of the system is to ensure project activities are properly targeted and implemented. The QIS operates with the

primary objective of sampling a sub-set of the project population to obtain and analyse representative project performance data at the end of each project year. As per project documentation, data from the QIS are analysed in combination with MIS data, and are used to “reflect” on project strategies.

### 3.1 Management Information System

The MIS seeks to confirm direct project intervention receipt (e.g., subsidies for ultra-poor households, loans for poor households, and latrine repair) by obtaining data on related indicators via an audit of project registers and household-level follow-up. The system contains data collection validity checks by requiring Quality Controllers to triangulate data. After obtaining routine monitoring data, Quality Controllers consolidate upazila data into results they submit to the local manager for action. Local project managers collate data and submit them to the central, head office on a monthly basis. Head office staff to compile monitoring findings received from field offices monthly in Excel. The MIS has an internal feedback loop that disseminates findings from the central office back to the field operation team and senior management on a quarterly basis.

### 3.2 Qualitative Information System

The QIS seeks to provide an assessment of project performance at the end of each project year by collecting data from a random sample of households directly or indirectly supported by the project and their associated clusters, schools, and rural sanitation centres via a series of questionnaires. At the household level, questionnaires contain ladder scales for several project-specific WASH indicators. The WASH II project QIS ladder scales were jointly developed by BRAC and IRC in a workshop conducted during January 2012. During March 2012, the ladder scales were pilot tested on 40 households, and during September 2012, the ladder scales underwent a second round of pilot testing on 432 households, 36 VWCs, 12 schools, and 12 rural sanitation centres.

In general, these ladder scales are structured as follows:

- A score of E indicates a situation in which the condition/practice is absent;
- A score of D indicates a situation in which the condition/practice is present, but below project standards;
- A score of C indicates the benchmark situation, or minimal scenario that the project is looking to achieve, project-wide;
- A score of B indicates a situation above benchmark, but below ideal; and
- A score of A which are the ideal, but which possible no or only a few households/schools/clusters can achieve (Sijbesma et al. 2012).

A typical QIS scale adheres to the following format:

**Figure 1. Outline of QIS-scale**

DESCRIPTION	SCORE
<b>IDEAL:</b> all four (key) characteristics are present	A
Easiest + next easiest + then next easiest present	B
<b>BENCHMARK:</b> Easiest + next easiest is present	C
One (easiest) characteristic is present	D
Condition/practice is not present	E

Source: Sijbesma et al. 2012

The QIS questionnaires are administered by project staff, and data are collected via mobile devices. The data are later analysed by IRC and BRAC to a certain extent. The results are fed back to project administrators and VWCs, and used to reflect on project strategies.

#### 4. Analysis of BRAC's WASH II monitoring system attributes

**Simplicity** refers to both the monitoring system's structure and ease of operation.

The WASH II monitoring system infrastructure is relatively simple given the project's scope and broad geographic range. The number and type of indicators being tracked strike a good balance between being sufficient for measuring processes and outcomes. The over-arching system is a bit more complicated than necessary with regard to the redundancy in generating participant and household identifiers (i.e., the MIS and QIS use their own individual systems for generating participant and household identifiers). These current identification systems do not allow for a household receiving direct project interventions to be readily identified and confirmed as such via the QIS. The two sub-systems that comprise the WASH II monitoring system could also be better integrated. While these two systems do have different objectives, the over-arching project monitoring system could benefit from better integration of the two sub-systems, and this streamlining would likely serve to further improve triangulation while introducing a way of tracking the sustainability of latrine coverage and use.

**Data quality** reflects the completeness and validity of the data recorded by the monitoring system.

The over-arching WASH II project monitoring system has several internal controls in place to ensure data quality. In general, examination of MIS and QIS monitoring data revealed a system that is producing high quality data. For example, the QIS dataset was complete, with few missing data points, and based on comparative analyses performed during the verification, it seems as though QIS data are relatively accurate.

There were, however, some inconsistencies observed during our examination of the project monitoring system.

