Social and Financial Incentives for Overcoming a Collective Action Problem

Supplementary Materials

M. Mehrab Bakhtiar[†]
IFPRI

Raymond Guiteras
North Carolina State University

James Levinsohn
Yale University

Ahmed Mushfiq Mobarak
Yale University

January 2023

[†]Email: m.bakhtiar@cgiar.org, rpguiter@ncsu.edu, james.levinsohn@yale.edu, ahmed.mobarak@yale.edu.

SM1 Group Formation

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 40 (IQR 26-56), and the median number of neighborhoods per village was 4 (IQR 2-6).

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.

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 continuous / 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:

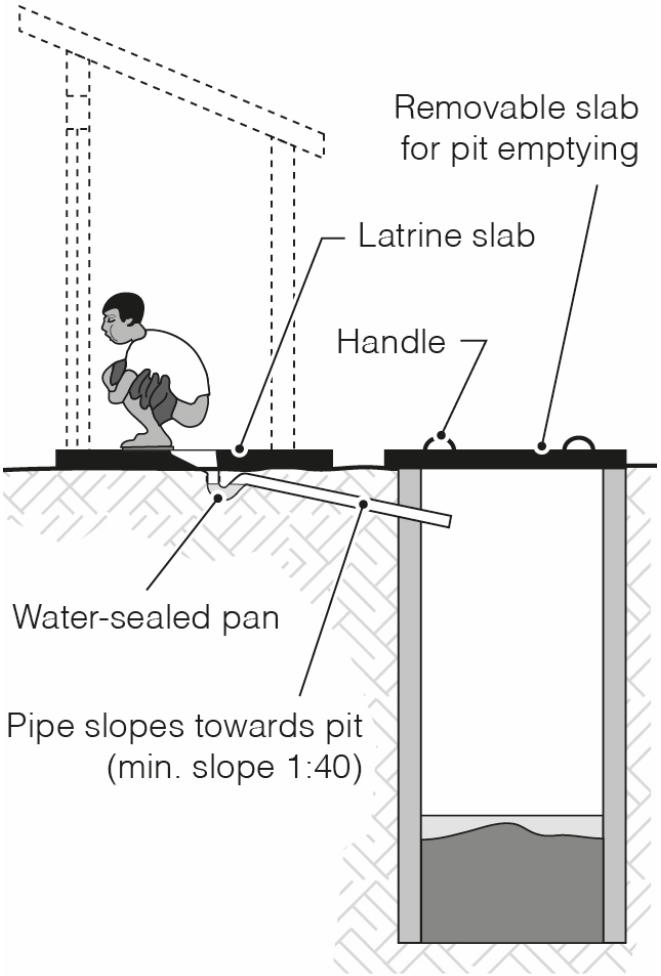
1. Households were located in isolated places. If the number of such isolated households was too few to form their own group (say, only 1-2 households) they were added to the nearest group. On the other hand, if the number of such nearby households was higher but still less than 15, these households 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.

[1]The 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 created "neighborhoods" (for the purpose of the study) of households in simple, contiguous sets.

These groups included all households in the villages, including new households that had been formed since the beginning of the demand study.

