

Social and Financial Incentives for Overcoming Collective Action Problems *Pre-Analysis Plan*

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Abstract

We study the effect of social and financial incentives on communities' ability to overcome collective action problems. Our specific context is a sample of 107 villages (approximately 19,000 households) in rural Bangladesh, and the collective action problem we study is investment in hygienic latrines and their subsequent maintenance and use. We randomized (1) whether and what type of incentive was provided – a financial reward or a non-financial “social recognition” reward, and (2) whether and what type of verbal commitment the households were encouraged to make – a private pledge vs. a public pledge. We measure short-term (3 months) and medium-term (12-15 months) effects, and investigate the mechanisms behind the effects.

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This pre-analysis plan was written after cleaning post-intervention followup data but without linking those data to treatment status.

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1 Project Overview

The objective of this study is to understand the effects of a set of social and financial incentives on investment in hygienic latrines. The sample consists of 19,345 rural households in 107 villages in 4 unions (sub-districts) of Tanore district, Bangladesh. The 107 study villages were further divided into 1,236 groups of approximately 14-18 neighboring households, roughly 4-16 groups per village, and the intervention was conducted at this group level. While the unit of intervention was the group, treatment was randomized at the village level. There were 23 control villages (4,100 households, 256 groups) in which no intervention was conducted.

All 980 treatment groups (15,245 households, 84 villages) received a common intervention consisting of a group-level meeting every month for 3 consecutive months with a health motivator to encourage investment in, maintenance of, and use of hygienic latrines. We randomized two different aspects of the encouragement: (1) whether and what type of incentive was provided, and (2) whether and what type of verbal commitment the households were encouraged to make. In the incentive dimension, households were provided either (a) no incentive, (b) a financial reward based on both the household's sanitation status and the group's average status at the end of the program, or (c) "social recognition", in which the household received a certificate of hygiene attainment from the local government, again based both on the household's sanitation status and the group's average status at the end of the program. We define the standards precisely in Section 4.1 below. In the commitment dimension, households (a) were not asked to make a commitment, (b) were asked to make a public pledge, in front of the rest of the group, that they would invest in sanitation, or (c) were asked to make a private pledge, not in front of other group members. The private pledge was added to separate the effect of a public commitment, which could carry social sanction, from the direct psychological effect of making a commitment.

The intervention was conducted from November 2013 through February 2014.

Households and groups were evaluated by May 2014, and rewards distributed by June 2014.

The primary outcome of interest is the group-level share of households owning and maintaining an hygienic latrine, as defined in Section 4.1 below. We also examine whether the group attained the investment thresholds that qualify them for the monetary and non-monetary rewards in the experiment. Data were collected at the end of the intervention and again 12-15 months later in an endline survey.

2 Context

This study was conducted with 19,345 households in 107 villages in 4 unions (sub-districts) of Tanore district, Bangladesh. These villages were the site of a randomized evaluation of a set of demand and supply interventions designed to study interdependencies in household investment in improved latrines (Guiteras, Levinsohn, and Mobarak, 2015). Going forward, we will refer to this first set of interventions as the “first set of interventions” or the “demand study interventions,” and the second set, the focus of the current study, as the “second set of interventions” or the “incentives for use interventions.” This first set of interventions was conducted from February 2012 – August 2012, and data on latrine investment and other relevant variables was collected at baseline (December 2011 – February 2012) and four subsequent monitoring rounds (Round 1 April 2012 – May 2012; Round 2 June 2012 - July 2012; Round 3 December 2012 - January 2013; Round 4 May 2013 - July 2013). The study area was chosen in part because of its low level of latrine coverage: at baseline, 31.0% of households reported some level of open defecation among adults, and only 50.0% reported that they had access to a hygienic latrine. Guiteras, Levinsohn, and Mobarak (2015) show that subsidies increased ownership of hygienic latrines, both directly – among households receiving a subsidy voucher – and indirectly – among households

that did not receive vouchers but were neighbors of households that did. This latter result suggests the presence of a social multiplier, i.e., an inter-linked decision-making processes.

If latrine adoption decisions are interdependent across households, then increasing sanitation coverage and improving sanitation behavior may require addressing collective action problems. To further isolate the specific mechanics of the collective action problem, we designed a second round of interventions, described in this document, to examine the effects of public commitments and rewards based on group performance.

3 Sample

As noted in Section 2, the sample consisted of households living in villages that were part of the previous demand study. In that study, villages were subdivided into neighborhoods, and that first set of interventions was conducted at the neighborhood level.¹ The median number of households per neighborhood was 47 (IQR 36-60), and the median number of neighborhoods per village was 3 (IQR 1-5).

For this study, a somewhat smaller intervention unit was appropriate because our fieldwork and qualitative background-information gathering suggested that having households making public commitments to smaller groups of immediate neighbors was more sensible, and that there would be less free-riding and meeting non-attendance in smaller groups. Therefore, we further divided neighborhoods into “groups”: sets of 15-20 roughly contiguous households within the neighborhood.² These groups were formed before the randomization of the “incentives for use” treatments. Thus, we have a comparable unit of analysis for both treatment and pure control villages.

¹The neighborhood, or *para* in Bangla, is not a formal or official designation, but unofficial neighborhood boundaries were usually common knowledge in the community, and in these cases we followed local convention. If there were not well-defined neighborhoods in a village, or if a neighborhood needed to be divided because of its size, we used natural divisions such as rivers or roads where such existed. If such natural pre-existing divisions did not exist or were not practical, we grouped households into simple, contiguous sets.

²See Appendix B for additional details on the group formation process.

The median number of households per group was 16 (IQR 14-18) and the median number of groups per village was 8 (IQR 4-16). In total, 1,236 groups were created, including 256 groups in 23 villages allocated to pure control. In each treated group, a contact person was selected as the spokesperson for the group and to arrange subsequent study events such as the monthly meetings described below. This contact person was chosen by the households attending the meeting, the only requirement was ownership of a mobile phone.

4 Interventions

4.1 Common intervention

All 980 treatment groups (in 84 treatment villages) received a basic intervention consisting of monthly meetings for three consecutive months with a Health Motivator to encourage investment in and maintenance and use of hygienic latrines.³ Health Motivators, trained by and contracted from our implementation partner VERC, discussed the health risks of open defecation and unhygienic sanitation practices, the collective nature of the problem (i.e., the externality in non-technical terms), the types and costs of hygienic latrines, and the current level and monthly change in the share of households with or advancing towards a hygienic latrine. A detailed protocol is provided in Appendix C.

In the common as well as in the cross-cutting interventions, the Health Motivator provided both a general, conceptual definition of a hygienic latrine and a specific, technical definition. The conceptual definition emphasized that a hygienic latrine

³Different sources define “hygienic” in different ways, and there are also other labels such as “improved” or “sanitary.” Conceptually, a hygienic latrine safely confines feces. For pour-flush latrines (the relevant type in our context), this typically requires a water seal to block flies and other insects, and a sealed pit to store fecal matter for safe disposal (Hanchett et al., 2011). In our survey data, we define an *unimproved latrine* as a bucket, a simple pit with no slab or cover, or a “hanging latrine” (a platform over open land or water), and a *hygienic latrine* as having a functional, non-broken slab and water seal leading to a sealed pit.

was one that:

1. Limits the spread of diseases caused by feces in the water and keeps the environment pollution free;
2. Confines feces in an enclosed space such that they cannot be seen or smelled;
3. Prevents flies or other insects from entering the pit.