1. One of the Excel spreadsheets containing data on intervention implementation via the MIS was found to be inaccurate on examination – the spreadsheet under-reported subsidy and loan distribution because the cell formulas were not correct. This may be indicative of an issue with data management validity checks.
2. When posing an inquiry to Quality Controllers about which ladder score they would assign a particular household scenario, the three individuals gave different responses. This may be indicative of either an issue with training or the clarity of ladder scale definitions.
3. Information provided by central office and regional office staff did not align well at times. For instance, we received different information at the two levels regarding the amount of monetary and in-kind subsidies and loans households received for latrine installation and repair.

**Representativeness** relates to the system's ability to accurately collect specified project parameters over time and in the project population by place and participant (e.g., household, school).

As indicated in the verification report, analysis of the QIS dataset revealed that the pre-determined QIS sampling strategy was not followed for the 2012 QIS sample, as 87% (6536/7489) of sampled households resided in WASH I VWCs, and 13% (953/7489) resided in WASH II VWCs. While BRAC's WASH I and WASH II households did not differ significantly on many ladder levels for QIS latrine use indicators, they did differ significantly on ladder levels for the latrine coverage indicator (i.e., WASH II households had a significantly lower proportion of households with access to a latrine scoring "A" on the QIS ladder scale, and a significantly higher proportion of households scoring "D" on the ladder scale [0.6% vs. 8.8%, Risk Difference (RD)=-8.09 (95%CI -9.72, -6.45); and 39.1% vs. 24.7%, RD=14.29 (8.07, 20.51); respectively]. Therefore, by including a majority of WASH I households in the QIS sample, results from the overall QIS sample may have been skewed by the higher level latrine coverage observed in the WASH I households.

The diversity in sources of data (e.g., households, VWCs, schools, and rural sanitation centres) allows for triangulation of data within both MIS and QIS systems. However, there is room for improvement in the collection and processing of indicators. These changes could be made through the incorporation of just a few simple indicators that would not further complicate the system, but would allow programme administrators to more appropriately indicate changes in latrine coverage in relation to BRAC's WASH II project interventions. Additional improvements could be made to the system if programme administrators at the central office were to electronically enter data on the one latrine use indicator that staff are already capturing on monthly paper report forms into the project's Excel database. Since data are already being entered into the database, adding one more indicator would likely not significantly increase administrative burden, but would allow for a more comprehensive analysis of latrine utilization data.

**Stability** refers to the reliability (i.e., the ability to collect, manage, and provide data properly without failure) and availability (i.e., the ability to be operational when it is needed) of the monitoring system.

While it appears as though there is a system in place for the routine submission of data from regional offices to the central office, what was not entirely clear was how the central office confirms the completeness of the data given they did not have a centralized list of all VWCs in which the WASH II project is operating. When we requested this list for our verification sampling frame, we were told that such a list did not exist. Though the list was eventually generated and turned over, the lack of its existence prior to our request called in to question several issues related to programme management and monitoring.

## 5. Discussion of key findings

### **Overarching WASH II project monitoring system**

The MIS and QIS systems are currently operating in parallel, with little to no system communication. MIS and QIS generate two disparate household identifiers for the same participant households. While we were told it is possible to match the two sets of household identifiers, it was not something the project was doing at the time of our verification. The current manner in which the two sub-systems are being operated results in several missed opportunities to triangulate process and outcome indicators, and track the sustainability of change brought about by the project. The two systems can be better harmonized to feed into each other and better inform programmatic strategies and implementation directives. Specific recommendations for system improvement are provided below.

### **Management Information System**

Data from only a portion of the indicators is entered electronically into the MIS database. Although the MIS captures data on latrine utilization up to six months after household receipt of hardware subsidies or loans, data on these indicators is not electronically entered from hard copy reports from the field offices into the MIS database maintained at the central office. This is a missed opportunity for triangulating QIS data and assessing the sustainability of latrine utilization behaviours subsequent to project-supported latrine installation and repair.