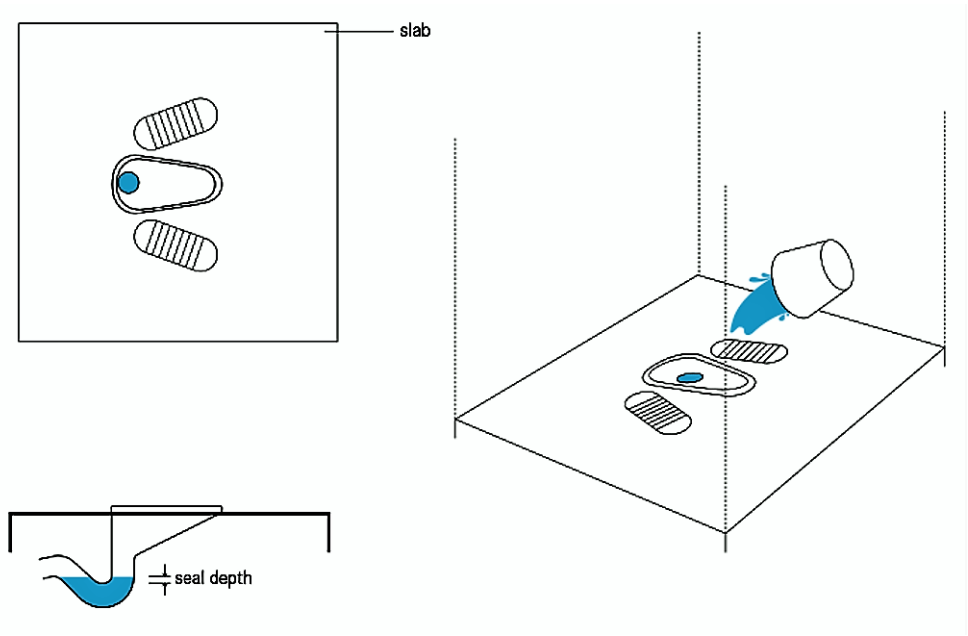
SM2 Key Components of Hygienic Latrines

Figure SM2-1: Pour-flush latrine with offset sealed pit: overview



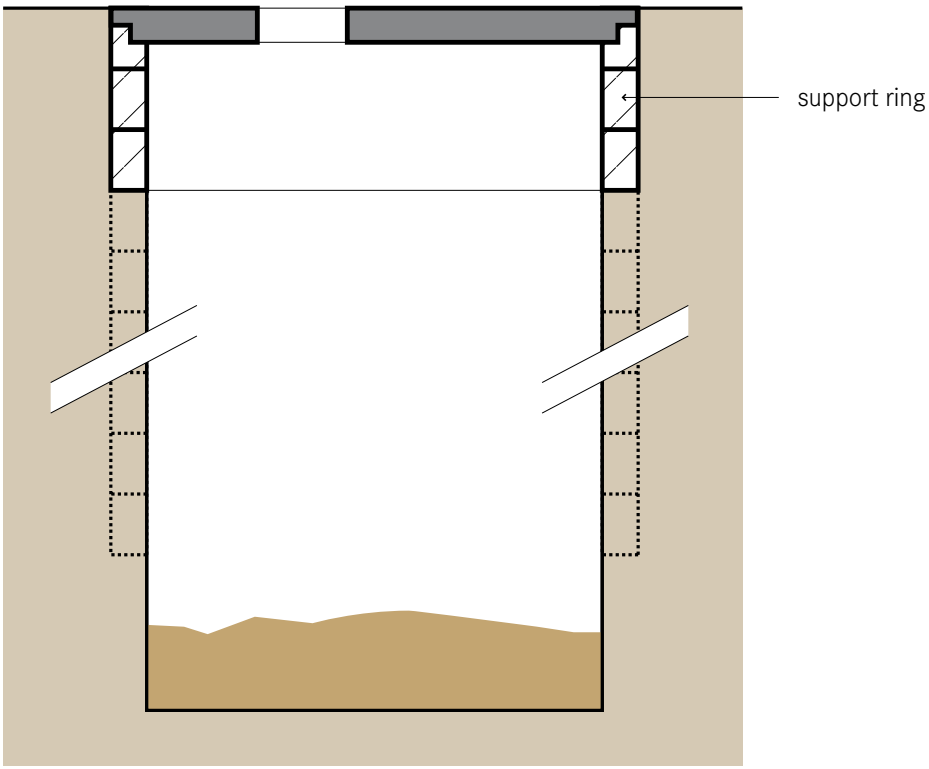
Notes: from Reed (2014). The key features are the slab, water seal and the offet sealed pit.