The specific, technical definition listed the characteristics based on which a latrine was judged to be hygienic, in particular:

1. There must be a slab and it cannot be broken.
2. There must be a water-seal (gooseneck or siphon) and it cannot be broken.
3. There must be an adequate number of rings depending upon the depth of the pit and those must not be broken.
4. Flies must not be able to enter / exit the pit:
 - (a) for single-pit latrines, there should be no gap between the cover of the slab and ring, and earth or cement must be molded around the slab
 - (b) for offset latrines, there should be no gap between between the ring and pit cover
5. There should be no feces, flies or bad smell in or around the latrine.
6. For offset latrines: Delivery pipe, Y-junction, pit cover cannot be broken.
7. The latrine cannot pollute the environment. In particular, the latrine cannot be be connected to a lake, stream or any body of water

These characteristics of a hygienic latrine were relayed to participants at each of the three group meetings. Participants were made aware of the fact that for latrines to

be considered hygienic all the above mentioned requirements had to be met by the specified deadline, approximately 4 months after the intervention began.

In addition, Health Motivators described how to keep a latrine clean, and discussed basic maintenance. See Appendix C for details.

4.2 Reward treatments

There were two reward treatments, monetary and non-monetary, both of which were conditioned on both the household’s own ownership status and the average ownership status of hygienic latrines among households in the group.

The monetary reward consisted of a cash payment to the household if, at the end of the intervention period, (a) the household owned a hygienic latrine and (b) the share of households in that group with a hygienic latrine was above a designated threshold. Hygienic was defined as described in Section 4.1 above. The reward was BDT 250 (USD 3.33) in groups that surpassed the lower of two thresholds and BDT 500 (USD 6.67) in groups that surpassed the higher of the two thresholds.⁴ For comparison, the cost of building a single-pit hygienic latrine was approximately BDT 2350 (USD 31.33), while common improvements to existing latrines that would be necessary to reach hygienic status cost substantially less, e.g., new water seal BDT 65 (USD 0.87), delivery pipe BDT 360 (USD 4.8).

The non-monetary reward consisted of a certificate of hygiene attainment from the local government, presented to qualifying households in a public ceremony.⁵ The non-monetary reward used the same standard for “hygienic” as the monetary reward.

Thresholds were determined based on the group-level distribution of hygienic latrine ownership in the four unions at the time of the third round of follow-up surveys. A lower threshold was set such that even low performing groups would feel they could

⁴US dollar equivalents at 75 BDT/USD, the approximate market exchange rate at the time.

⁵This certificate was printed on thick glossy paper, so it could be displayed on an interior wall. However, no weatherproof frame was provided. As a result, it would be difficult for a household to display the certificate outdoors where it would be publicly visible.

attain something, and the best performing groups would have something to reach for. We also chose thresholds that were simple and easy to explain at a group meeting: a phrase like “two out of every three households” is easier to understand than a phrase like “sixty-two percent of all households.” These thresholds are listed in Table 1.

The assessment was conducted approximately 4 months after the intervention began, after three group meetings with the Health Motivator. Health Motivators did not conduct assessments in villages where they had worked. See Section 6.3 for a discussion of the assessment process, with further details provided in Appendix D. Households knew the deadline for achieving hygienic status, and that the assessment would occur within 1-2 weeks after the deadline, but did not know the specific day of the assessment.

4.3 Commitment treatments

There were two commitment treatments, public and private.

In the public commitment, during each group meeting, members from all the households of a group were encouraged to make a public pledge that those who did not yet have hygienic latrines would meet hygienic latrine standards as set by the project. Those with hygienic latrines pledged to help others reach the goal within the time limit set by the project. The script of the pledge, in English translation, was: “I hereby promise before everyone present that I will do my best to set up hygienic latrines or improve existing ones into hygienic latrines for myself and for my neighbors by February 5, 2014.” In the public commitment arm, this pledge was repeated at the end of each monthly group meeting.

In the private commitment arm, health motivators visited each household in the group after each group meeting. The member of the household attending at the meeting would be encouraged by the Health Motivator to make a commitment before the health motivator that he/she would transform their unhygienic latrines to hygienic

ones within the time limit set by the project. The script of the pledge was identical to that in the public commitment arm.

5 Design and Randomization

The reward and commitment treatments lead to a 3x3 design, plus a pure control group. The design is summarized in Table 2. Although the treatments were implemented at the group level, randomization was conducted at the village level because of the potential for spillovers within village. We allocated approximately 25% of villages to pure control, and then the remaining villages were allocated equally across the commitment and reward treatments. With 107 villages (84 treatment villages), we did not expect to have adequate power to detect interaction effects. We therefore intend to study the effects of reward type (None, Monetary or Certificate) independently of the commitment type (None, Private or Public). We will control for commitment type while studying the effect of rewards, and vice versa. These treatments were randomized independently. The resulting assignment is presented in Tables 2, 3 and 4.

6 Data

6.1 Previous Surveys

As noted above, several rounds of surveys had been conducted for the previous study. Most relevant to this study are standard demographic and socio-economic status questions asked at baseline (December 2011 – February 2012) and latrine ownership data from Round 3 of the monitoring survey (December 2012 – January 2013).

6.2 Process Monitoring

During the intervention, Health Motivators recorded which households attended meetings and, in the commitment arms, which households agreed to make the pledge. Health Motivators also visited each household after each monthly meeting to check on the household’s latrine. The primary purpose of this visit was to help the household assess its progress towards the goal, but it was also an opportunity to collect interim data.

6.3 Short-term outcomes

At the end of the intervention, we collected data on latrine investment, use and maintenance. In reward and recognition groups, these data were collected as part of the reward determination process. For budgetary reasons and because Health Motivators already had the training to assess latrine conditions, we used Health Motivators to collect these data, but no Health Motivator collected data in a villages where he or she had led an intervention. The Health Motivators that collected data were not informed of the village’s treatment status, nor which Health Motivators had led the intervention in that village. Similarly, Health Motivators were not told which of their peers had collected the evaluation data in villages where they had led the intervention. In addition, to understand the mechanisms for the success or failure of the intervention, households were asked whether they received any assistance (financial, labor, advice) from community members, and whether they were pressured or encouraged by others in their group.

The criteria by which a household’s latrine was judged “hygienic” for the purpose of the reward are given in Section 4.2. Precise definitions for the key outcome variables of interest are provided in Appendix A. The survey instrument is provided in Appendix D.

Data were collected following the same protocol in non-reward and control villages.

This allows us to see whether the reward treatment leads to a general improvement in the condition of latrines, or if the the reward leads maintenance leads households to focus on the specific criteria.

6.4 Follow-up

Longer-term outcome data were collected from a random 50% sample of households at endline in June 2015 – August 2015. This survey includes comparable measures of latrine status, use and maintenance.

7 Hypotheses and Empirical Tests

Hypothesis 1: Making a public pledge of joint commitment to build latrines will increase latrine ownership/access rates in the group.

Hypothesis 2: Incentives and Rewards for group-level performance in achieving a given level of latrine ownership will increase latrine ownership rates. We expect incentives and rewards to have stronger investment effects than group meetings without incentives. We do not have a strong prior on whether the financial or the non-monetary reward will have a stronger effect.

Hypothesis 3: We expect Incentives and Rewards to have larger effects when the group was within striking distance of the investment thresholds that qualify them to receive rewards. The rewards are allocated on the basis of the group achieving specific thresholds, and we therefore expect non-linear effects around those threshold. We will construct indicators for “achieved reward threshold” and use them as outcome variables.

Hypothesis 4: We expect greater investments among households who are grouped with households that had better latrines at baseline. If the group meetings succeed in improving latrine investment norms, then we expect the investments effects to be larger among groups where the norms are already at higher levels of investment.

7.1 Outcomes of interest

Overall, increasing access to and regular use of hygienic latrines while decreasing rates of open defecation is of primary importance. However, these are difficult to measure objectively. Households under observation have an incentive to overstate their use of and access to hygienic latrines, and understate their rate of open defecation, especially when a monetary reward is on the line. In contrast, whether a household owns a functional latrine and whether that latrine is being kept clean can be assessed in a fairly objective manner. Therefore, ownership of a latrine and the latrine's basic condition are our primary outcomes of interest, with self-reported use and open defecation as secondary measures. In addition, to understand mechanisms, we will assess households' spending on latrines, latrine parts and maintenance, as well as whether households report received any assistance (financial, labor, advice), encouragement, or pressure from other community members.