### **Qualitative Information System**

Although the QIS collects data from households supported both directly (via hardware [i.e., latrine installation/repair] support) and indirectly (via by software [i.e., BCC, household and community consultation] support) by the project within a pre-determined sampling strategy, it does not measure the amount of direct or indirect support received by sampled households. In other words, the QIS survey instrument does not include survey prompts that query households on receipt of project interventions from BRAC's WASH II project, though resulting latrine coverage and utilization data are being termed as measures of "project outcomes". The current manner in which the QIS survey collects

data does not allow for project attribution. As a result, interpretation of QIS data may be an over-estimate of project outcomes, as the underlying assumption is that current latrine coverage and utilization are an artefact of BRAC's WASH II project, and not the result of some other personal investment or governmental, non-governmental/faith-based organization intervention.

The QIS dataset does not currently have a codebook or data dictionary. Maintaining such a resource will facilitate interpretation of data not only for future verifications, but also for analysis and interpretation of data findings for project improvement.

## 6. Recommendations

- **Strengthen and harmonize monitoring systems:**
  1. **Centralize data availability:** While it is important to manage and utilize program data at field and regional office levels, it is also important to ensure data flows to, and are maintained at the central office level. We observed that high level program data (e.g., a list of all VWCs in which the program is operating, a codebook for the QIS monitoring system dataset) were not readily available at the central office. This highlighted issues with data flow and management within the program monitoring system.
    - a. Maintain a centralized list of all VWCs in which the WASH II program is operating. An enumerated list of all areas in which a program is operating is important not only from a program management perspective, but also a program monitoring and evaluation perspective.
    - b. Maintain a complete codebook of monitoring system data. The availability of a codebook will not only ensure proper interpretation of data amongst central office and M&E sub-contracting staff, but also allow future verification entities to properly analyse and interpret verification data.
  2. **Harmonize household identifiers:** The current monitoring system uses a different MIS and QIS household identifier for the same household. Streamlining simple aspects of the two disparate monitoring systems will serve to improve monitoring and reporting.
  3. **Prioritize indicators maintained in the electronic MIS database:** While the MIS system electronically captures information regarding the number of latrine constructed and repaired, latrine utilization data captured on household follow-up (after receipt of hardware subsidy/loan) is not electronically entered into the database, and hardcopies of monitoring reports sent from regional offices to the central office are destroyed after three months.
  4. **Cross-check data prior to circulation:** One of the Excel spreadsheets containing data on intervention implementation was inaccurate – it under-reported subsidy and loan distribution because the cell formulas were not correct. In order to prevent future under- or over-reporting, databases should be cross-check for accuracy.
- **Incorporate monitoring indicators to align with the Foundation's specified outcome indicators:**
  1. **Include indicators of BRAC project intervention receipt and sustained use:** Consider including simple survey prompts within the QIS instrument that inquire households about when household latrines were constructed and/or last repaired (to allow program staff to determine the proportion of adults using the latrine 6 months after installation/repair), whether, when, and by whom a subsidy or loan was received by the household for latrine construction/repair. These four prompts should add no more than 2 minutes to QIS survey administration time, but would allow program administrators to cross-check MIS data on intervention receipt, and make statements about the sustainability of latrine utilization subsequent to installation/repair.

2. ***Integrate objective indicators of latrine utilization into QIS latrine use ladder scores:***  
As evidenced by the comparative analysis of self-reported and instrument-recorded data, self-reported latrine utilization data are often inflated. While it may not be practical to install sensors in latrines throughout the life of the WASH program, the inclusion of other objective indicators of latrine use may improve the veracity of self-reported latrine use.
  - a. Consider incorporating some of the latrine use indicators most strongly associated with use as criteria within QIS ladder score definitions.

### **Works Cited**

German RR, Lee LM, Horan JM, Milstein RL, Pertowski CA, Waller MN. Updated guidelines for evaluating public health surveillance systems: recommendations from the Guidelines Working Group. *MMWR Recomm Rep* 2001; **50**(Rr-13): 1-35; quiz CE1-7.

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