Figure SM2-2: Pour-flush latrine: pan and water seal



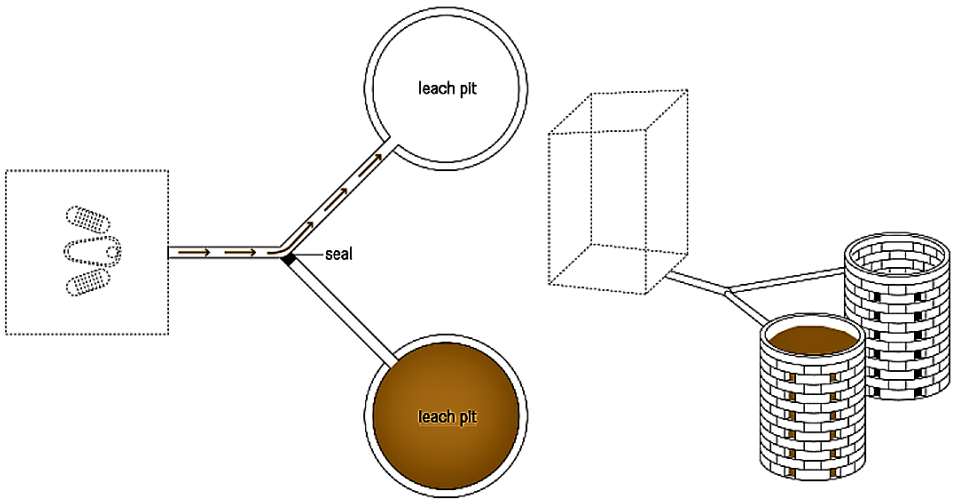
Notes: from Tilley et al. (2014). The water seal blocks flies from accessing the pit and blocks odors from escaping the pit.

Figure SM2-3: Sealed pit



Notes: from Tilley et al. (2014). The sealed rings at the top of the pit reinforce against collapse and prevent surface water from entering the pit. Concrete rings are appropriate for the wet conditions of the study site. The lower section is lined, often with bricks in a honeycomb pattern, to collect solid waste while allowing liquid waste to seep into the ground.

Figure SM2-4: Twin Pit Latrine



Notes: from Tilley et al. (2014). The twin pit design allows one pit to be sealed off when full and the other pit to be put in use. After several months of decomposition, the material in the first pit will have decomposed, making pit emptying no longer hazardous or unpleasant.

SM3 Outcome Variables

Here, we provide detail on how our outcome variables are constructed from our survey instruments. See Sections 3.2 and 4 for discussion of the concepts underlying these definitions.

Household-level variables

Short-term outcomes

- *Open defecation:*

  Survey Section 1, Q4, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Surveyor observes facility. Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" coded as open defection.

  Because the short-term data collection was part of the assessment for rewards, self-report of open defecation was especially likely to be biased by treatment arm. Therefore, in this survey round, we use only OD as inferred from the surveyor's assessment of the facility the household reports as its primary latrine or defecation site.

- *Any Latrine Access:*

  Survey Section 1, Q4, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Surveyor observes facility. Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" coded as not having access to a latrine, while any other response for this question - ranging from Response 03 "Open Pit/hole without slab and lid or cover" to Response 17 "Sanitary latrine with septic tank" - was coded as having access to a latrine.

- *Any Latrine Ownership:*

  Latrine ownership is defined as the sole or joint ownership of the household's primary latrine facility. Ownership is a strict subset of access – households without access to a latrine are coded as not owning a latrine facility.

  Survey Section 1, Q5, "What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned with another household, 02=Toilet solely owned by household, 03=community toilet, 04=owned by others/neighbor". Response 01 or Response 02 was coded as owning a latrine, while any other response was coded as not owning a latrine facility.

- *Hygienic Latrine Access:*

  A latrine that a household has access to (see above) is classified as hygienic if satisfies all three of the following criteria, which attempt to capture whether the latrine safely separates feces from the environment: (1) has an intact and functional slab; (2) has an intact and functional water seal; and (3) does not have any observable leak from the pit or any other latrine component (such as the pipe or Y-junction).