- Primary outcomes:
 - Ownership of a functional, hygienic latrine
 - Hygienic Latrine Access
- Secondary outcomes:
 - Self-reported use
 - Self-reported open defecation

- Expenditures on latrines (and latrine parts) since beginning of intervention
- Assistance, encouragement or pressure from peers

In Appendix A, we describe how each of these outcome variables are constructed from our survey instrument.

7.2 Estimating Equation

7.2.1 Basic Treatment Effects

To measure basic program effects, we estimate

$$y_{gv} = \beta_0 + \beta_1 \text{Incent}_v + \beta_2 \text{Cert}_v + \beta_3 \text{Priv}_v + \beta_4 \text{Publ}_v + \delta y_{0gv} + \alpha' X_{gv} + \varphi_u + \varepsilon_{1gv}, \quad (1)$$

where y_{gv} is the outcome variable of interest (e.g., share of households with a hygienic latrine) for group g in village v , Incent_v and Cert_v are indicators for village v 's reward treatment assignment (financial incentive and social incentive, respectively), Priv_v and Publ_v are indicators for village v 's commitment treatment assignment (private commitment and public commitment, respectively), y_{0gv} is the pre-intervention level of the outcome variable, X_{gv} is the share of landless households (as a proxy for wealth), φ_u is a set of union fixed effects, and ε_{1gv} is an error term, which may be correlated at the village level.

The coefficients β_1 and β_2 represent the effects of the reward treatments, controlling for potential imbalances in the commitment treatment, while coefficients β_3 and β_4 represent the effects of the commitment treatment, controlling for potential imbalances in the reward treatment. These effects are conditional on receiving the common messaging treatment. To assess effects relative to no treatment at all we

will include the pure control villages (Cell J in Table 2) in the sample and add an indicator for pure control. As noted above, we do not expect to have power to estimate interaction effects. As a check, we will report fully interacted treatment effects, since the interpretation of the coefficients in Equation (1) depends on how likely it is that there are in fact interaction effects, even though we do not expect to be able to detect them.⁶

7.2.2 Mechanisms

Simple theory suggests that the interventions' effects may depend on the group's distance to each threshold. To test this, we interact treatment indicators with measures of distance to the reward thresholds. Let \bar{c}_{gv}^L and \bar{c}_{gv}^H be the lower and higher thresholds for group g in village v . Let $y_{0gv}^{\text{Low}} = 1 \{y_{0gv} < \bar{c}_{gv}^L\}$ indicate that group g was, at baseline, below the lower of the two thresholds, $y_{0gv}^{\text{Med}} = 1 \{\bar{c}_{gv}^L \leq y_{0gv} < \bar{c}_{gv}^H\}$ indicate that group g was, at baseline, above the lower threshold but below the higher threshold, and $y_{0gv}^{\text{High}} = 1 \{\bar{c}_{gv}^H \leq y_{0gv}\}$ indicate that group g was, at baseline, above the higher threshold. Let $\text{Dist}_{0gv}^{\text{Low}} = \min(\bar{c}_{gv}^L - y_{0gv}, 0)$ be the distance from group g 's baseline status to the lower reward threshold and $\text{Dist}_{0gv}^{\text{High}} = \min(\bar{c}_{gv}^H - y_{0gv}, 0)$ be the distance to the higher reward threshold.⁷

⁶For example, the estimate of β_1 from Equation (1) is the average effect of the financial incentive treatment in an environment where some villages received no other treatment, some received the private commitment treatment and some received the public commitment treatment.

⁷Here, we define distance simply in terms of the share of households below the threshold. We will also estimate models where the distance is defined in terms of the cost of reaching the threshold, using data on household's status at baseline and the costs of various components and services. This will allow us to distinguish between households facing the high cost of installing a completely new latrine and those that need only to make a few, inexpensive repairs or modifications to an existing latrine. See Appendix E for pseudo-code describing the creation of this measure.

For the reward treatment, we estimate

$$\begin{aligned}
y_{gv} = & \beta_0 + \beta_1^L \text{Incent}_v \cdot y_{0gv}^{\text{Low}} + \beta_1^{L,D} \cdot \text{Incent}_v \cdot y_{0gv}^{\text{Low}} \cdot \text{Dist}_{0gv}^{\text{Low}} \\
& + \beta_1^M \text{Incent}_v \cdot y_{0gv}^{\text{Med}} + \beta_1^{M,D} \cdot \text{Incent}_v \cdot y_{0gv}^{\text{Med}} \cdot \text{Dist}_{0gv}^{\text{High}} \\
& + \beta_1^H \text{Incent}_v \cdot y_{0gv}^{\text{High}} \\
& + \beta_2^L \text{Cert}_v \cdot y_{0gv}^{\text{Low}} + \beta_2^{L,D} \cdot \text{Cert}_v \cdot y_{0gv}^{\text{Low}} \cdot \text{Dist}_{0gv}^{\text{Low}} \\
& + \beta_2^M \text{Cert}_v \cdot y_{0gv}^{\text{Med}} + \beta_2^{M,D} \cdot \text{Cert}_v \cdot y_{0gv}^{\text{Med}} \cdot \text{Dist}_{0gv}^{\text{High}} \\
& + \beta_2^H \text{Cert}_v \cdot y_{0gv}^{\text{High}} \\
& + \gamma_1 \text{Priv}_v + \gamma_2 \text{Publ}_v + \alpha' X_{gv} + \varphi_u + \varepsilon_{gv}.
\end{aligned} \tag{2}$$

The single-interaction terms ($\beta_1^L \text{Incent}_v \cdot y_{0gv}^{\text{Low}}$, $\beta_1^M \text{Incent}_v \cdot y_{0gv}^{\text{Med}}$, $\beta_1^H \text{Incent}_v \cdot y_{0gv}^{\text{High}}$ for the financial incentive treatment, and similarly for the certificate treatment) measure the mean effect of the treatment on groups in the Low, Medium and High baseline categories, while the double-interaction terms ($\beta_1^{L,D} \cdot \text{Incent}_v \cdot y_{0gv}^{\text{Low}} \cdot \text{Dist}_{0gv}^{\text{Low}}$, $\beta_1^{M,D} \cdot \text{Incent}_v \cdot y_{0gv}^{\text{Med}} \cdot \text{Dist}_{0gv}^{\text{High}}$, etc.) measure the extent to which the effect varies by distance to the threshold. As in Equation 1, we control for the village's assignment in the commitment treatment.

Similarly, for the commitment treatment, we estimate

$$\begin{aligned}
y_{gv} = & \beta_0 + \beta_1^L \text{Priv}_v \cdot y_{0gv}^{\text{Low}} + \beta_1^{L,D} \cdot \text{Priv}_v \cdot y_{0gv}^{\text{Low}} \cdot \text{Dist}_{0gv}^{\text{Low}} \\
& + \beta_1^M \text{Priv}_v \cdot y_{0gv}^{\text{Med}} + \beta_1^{M,D} \cdot \text{Priv}_v \cdot y_{0gv}^{\text{Med}} \cdot \text{Dist}_{0gv}^{\text{High}} \\
& + \beta_1^H \text{Priv}_v \cdot y_{0gv}^{\text{High}} \\
& + \beta_2^L \text{Publ}_v \cdot y_{0gv}^{\text{Low}} + \beta_2^{L,D} \cdot \text{Publ}_v \cdot y_{0gv}^{\text{Low}} \cdot \text{Dist}_{0gv}^{\text{Low}} \\
& + \beta_2^M \text{Publ}_v \cdot y_{0gv}^{\text{Med}} + \beta_2^{M,D} \cdot \text{Publ}_v \cdot y_{0gv}^{\text{Med}} \cdot \text{Dist}_{0gv}^{\text{High}} \\
& + \beta_2^H \text{Publ}_v \cdot y_{0gv}^{\text{High}} \\
& + \gamma_1 \text{Incent}_v + \gamma_2 \text{Cert}_v + \alpha' X_{gv} + \varphi_u + \varepsilon_{gv}.
\end{aligned} \tag{3}$$

These coefficients are interpreted as discussed after Equation 3 above.