Whether a latrine has an intact and functional slab is based on two questions. The first is Section 1, Q24, "Type of the latrine slab CODE: 00=No slab, 01=Concrete/cement, 02=Plastic, 03=Bamboo, 04=Brick, 05=Earthen, 06=Others". The second is Section 1, Q25, "What is the current condition of latrine slab? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken". Response 00 for Q24 or Responses 02 or 03 for Q25 leads a latrine to be coded to not have a functional slab.

Whether a latrine has an intact and functional water seal is based on two questions. The first is Section 1, Q27, "What is the current condition of the water seal? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04=No water seal". A latrine is coded to have a functional/intact water seal with Response 01 to this question. On the other hand, a latrine is coded to not have a functional water seal for Responses 02, 03 and 04. The second is Section 1, Q4, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" or 03 "Open Pit/hole without slab and lid or cover", as well as 08 "Ring-slab latrine (direct) with water seal:broken/none" or 11 "Single pit ring-slab latrine (Offset) with water seal: broken" or 14 "Double pit Ring-slab latrine (Offset) with water seal: broken", leads a latrine to be coded to not have a functional water seal.

Whether a latrine has components without any observed leaks is based on three questions. The first is Section 1, Q19a "(OBSERVE) Is there any leakage of the latrine pipe, Y junction, pit or the tank? Code: 01=Major, 02=Minor, 03=No leak". A response of 01 or 02 for this question leads a latrine to be coded to have a leaking component. The second is Section 1, Q18, "Is the latrine pipe linked to any ditch/canal/pond etc.? CODE: 01=Yes, 02=No". A response of 01 for this question leads a latrine to be coded to have a leaking component. The third is Section 1, Q4 is also used "What kind of facility is the latrine most regularly used (primary latrine) by the household?" . Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" or "03. Open Pit/hole without slab and lid or cover" leads a latrine to be coded to have a leaking component.

- *Hygienic Latrine Ownership:*

  Hygienic latrine ownership is defined as the sole or joint ownership of a hygienic latrine facility a household has access to. Hygienic ownership is a strict subset of hygienic access – households without access to any latrine or a hygienic latrine are coded as not owning a hygienic latrine.

  Survey Section 1, Q5, "What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned with another household, 02=Toilet solely owned by household, 03=community toilet, 04=owned by others/neighbor". If a household has access to a hygienic latrine (see above), Response 01 or Response 02 is then coded as owning a hygienic latrine, while any other response was coded as not owning a hygienic latrine facility.

Medium-term outcomes

The medium-term outcomes are defined identically to those collected in the short term, except for household self-reported open defecation, which was not collected in the short term. There are slight differences in question and response numbering, so we include the definitions below in spite of the redundancy.

- *Open defecation:* Survey Section H, Q12, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Surveyor observes facility. Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" coded as open defection.

- *Open defecation among adults (household self-report):* Survey Section H, Q7, "Do (adult men, adult women, children) use open spaces / bushes / hanging latrines for defecation?" Coded Yes if respondent answered Yes (01) for adult men or adult women.

  This measure was not collected in the short-term survey, since open defecation was connected to rewards and response bias would therefore likely be correlated with treatment.

- *Any Latrine Access:*

  Survey Section H-1, Q13, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Surveyor observes facility. Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" coded as not having access to a latrine, while any other response for this question - ranging from Response 03 "Open Pit/hole without slab and lid or cover" to Response 17 "Sanitary latrine with septic tank" - was coded as having access to a latrine.

- *Any Latrine Ownership:*

  Latrine ownership is a strict subset of latrine access and is defined as the sole or joint ownership of the latrine facility a household has access to.

  Section H-1, Q18, "What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned with another household, 02=Toilet solely owned by household, 03= Other's toilet". Response 01 or Response 02 was coded as owning a latrine, while any other response was coded as not owning a latrine facility. Not having access to a latrine is also coded as not owning a latrine facility.

- *Hygienic Latrine Access:*

  A latrine that a household has access to (see above) is classified as hygienic if satisfies all three of the following criteria: (1) has an intact and functional slab; (2) has an intact and functional water seal; and (3) does not have any observable leak from the pit or any other latrine component (such as the pipe or Y-junction).