References

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Tables

Table 1: Reward Thresholds

	Union 1	Union 2, 3 and 4
Lower Threshold	25%	33%
Upper Threshold	50%	66%

Notes: Union names are suppressed for confidentiality. Union 1 had significantly lower coverage at the beginning of this intervention, so we used slightly lower thresholds to make the goal comparable in terms of improvements.

Table 2: Randomization

Reward	Commitment		
	None	Private	Public
None	A: 8 villages; 121 groups 1,899 households (9.8%)	B: 11 villages; 177 groups 2,630 households (13.6%)	C: 11 villages; 69 groups 1,090 households (5.6%)
Monetary	D: 10 villages; 79 groups 1,162 households (6.0%)	E: 5 villages; 58 groups 887 households (4.6%)	F: 9 villages; 97 groups 1,575 households (8.1%)
Certificate	G: 12 villages; 145 groups 2,327 households (12.0%)	H: 9 villages; 110 groups 1,696 households (8.8%)	I: 9 villages; 124 groups 1,979 households (10.2%)
Pure Control	J: 23 villages; 256 groups 4,100 households (21.2%)		

Table 3: Randomization: Reward Treatment

Reward Type	Villages	Groups	Households
None	30	367	5,619 (29.0%)
Monetary	24	234	3,624 (18.7%)
Certificate	30	379	6,002 (31.0%)
Pure Control	23	256	4,100 (21.2%)
Total	107	1,236	19,345 (100.0%)

Table 4: Randomization: Commitment Treatment

Commitment Type	Villages	Groups	Households
None	30	367	5,619 (29.0%)
Private	25	345	5,213 (26.9%)
Public	29	290	4,644 (24.0%)
Pure Control	23	256	4,100 (21.2%)
Total	107	1,236	19,345 (100.0%)

A Outcome Variables

In this Appendix, we lay out how our outcome variables are constructed from our survey instrument. See Sections 4.2 and 6 for discussion of the concepts underlying these definitions.

- *Hygienic latrine*: Section 1, Q4; verification of the latrine’s status based on other questions in Section 1 and visual verification by the survey enumerator.
- *Latrine ownership*: - Section 1, Q5 of Section 1, “What is the ownership status of the primary latrine?” (and verified by the survey enumerator)
- *Latrine ownership rate*: # of households owning a latrine in the group / # of households in the group. This is a group level outcome.
- *Latrine access*: Section 1, Q2, “Does the household have regular access to a latrine?”
- *Open defecation*: Section 1, Q4.

B Group Formation

The intervention supervisors who had also been involved with the first set of interventions – the “demand study interventions” – were tasked with the process of assigning households to groups. Because of their long stay in the survey area, the supervisors had developed a close understanding of the socio-dynamics of the sample. This helped them form groups without breaking any organic link between clusters of households in a neighborhood. The general instructions for constructing groups were:

1. Groups should consist of around 15 contiguous / neighboring households;
2. Groups should generally not exceed 20 households

Generally, natural divisions such as rivers or open space between households were used to assign households into simple, contiguous groups. However, some exceptions were made based on practical constraints, in particular when:

1. Households were located in isolated places. If the number of such isolated households was too few to form their own group (say, only 1-2 households) they were added to the nearest group. On the other hand, if the number of such nearby households was higher but still less than 15, these households were put together to form a group. Ultimately, only 6 groups of less than 10 households were formed.
2. At the other extreme, sometimes households were very densely packed and it proved difficult to separate them meaningfully into discrete groups. The largest group in the study area consists of 33 households. Ultimately, only 3 groups consisted of more than 23 households.

Followup-02/Final Cluster Meeting Training Manual

Step-01: On the day before the cluster meeting, the selected leader will be called on mobile so that s/he tells all other members to be present at the meeting on time.

Step-02: After reaching a cluster, at first the Health Motivator will go to each house of the cluster, exchange greetings and invite them to join the meeting at a selected place. Then s/he will inspect the household's latrine/s and collect the information on the electronic tabs. If the latrine is unhygienic (based on the criteria listed below) then it must be explained to the household what steps they need to take in order to make the latrine hygienic.

<i>NOTE: Please ask the follow questions on the primary latrine which is the toilet facility that is used by the household members the majority of the time at the period during which the survey is being conducted.</i>			
1	What kind of facility is the primary latrine used by the household?	01. Don't have any latrine/Open defecation	10. Single pit Ring-slab latrine (Offset) with water seal: intact
		02. Hanging latrine	11. Single pit ring-slab latrine (Offset) with water seal: broken
		03. Open Pit/hole without slab and lid or cover	12. Single pit Ring-slab latrine (Offset) with flip/ polythene
		04. Pit latrine with slab but without lid or cover	13. Double pit Ring-slab latrine (Offset) with water seal: intact
		05. Pit latrine with cover	14. Double pit Ring-slab latrine (Offset) with water seal: broken
		06. Modern pit latrine with vent pipe	15. Double pit Ring-slab latrine (Offset) with flip/ polythene
		07. Ring-slab latrine (direct) with water seal: intact	16. Eco Latrine
		08. Ring-slab latrine (direct) with water seal: broken/none	17. Sanitary latrine with septic tank
		09. Ring-slab latrine (direct) with flip/ polythene	_ _ _
2	What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned/shared with another household, 02=private toilet solely owned by household, 03=community toilet, 04=uses someone else's latrine, 05=open spaces/bushes/hanging latrine	_ _ _	
3	Where is the primary latrine located? CODE: 01=In own homestead (attached), 02=Outside own homestead (not attached), 03=Community latrine, 04=Another household/neighbor's latrine, 05=open defecation	_ _ _	
4	How many other households share this latrine facility?	_ _ _	
5	What is the current condition of latrine slab? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04=No slab, 05=N/A	_ _ _	
6	Is there any visual evidence of <u>lumps of feces</u> in the toilet area? (does <u>not</u> apply for traces or floating fecal matter) CODE: 01 = On Pan; 02 = On Slab, 03 = On both Pan and slab, 04 =No fecal matter seen, 05=N/A	_ _ _	
7	What is the current condition of the water seal? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04= No Water Seal, 05=N/A	_ _ _	
8	(If offset) What is the current condition of delivery pipe? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04= No Delivery Pipe, 05=N/A	_ _ _	
9	(If offset) What is the current condition of pit cover? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04= No Pit Cover, 05=N/A	_ _ _	
10	Are there rings in the latrine pit? CODE: 01=Sufficient no. of Rings, 02=Insufficient No. of Rings, 03=No rings, 05=N/A	_ _ _	

Notes for data collection:

1. Information has to be entered for hanging latrines
2. If latrine code is 03 then the response to Question 6 is 05/N/A
3. If the latrine code is 08 and there is no evidence of feces lumps , then the response to Question 6 will be 04 or 'No fecal matter seen'
4. For hanging latrine (leaking latrine) even if the condition of the ring and pit cover is good, the response to Question-09 will be 02 or 'Partially broken'

5. Need to explain to the household that visible fecal matter makes the latrine unhygienic
6. We will also monitor rings to determine hygienic status – this should be explained
7. If the pit doesn't have sufficient number of rings, the latrine will be deemed unhygienic

Step-03: The meeting will start only when three-fourth of all the members of the cluster are present. The meeting will start by giving thanks to everyone. Everyone will introduce her/himself.