  Whether a latrine has an intact and functional slab is based on two questions. The first is Section H-1, Q46, "Type of the latrine slab CODE: 00=No slab, 01=Concrete/cement,

02=Plastic, 03=Bamboo, 04=Brick, 05=Earthen, 06=Others". The second is Section H-1, Q47, "What is the current condition of latrine slab? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken". Response 00 for Q24 or Responses 02 or 03 for Q25 leads a latrine to be coded to not have a functional slab. Not having access to a latrine also leads this variable to be coded as zero.

Whether a latrine has an intact and functional water seal is based on two questions. The first is Section H-1, Q50, "What is the current condition of the water seal? CODE: 01=Fully Intact, 02=Partially Broken, 03=Completely Broken, 04=No water seal". A latrine is coded to have a functional/intact water seal with Response 01 to this question. On the other hand, a latrine is coded to not have a functional water seal for Responses 02, 03 and 04. The second is Section H-1, Q13, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" or 03 "Open Pit/hole without slab and lid or cover", as well as 08 "Ring-slab latrine (direct) with water seal:broken/none" or 11 "Single pit ring-slab latrine (Offset) with water seal: broken" or 14 "Double pit Ring-slab latrine (Offset) with water seal: broken", leads a latrine to be coded to not have a functional water seal.

Whether a latrine has functional components without any observed leaks is based on three questions. The first is Section H-1, Q36a, "(OBSERVE) Is there any leakage of the latrine pipe, Y junction, pit or the tank? Code: 01=Major, 02=Minor, 03=No leak". A response of 01 or 02 for this question leads a latrine to be coded to have a leaking component. The second is Section H-1, Q35, "Is the latrine pipe linked to any ditch/canal/pond etc.? CODE: 01=Yes, 02=No". A response of 01 for this question leads a latrine to be coded to have a leaking component. The third is Survey Section H-1, Q13, "What kind of facility is the latrine most regularly used (primary latrine) by the household?" Response 01 "Don't have any latrine / Open defecation" or 02 "Hanging latrine" or "03. Open Pit/hole without slab and lid or cover" leads a latrine to be coded to have a leaking component.

- *Hygienic Latrine Ownership:*

  Hygienic latrine ownership is defined as the sole or joint ownership of a hygienic latrine facility a household has access to. Hygienic ownership is a strict subset of hygienic access – households without access to any latrine or a hygienic latrine are coded as not owning a hygienic latrine.

  Section H-1, Q18, "What is the ownership status of the primary latrine? CODE: 01=Toilet jointly owned with another household, 02=Toilet solely owned by household, 03= Other's toilet". If a household has access to a hygienic latrine (see above), Response 01 or Response 02 is then coded as owning a hygienic latrine, while any other response was coded as not owning a hygienic latrine facility.

Group shares

In all cases, group shares are the fraction of households surveyed in the group in the corresponding category. As discussed in Section 4 of the main text, the endline survey was conducted with a 50% subsample stratified by village, leading to some imbalance in the number of households surveyed per group. For groups with fewer than 6 households selected for the endline survey, we randomly selected a "top-up" sample from the remaining households and conducted a brief followup consisting of the endline's modules on latrine condition and use.

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.

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.				
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/ pollythene	
		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/ pollythene	
		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/ pollythene	|___|___|	
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 lumps of feces in the toilet area? (does not 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/NA
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 characterisitcs often in the cluster meeting so that particiapnts 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. Disucuss 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 infront 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 resaons 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 [end date]."

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 [end date]."

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 [Union 1] while it is 33% for rest of the unions. The higher threshold is 50% for [Union 1] 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' from 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 superivisor 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 latine provided by Health Motivator.