Step-04: Discussion on working as a group:

A. Purpose behind forming groups and solving a problem collectively:

- Unhygienic latrine - feces will be visible, spread bad smell and exposed to flies and insects. Extensive discussion later.
- Unhygienic latrines and unhygienic practices are a social/collective problem. If someone has an unhygienic latrine then it will adversely impact others as well. For example - (pointing finger to someone from the group) “Because of your unhygienic latrine someone else/someone else’s children (pointing fingers to someone else) might get sick with cholera, typhoid, diarrhea, jaundice and polio. It is likely to bring economic, physical loss to you and your children.”
- For this reason having hygienic latrine for one’s own household is not enough, neighbors must have hygienic latrines as well.
- “Whose problem is this? Is this your problem? Does this problem need to be solved in a collective manner?” Because of the enormity of this problem, it needs to be solved in a collective manner.
- “Unity is strength” (Similar Bangla phrases to put emphasis on group work)

B. Read out the names of the members of the group and put emphasis on the importance of spreading the information to those who are absent.

Step-05: Health Motivators will start the discussion on the topics detailed below. Characteristics of a hygienic latrine needs to be repeated as many times as required. Discussion on what is on this script must end within 10-12 minutes.

A. DEFINITION, CHARACTERISTICS AND USE OF HYGIENIC LATRINES

Broad definition of hygienic latrine

1. Hygienic latrines limit the spread of diseases caused by water/feces and keep the environment pollution free.
2. Feces is enclosed in one place and it can not be seen from outside.
3. Flies or other insects cannot enter into the pit.

Most Important technical characteristics of a hygienic latrine:

(These are the characteristics which form the basis for judging if a latrine is hygienic or not. Repeat these characteristics often in the cluster meeting so that participants can internalize these attributes.)

1. There must be a slab and it cannot be broken.
2. There must be a water-seal (gooseneck or siphon) and it cannot be broken.
3. There must be an adequate number of rings depending upon the depth of the well and those must not be broken.
4. There should be no gap between the cover of the slab and ring or between the ring and pit cover.
5. There should be no feces, flies or bad smell in or around the latrine.
6. Delivery pipe, y-junction, pit cover cannot be broken.
7. The latrine cannot be connected to a lake or any enclosed water body/ environment cannot be polluted.
8. There should be earth/cement moulded around the slab in case of direct pit latrines.

(Try to get these characteristics repeated by some of the participants)

Methods of using a hygienic latrine:

1. The pan should be made wet by using little water before each use. Feces will not stick on the pan if this is done
2. 1-2 pots (few liters) of water should be used after using the latrine
3. No solid object (like- stone, cloth, mud) should be thrown into the pan
4. The pan of the latrine and the slab/floor must be cleaned everyday.
5. If the latrine pit becomes full than another latrine must be built or the pit must be emptied.

B. Discuss about the number of hygienic/unhygienic latrines among the cluster members and their current condition. Discuss what must be done to turn the current unhygienic latrines of the clusters into hygienic ones.

C. Targeted number of latrines, deadline and rewards (where applicable) as set by the office must be repeated in front of everybody present so that they can understand it clearly. Make sure that everyone has understood it by asking one or two of them.

D. Motivate each of the households to create and maintain separate hygienic latrine. It must be ensured that they understand that only one household will be rewarded (where applicable) for one hygienic latrine.

[Note: *Cluster meeting participants cannot be shamed.* During household latrine visit if the latrine is found to be unhygienic then the Health Motivator must explain the reasons as to why the latrine is unhygienic. But during the meeting the household member can never be pointed out and shamed. If any household member present in the meeting asks something about her latrine then her questions must be answered while visiting her home at the end of the meeting. However, if any participant asks a question which is applicable for all the participants then that answer can be given in front of everyone. For example if someone asks, “I have not built a separate cover for my offset latrine. But I have covered it up nicely with a carpet (*chatai* in Bangla). Is this hygienic?” answer to this sort of questions can be given in front of all the participants as everyone needs to know about this.]

Step-06: Like the initial meeting, the Health Motivator will conduct a group commitment session (for public commitment intervention) where people will commit to achieve the target. In case of private commitment, the Health Motivators will go to each household separately and make people commit privately.

Commitment

Public Commitment: During each cluster meeting, members from all the households of a cluster will commit publicly that those who do not yet have hygienic latrines will meet hygienic latrine standards as set by the project. Those with hygienic latrines would promise that they would help others reaching the goal within the time limit set by the project. The script of the pledge is as follows:

“I hereby promise before everyone present that I will do my best to set up hygienic latrines or improve existing ones into hygienic latrines for myself and for my neighbors by February 5, 2013.”

Private Commitment: After organizing the cluster meeting, health motivators will visit each household in the cluster. The member of the household who had previously attended the meeting will make a commitment before the health motivator that he/she will transform their unhygienic latrines to hygienic ones within the time limit set by the project. The script of the pledge is as follows:

“I hereby promise that I will do my best to set up hygienic latrines or improve existing ones into hygienic latrines for myself and for my surrounding neighbors by February 5, 2013.”

Reward Components

There are two threshold targets fixed for clusters, which is in terms of ownership of hygienic latrines. The lower threshold is 25% for Badhair while it is 33% for rest of the unions. The higher threshold is 50% for Badhair and 66% for the rest of the unions.

Monetary Incentive: A household will get a monetary reward of Tk. 250 or Tk. 500, depending on whether the household owns a hygienic latrine and the ownership of hygienic latrine at the cluster level is above the lower or the upper threshold, respectively.

Certificate: A household will get a certificate of hygiene attainment by a Member or the Chairman of the union, depending on whether the household owns a hygienic latrine and the ownership of hygienic latrine at the cluster level is above the lower or the upper threshold, respectively.

At the end of the meeting, the name of the members of the group should be repeated again and the cluster leader should be handed a complete list containing names of all the members of the cluster so that the group has a better understanding of its members.

Step-07: At the end of the meeting the Health Motivator will briefly recap the whole discussion from beginning to end and give thanks to everyone.

Decisions:

0. Every cluster must be treated the same way (except for the differences arising from the difference in treatment type).

1. Census form has to be filled up in case of new members of the cluster. But add format does not need to be filled for this round.
2. The 'add or deduct' form has to be filled up if any household migrates. Use the code '8888' as before in the tab and in the tab, manually add to the cluster the household has been joined.
3. Similar to last rounds, in case of absent households, the form will be filled by using absent code 9999. Collecting information about the latrine of absent household is still a must.
4. If any new member (whose name is not in the village list) joins the meeting then enter 7777, give a space and then enter the name in the tab.
5. Cluster leader cannot be changed unless it is a special situation.
6. If any household member uses two latrines then enter information about the hygienic one. If both the latrines are used equally then collect information about the one which is closer to dwelling and contact with the field supervisor.
7. **Rewards will be given based on the total number of (hygienic) latrines in the cluster, not based on the number of households (or their access to hygienic latrines). Tell that to the household members a few times.**
8. Each field supervisor must meet two Health Motivators everyday and oversee 3 meetings.
9. The cluster meeting in which the supervisor is monitoring, has to end with a one-minute summary discussion. This has to be recorded as well.
10. Field supervisor will completely cross check the information about the latrine provided by Health Motivator.
11. Information on the hardcopy filled by Health Motivator cannot be sent to the server without the concerned field supervisor checking it.
12. Audio record of each of the meeting must be kept in the tab and submitted to the concerned field supervisor.
13. In the certificate intervention, there is no need to mention whose signature is going to be put in. Just mention that the certificates will be issued by the Union Parishad.
14. Do not use the word 'leader' in the meeting.
15. Consecutive meetings in the same cluster cannot happen within 18-21 days.
16. The new deadline is February 5, 2013 to meet the hygienic latrine criteria. This should be mentioned instead of January 20.
17. Supervisors must monitor three meetings everyday. Cross checks of recordings of the Health Motivators will be done by the supervisors under the guidance of the Project Assistant and Project Associates.