11. Information on the hardcopy filled by Health Motivator cannot be sent to the server without the concerned filed 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 [end date] 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 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 ([redacted]) 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 [redacted]. The relevant principal investigators and their contact information is as follows: 1. [redacted]; 2. [redacted]

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? ***(if 01 then fill up Q12 to Q15 and Section 2)***	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/ pollythene	
		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/ pollythene	
		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 ***(Use "99" if you cannot find the HH and fill up Section 03. If outside the survey area, use "55")***			
	a. |__|__|__|__|__|__|	**b.** |__|__|__|__|__|__|	**c.** |__|__|__|__|__|__|	**d.** |__|__|__|__|__|__|
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) ***If built since February, 2012*** 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=CI 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 *(multiple responses allowed)*	|___|___|, |___|___|, |___|___|
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.)*	|___|___|___|___|___|					

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=near 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): _____		|___|___|

SM6 Cost-Effectiveness Calculation

Public commitment

The cost per household for the common intervention (monthly group meetings for three consecutive months with a Health Motivator to encourage investment in and maintenance and use of hygienic latrines) was approximately USD 2. The marginal (implementation) cost of adding public commitment to the common intervention was negligible since no additional personnel/component was necessary. Since the average group size was 15.6 households, the group-level intervention cost was USD 31.2.

Regression results show that groups in the public commitment treatment had 4.5 percentage point more hygienic latrines in the short term and 5.7 percentage point more hygienic latrines in the medium term, compared to meetings only/common intervention (Table 3). On the other hand, compared to the pure control groups, the meetings only groups had approximately 1.5 percentage point fewer hygienic latrines in the short term and 2.5 pp fewer latrines in the medium term (Table A1). This translates into 1.09 (0.07*15.6) more hygienic latrines per group that can be attributed to the public commitment treatment (compared to pure control) in the short term. Dividing the group-level cost by the additional hygienic latrines in the group due to the treatment, gives a value of USD 28.6.

Similarly, in the medium term, 1.28 (0.082*15.6) more hygienic latrines per group that can be attributed to the public commitment treatment (compared to pure control). Dividing the group-level cost by the additional hygienic latrines in the group due to the treatment, gives a value of USD 24.4.

This is a simple back-of-the-envelope calculation, of course. We are assuming that the treatment effect is there only for the duration of the study, i.e., it drops to zero at the end of the study period. Moreover, we are looking only at the program costs, i.e., we are not including the cost to the household of making the improvements.

Monetary Reward

As mentioned earlier, the cost per household for the common intervention was USD 2. No additional cost was required for implementing the monetary reward treatment, except for the conditional reward which was calculated based on individual and group-level hygienic latrine ownership. We calculate that a total of USD 8,282 was disbursed among the monetary reward groups at the end of the intervention. These groups had a total of 3,612 households (Table 1), which brought the per household cost to USD 2.29. Together with the common intervention cost, the total per household cost for the monetary reward treatment was USD 4.29. The group-level cost was, therefore, USD 66.92 (15.6*4.29).

Regression results show that groups in the monetary reward treatment had 7.8 percentage points more hygienic latrines in the short term compared to meetings only/common intervention (Table 3). On the other hand, compared to the pure control groups, the meetings only groups had approximately 1.5 percentage point fewer hygienic latrines in the short term

(Table A1). This translates into 1.45 (0.093*15.6) more hygienic latrines per group that can be attributed to the monetary reward treatment (compared to pure control) in the short term. Dividing the group-level cost by the additional hygienic latrines in the group due to the treatment, gives a value of USD 46.15 (66.92/1.45).

We do not attempt to calculate the cost effectiveness of the monetary reward in the medium term, since the effect size (from the short term) almost completely dissipates and does not remain statistically significant (even at the 10 percent level).

Supplementary Materials References

Reed, B. (2014). "Pour-flush latrines." WEDC Guide No. 26. Loughborogh University. https://hdl.handle.net/2134/30994.

Tilley, E., L. Ulrich, C. Luthi, P. Reymond, and C. Zurbrugg (2014). *Compendium of Sanitation Systems and Technologies: 2nd Revised Edition*. Duebendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag). https://sswm.info/node/5587.