18. Health Motivators and Field Supervisors will be rewarded based on how well the cluster meetings have been conducted according to the scripts.

19. Need to finish meetings with the words that “This is the last time I have come to talk about hygienic latrines and the reward/certificate program (if applicable). The next time someone else will come to monitor your progress in achieving hygienic latrine status.”

HHID: |_|_|_|_|_|_|_|_|_|_|

Cluster ID: |_|_|_|_|_|_|_|_| Village ID: |_|_|_|_|_| Village name: _____ Union ID: |_|_| Para name: _____
Interviewer ID: |_|_|_|_|_|_| Interviewer's name: _____ Supervisor's initial: _____ Start Time: _____ End time: _____
HH head name: _____ Respondent's Name and ID: _____ |_|_|_|_|_| Date: _____

(N.B.: If you find anything out of the ordinary at this household, please take notes and contact your supervisor)

Consent

(READ TO RESPONDENT AT THE START OF THE VISIT) Introduction: Good morning/afternoon. My name is _____. I am working with Innovations with Poverty Action, an international research organization. We are currently interviewing households for a study on how people make decisions about sanitation. This study covers 4 unions (Badhair, Chanduria, Pachandar, Saranjai) in the Tanore Upazilla of Rajshahi.

Procedures: We would like to invite you to participate in our study. If you choose to participate, today we will ask you some questions about the types of sanitation facilities your family uses and your family's interactions with other members of your community. This survey will take approximately 15 minutes of your time. We may also come back once in the next three-six months to conduct a longer follow-up survey that will include questions on the health of your family, the sources of water your family uses and your family's income and assets. The information collected in the follow-up surveys will be used to study how behavior in your community changes over time.

Risks and Benefits: We do not expect there to be any risk to you or your household associated with your participation in this study. There will be no direct benefit to you or your household for your participation in this survey. However, we hope that this research will result in findings that will help in improving access to sanitation facilities in communities throughout Bangladesh.

Confidentiality: All of your responses will remain confidential and will never be shared with anyone besides the researchers involved in this study. Neither your personal information nor any information linking your identity to your responses will ever be made public. Should you feel at any time that you are not comfortable answering a question or that your confidentiality is not assured, for example because someone else may be listening, please let us know.

Voluntary Participation: Participation in this study is completely voluntary. You can refuse to answer the entire survey, or you can tell us when a question makes you uncomfortable and we can skip that question. There is no need to answer any question that you do not wish to answer for any reason. If you like, you can end the interview at any time. There will be no penalty for ending or refusing to participate in the survey.

Questions and Concerns: If you have any questions, comments or concerns, you may contact Alamgir Kabir, Operations Manager, IPA Bangladesh at 01712121221. The relevant principal investigators and their contact information is as follows: 1. Mushfiq Mobarak, Yale University, +1 (203)-432-5787; 2. Raymond Guiteras, University of Maryland, +1 (301)-405-3480.

I have read (or someone has read to me) and understood the above information. I have had the opportunity to have any questions about this study answered and I agree to participate in this study. **CODE:** 01=Agree, 02=Do not agree >> **STOP SURVEY**, 03=Entire HH absent for extended period of time, 04=Migrated Household, 05=Combined Household, 06=Dwelling destroyed/perished |_|_|_|_|

HHID: |_|_|_|_|_|_|_|_|_|_|

Section 1			
1	(ASK and OBSERVE) How many latrines does the household own? (00 if HH does not own any latrine)		_ _
2	(ASK) Does the household have regular access to a latrine? CODE: 01=YES, 02= NO >> skip to Q04		_ _
3	(ASK) Where is the latrine that is used most regularly by the household? CODE: 01=In own homestead, 02=Outside own homestead, 03= In neighbor's homestead		_ _
(ASK if household doesn't open defecate): "Could you take me there?"			
4	(OBSERVE AND ASK) What kind of facility is the latrine most regularly used (primary latrine) by the household? <i>(if 01 then fill up Q12 to Q15 and Section 2)</i>	01. Don't have any latrine/Open defecation	10. Single pit Ring-slab latrine (Offset) with water seal: intact
		02. Hanging latrine	11. Single pit ring-slab latrine (Offset) with water seal: broken
		03. Open Pit/hole without slab and lid or cover	12. Single pit Ring-slab latrine (Offset) with flip/ polythene
		04. Pit latrine with slab but without lid or cover	13. Double pit Ring-slab latrine (Offset) with water seal: intact
		05. Pit latrine with cover	14. Double pit Ring-slab latrine (Offset) with water seal: broken
		06. Modern pit latrine with vent pipe	15. Double pit Ring-slab latrine (Offset) with flip/ polythene
		07. Ring-slab latrine (direct) with water seal: intact	16. Eco Latrine
		08. Ring-slab latrine (direct) with water seal: broken/none	17. Sanitary latrine with septic tank
		09. Ring-slab latrine (direct) with flip/ polythene	_ _
For Q5 to Q13, ASK			
5	What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned with another household, 02=private toilet solely owned by household, 03=community toilet >>Q12, 04=owned by others/neighbor>>Q08		_ _
6	How much money was spent on the latrine (in total)? (in Tk.) CODE: 99=Don't remember/Don't know NOTE: Ask about material/labor/transport cost separately before writing the total amount. If the cost is 99 taka, round it to 100 taka.		Total tk. _____
7	a. Did you borrow any money to install the latrine? CODE: 01=Yes, 02=No>>Q08, 99= Don't Know>>Q08	_ _	b) If yes, from whom? (Code below) _ _
Borrowing Code: 01=Bank, 02=NGO, 03=Cooperative/MFI, 04=Private (organization), 05= Private (Individual), 06=Bought on credit, 99=Don't Know			
8	How many households and individuals share the use of this latrine facility?		_ _ households _ _ individuals
9	Identify the households who own the latrine <i>(Use "99" if you cannot find the HH and fill up Section 03. If outside the survey area, use "55")</i>		
	a. _ _ _ _ _ _ _	b. _ _ _ _ _ _ _	c. _ _ _ _ _ _ _
10	a) How long has your primary latrine been in place? CODE: 01=0 - 6 months; 02 =6 months - 1 year; 03=1 - 2 years; 04 = 2 - 3 years; 05= 3-5 years; 06=more than 5 years	_ _	b) <i>If built since February, 2012</i> How many months ago was this latrine built? CODE: 99=can't remember/don't know, 77=built before February, 2012
	_ _	_ _	_ _
11	a. Number of rings (USE "00" IF NO RINGS) (CODE: 99=Don't know) (Use 66 only for septic tanks)	_ _	b. How deep is the pit? (Record answer in fet) CODE: 99=Don't know
	_ _	_ _	_ _

12	Where do the HH members usually wash their hands (henceforth, to be termed 'the hand-washing station') after going to the toilet? CODE: 01 = Inside toilet facility, 02=less than 3ft from toilet facility, 03=3-9ft of toilet facility, 04=more than 9ft from toilet facility, 05=No specific place >> Q16 , 06=Do not wash>> Q16		_ _
13	Do HH members wash hands after returning from toilet? CODE: 01=Yes, with soap and water, 02= Yes, with only water, 03=Yes, With ash and water, 04= Yes, With clay and water (multiple responses allowed)		_ _ _ _
For Q14 to Q37, OBSERVE			
14	Is water available at the hand washing station? CODE: 1=Yes, adequate water is available, 2=No, adequate water is not available, 3=No water available		_ _
15	Is soap and/or clay/ash available at the hand washing station? CODE: 01=Bar soap, 02=Powder/detergent, 03=Liquid soap, 04=Clay/ash, 05=No soap/clay/ash observed (multiple responses allowed)		_ _ _ _
16	a. Have you (the interviewer) observed a HH member running to clean a latrine because of your presence or you suspect so? CODE: 1=Yes, 2=No (Take note if necessary)		_ _ _
17	What materials were used to construct the superstructures?	a. walls? _ _ _ _____	b. roofs? _ _ _ _____
CODE: 00=none, 01=mud, 02=leaves/stick/straw, 03=bamboo thatch, 04=plastic sheets/polythene, 05=Cl sheets/tin, 06=wood, 07=clay tiles, 08=bricks, 09=RC/cement/concrete, 10=other (specify)			
18	Is the latrine pipe linked to any ditch/canal/pond etc.? CODE: 1=Yes, 2=No		_ _
19	a) (OBSERVE) Leakage of the latrine pipe, Y junction, pit or the tank? Code: 01=Major, 02=Minor, 03=No leak>> Q21	_ _ _	b) Leakage in which component? Code: 01=Pipe, 02=Pit, 03=Tank, 04=Y-junction (Can choose several)
20	If pit thought to be leaking what are the signs of leaking? CODE: 01=Wet soil around pit, 02=Water-logged area outside/around pit, 03=Floating feces outside pit, 04=Some odour, 05=Strong odour (<i>multiple responses allowed</i>)		_ _ , _ _ , _ _
21	If offset what is the current condition of delivery pipe/Y junction? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04= No Delivery Pipe, 66=Not an offset pit latrine>> Q23		_ _
22	If offset What is the current condition of pit cover? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04= No Pit Cover		_ _
23	Any broken ring? CODE: 01=Yes, 02=No, 66=No ring/Septic tank		_ _
24	Type of the latrine slab CODE: 00=No slab>> Q28 , 01=Concrete/cement, 02=Plastic, 03=Bamboo, 04=Brick, 05=Earthen, 06=Others (mention)		_ _
25	What is the current condition of latrine slab? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken		_ _
26	a. Type of pan CODE: 1=Ceramic commode, 02=Ceramic pan, 03=Plastic pan, 04=Concrete/Cement pan, 05=Tin, 06= Bamboo top/covered with polythene, 07=No pan>> Q08		_ _
26	b. What is the current condition of the pan? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken		_ _
27	What is the current condition of the water seal? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04=No water seal		_ _
28	Presence of Vent pipe on the pit, inside the latrine or outside, condition and net? CODE: 01=Yes, good condition, with net, 02=Yes, good condition, without net, 03=Yes, broken, 04=No vent pipe		_ _
29	Has the 'slab and pan' (for direct pit) or pit cover (for off-set) been placed properly on top of pit so that flies cannot enter/exit? CODE: 1=Yes,		_ _

	2=No, 66=No Slab/pan/pit cover				
30	a) Any evidence of fecal matter on the latrine floor? CODE: 00=None, 01=Trace amounts only, 02=Lumps of Feces	_ _ _	b) Any evidence of fecal matter on the pan? CODE: 00=None, 01=Trace amounts only, 02=Lumps of Feces, 66=No pan>> Q31		_ _ _
	c) Any fecal matter floating in the gooseneck/water-seal? CODE: 00=None, 01=Trace amounts only, 02=Lumps of Feces, 66=No water-seal	_ _ _			
31	Is there a bad smell in and around the latrine? CODE: 01=Strong bad smell, 02=Some bad smell, 03=No bad smell				_ _ _
32	Is there any visibility of flies or insects inside or around the latrine? CODE: 01=Yes, 02=No				_ _ _
33	a) Slippers outside or inside latrine? CODE: 1=Yes, 2=No	_ _ _	b) Wet floor? CODE: 01=Yes, 02=No	_ _ _	c) Dis-coloration of pan (e.g. yellow/green) CODE: 01=Yes, 02=No, 66=No pan>> e
	d) Do you observe the following in the pan (that denotes lack of use) (Multiple response possible) CODE: 01= Leaves, 02= dirt, 03=spider webs, 04=Nothing				_ _ _ , _ _ _ , _ _ _
	e) Water container in/near the latrine? CODE: 01=Yes, 02=No	_ _ _	f) Cleaning agents inside the latrine? CODE: 01=Broom/brush, 02=Harpik/Bleaching powder/detergent, 03=Ash, 04=No cleaning agent	_ _ _	g) Is there evidence that this latrine is used for storage? CODE: 01=Yes, 02=No
	h) Does the path to the toilet suggest regular use (is it clear, well-worn, etc)? CODE: 01 = Yes; 02 = No				_ _ _
34	Level of the latrine pan: CODE: 01=Above yard height, 02=At yard height, 03=Somewhat lower than the yard, 04=Much lower than the yard				_ _ _
35	How many lumps of feces have you observed in the compound? CODE: 01=No lump of feces, 02=1-5 lumps, 03=6-10 lumps, 04=More than 10 lumps				_ _ _
36	Physical/Travel distance of latrine from main living room CODE: 00=Inside home compound, 01=01-10 ft, 02=11-20 ft, 03=21-30 ft, 04=More than 30 ft				_ _ _
37	a. (If the source of drinking water is TW or Dug well) Physical/Travel distance of latrine from the TW/ DW (Use next question's code)				_ _ _
	b. Physical/Travel distance between the latrine and the source of water used in the latrine: Code: 00=Attached to the room, 01=01-10 ft, 02=11-20 ft, 03=21-30 ft, 04=More than 30 ft				_ _ _
Section 02 (For Q38 to Q46 ASK)					
38	Since November 01, 2013, (the month of Karttik in Bangla calendar) have you installed a complete latrine or any latrine parts? CODE: 01=Complete latrine>> Q40 , 02=Latrine Parts, 03=Neither >> Q42				_ _ _
39	If you have installed any parts, list all such latrine parts (Use CODE B)				_ _ _ , _ _ _ , _ _ _ , _ _ _ , _ _ _
CODE B: 01=Water seal/goose-neck/syphon, 02=Slab/Pit Cover, 03=Pit Cover with pan, 04=Pan, 05=Delivery pipe/Y Junction, 06=Ventilation pipe, 07=Rings, 08=Mud/bricks/cement/sand, 09=Door, 10=Other (detail in note)					
40	Is this (for) the same latrine you have mentioned as your primary latrine? CODE: 01=Yes, 02=No				_ _ _
41	If you have installed a complete latrine or any parts Since November 01, 2013 what was the amount spent in total (In taka) (Including transportation, labor etc.)				_ _ _ _ _ _ _ _ _

HHID: |_|_|_|_|_|_|_|_|_|_|

42	Since November 01, 2013 (prompt 'in the last three months' or 'since mid-Karttik' of Bangla calendar) has anyone from your community assisted you ('with advice-information/material/labor/cash/transport') to make your latrine hygienic? CODE: 01=Yes, 02=No>>Q44								_ _
43	Since November 01, 2013 if you have received any assistance from your community to make your latrine hygienic, list the Households and the kind of assistance. (If cannot find HHID, use "99" and fill up section 03. If HH is outside the survey area, use "55")								
a. HHID	b. Relationship with HH head (Code: 01=parents; 02=siblings; 03=children;04=neighbor relatives;05=neighbor/community member; 06=other)	c. Assistance (Code: 01=Material; 02=Cash Loan >> e ; 03=Cash help>> e ; 04=Labor support>> f ; 05=Advice or Information>> g,h&i ; 06=Transport; 07=Other - Take Note)	d. What kind of material? (Code B);	e. Amount (in Tk.)	f. How many labor hours?	g. Frequency of mention/discussion on latrines	h. In private or public gathering (01=private, 02=public, 03=both)	i. Did you feel pressurized? (Code: If No , use 00; If Yes , use pressure scale 01-05; 01=least and 05=highest pressure)	
a	b	c	d	e	f	g	h	i	
_ _ _ _ _	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _	_ _	_ _	_ _	_ _	
_ _ _ _ _	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _	_ _	_ _	_ _	_ _	
_ _ _ _ _	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _	_ _	_ _	_ _	_ _	
_ _ _ _ _	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _	_ _	_ _	_ _	_ _	
44	a. Since November 01, 2013, have you received any assistance ('with material/cash/advice') from the government/UP or any NGO to make your latrine hygienic? CODE: 1=Yes, 2=No>>Q45								_ _
	b. NGO/Government/UP Code: 01=Government/UP; 02=BRAC; 03=World Vision; 04= IPA/VERC; 05=Other NGOs	c. Assistance Code (Code: 01=Material; 02=Cash Loan >> e ; 03=Cash help>> e ; 04=Labor support>> f ; 05=Advice or Information; 06=Transport; 07=Other - Take Note)	d. What kind of material? (Code A); put commas in between each item	e. Amount (in Tk.)	f. Labor hours	Note			
	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _ , _ _	_ _				
	_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _ , _ _	_ _				
_ _	_ _ , _ _ , _ _	_ _ , _ _ , _ _	_ _ , _ _	_ _					
CODE B: 01=Water seal/goose-neck/syphon, 02=Slab/Pit Cover, 03=Pit Cover with pan, 04=Delivery pipe, 05=Ventilation pipe, 06=Rings, 07=Mud/bricks/cement/sand, 08=Transportation, 09=Labor, 10=Door, 11=Superstructure (e.g. tin), 12=Other (detail in note)									

45	Did you attend or know of any meeting sessions that were conducted in your village to promote hygienic sanitation between November 01, 2013 to February 05, 2014? CODE: 01= Yes, attended, 02=Knows, but did not attend, 03=Neither >>Q47 >>END			_ _
46	(Even if HH didn't attend) What information was covered in these meetings? (Do not read out the options aloud) CODE: 1=Yes; 2=No			
	a. Private Pledge	_ _	i. Reward (Money)	_ _
	b. Public Pledge	_ _	j. Reward (Certificate)	_ _
	c. Deadline (regarding hygienic latrine attainment)	_ _	k. Target (percentage or no. of households)	_ _
	d. Disadvantages of Open Defecation	_ _	l. Importance of washing hands	_ _
	e. Importance of proper disposal of feces	_ _	m. Installing a hygienic latrine	_ _
	f. Importance of hygienic sanitary habits	_ _	n. Assessing quality of latrine parts	_ _
	g. Importance of using hygienic latrine	_ _	o. Places where quality latrines parts are available	_ _
h. Maintaining hygienic latrine	_ _	p. Others (Specify): _____	_ _	
47	a. Did any of your neighbor build a latrine since November 01, 2013? CODE: 01=Yes; 02=No >>Q48	_ _	b. How many households?	_ _
46	(Even if HH didn't attend) What information was covered was covered in these meetings? (READ OUT the options) CODE: 1=Yes; 2=No			
	a. Private Pledge	_ _	i. Reward (Money)	_ _
	b. Public Pledge	_ _	j. Reward (Certificate)	_ _
	c. Deadline (regarding hygienic latrine attainment)	_ _	k. Target (percentage or no. of households)	_ _
	d. Disadvantages of Open Defecation	_ _	l. Importance of washing hands	_ _
	e. Importance of proper disposal of faeces	_ _	m. Installing a hygienic latrine	_ _
	f. Importance of hygienic sanitary habits	_ _	n. Assessing quality of latrine parts	_ _
	g. Importance of using hygienic latrine	_ _	o. Places where quality latrines parts are available	_ _
h. Maintaining hygienic latrine	_ _	p. Others (Specify): _____	_ _	

Pseudo-code for the Creating Monetary Distance (variable) to Reach Hygienic Latrine Status

A. Data and Variables used

1. Data used: san_round4_h_clean (latest R4 cleaned data)
2. Variables used: To construct the monetary distance variable, several questions from R4 were used:
 - a. Primary latrine type (SFQ12, where SF is Section F and Q12 is Question 12)
 - b. Condition of water seal (SFQ33)
 - c. Condition of slab (SFQ34)
 - d. Ownership status of primary latrine (SFQ19)
3. The cost of individual latrine parts is drawn from this document:
 - a. Types of Latrine and Their Cost.pdf (available at: [Dropbox\BD_Sanitation\Documentation\Pre-Analysis-Plan\sources](#))

B. Monetary Distance in Absolute Value terms

1. Start with assigning monetary distance value as missing for every observation
2. Consider the primary latrine type (regardless of ownership) [R4: SFQ12]
3. For latrine type 1-3, monetary distance is the full amount for constructing a single pit latrine (2415 Tk.)
4. For latrine type 4, the distance is the above minus the cost of slab (400 Tk.) and enclosure (600 Tk.); i.e., ring (1050 Tk.) + seal (65 Tk.) + construction cost/laborer (300 Tk.). This adds up to 1415 Tk.
5. For latrine type 5, above + slab (400 Tk.) = 1815 Tk.
6. Latrine type 6 doesn't exist for R4
7. Consider latrine types 7, 10, 13 and 16, which are supposed to have, by definition, intact water seals:
 - a. For these types, start with the monetary distance to be 0, i.e., these are hygienic latrines.
 - b. Replace this with 465 if both water seal [SFQ33] and slab [SFQ34] are broken/missing, add full value of slab (400 Tk.) + seal (65 Tk.).
 - c. Replace this with 400 if only slab is broken but water seal is intact AND distance value was not affected by the condition in b (i.e., it is 0) then distance = value of slab (400 Tk.)
 - d. Replace this with 65 if only water seal is broken but slab is intact AND distance value was not affected by the condition in b or c (i.e., it is 0) then distance = value of water seal (65 Tk.)
8. Consider latrine types 8, 11 and 14, which are supposed to have, by definition, broken/no water seal:
 - a. For these types, start with the monetary distance to be 65 (which is the price of a water seal)

- b. Replace this with 465 if both water seal and slab are broken/missing, add full value of slab (400 Tk.) + seal (65 Tk.).
- 9. Consider latrine types 9, 12 and 15 which are latrines with with flip polythine. These latrines do not need water seals to become hygienic because flip polythine is a rough substitute for water seal. These types of latrines are very rare. In R4, there is only 3 instances of these types of latrine.
 - a. For these types, start with the monetary distance to be 0, i.e., these are hygienic latrines.
 - b. Replace this value with 400 if slab is broken

C. Monetary Distance and Ownership

- a. Above code is based on primary latrine access but we are concerned about ownership
- b. Change monetary distance=2415 (i.e., the full amount for constructing a single pit latrine) if the primary latrine is not owned

D. Normalized Monetary Distance

- a. To construct normalized distance, we need to represent the monetary distance as a fraction of the cost of latrine. Moreover, Normalized Distance $\in [0, 1]$
- b. Construct Total Latrine Price based on the primary latrine type:
 - i. For Latrine Type 1-8: 2415 Tk.
 - ii. For Latrine Type 9: 2350 Tk.
 - iii. For Latrine Type 10-11: 3065 Tk.
 - iv. For Latrine Type 12: 3000 Tk.
 - v. For Latrine Type 13-14: 5475 Tk.
 - vi. For Latrine Type 15: 5405 Tk.
 - vii. For Latrine Type 16: 8000 Tk.
- c. Normalized Distance = Monetary Distance/ Total Latrine Price
- d. Whenever the (actual) Monetary Distance is computed to be 2415 Tk., the household is a complete latrine away from reaching hygienic latrine status; therefore, the value for Normalized Distance is 1 for these instances