

Results of a medium-scale trial of single-use, self-sanitising toilet bags in poor urban settlements in Bangladesh



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FOREWORD

This report reveals the results of a first feasibility study of biodegradable toilet bags that was undertaken in Mymensingh, Bangladesh. The purpose was to see how people living in overcrowded urban areas with underserved sanitation facilities perceive and make use of the toilet bags.

Though small in scale and short in time, there was a clear indication that the great majority of the participants felt satisfied with using the toilet bags. This signifies an important reason for the technical cooperation provided by GTZ to continue looking into the applicability of such an ad hoc approach.

The sanitary situation in urban Bangladesh is one of most extreme worldwide, with only 35% of the population having access to improved sanitation. The lack of satisfactory sanitation facilities in urban slums is the rule rather than the exception. Through constant flooding in the monsoon season, the toilet and clean water situation continuously worsens. The construction of improved toilet systems is hampered by land disputes, by the lack of investment capacities and availability of appropriate areas. Due to these various constraints, there is little scope to improve the sanitation situation in the near future.

From our understanding, toilet bags are not an ultimate solution but an important interim support for urban poor communities to regain some dignity with respect to their sanitation situation. They do not replace the need for effective, long-term sanitation facilities: Poor urban settlements will continue to be marginalized and underserved until appropriate long-term solutions, such as permanent toilets, have been implemented. In the meantime, however, the bags help to preserve privacy, give users - especially women - the freedom to decide when and where they go to the toilet and to dispose of their excreta in a sanitary way, eliminating the harmful bacteria that are the cause of widespread illness.

The discussion on this interim solution, however, frequently brings rise to the following concerns:

Conventional toilets. Would it not be better to focus on building permanent toilets as a more sustainable sanitation solution? Unfortunately, in the poor urban areas of Bangladesh, infrastructure-based approaches to sanitation are not always appropriate. Due to issues of land ownership, lack of space and limited financial resources, most households are unable to build a toilet or latrine. Shared toilets suffer from poor management, disputes over maintenance, and political dimensions that restrict access to certain residents. Moreover, many women find it difficult to access toilets for socio-cultural reasons, and are better served by a solution that gives them the ability to go to the toilet in the privacy of their own home.

Costs. Are Toilet Bags cost-effective? Going to the toilet has a cost. Depending on the system used, one needs to construct tanks as well as above-ground structures. Contaminated water has to be channeled, pits emptied, sewerage maintained and waste water treated, etc. While there is a cost involved in producing toilet bags, this cost is comparable to the cost of infrastructure-based alternatives.

¹Figure for 2006. Source: United Nations Economic and Social Commission for Asia and the Pacific (2009) *Statistical Yearbook for Asia and the Pacific 2008*. Available: <http://www.unescap.org/STAT/data/syb2008/11-Access-to-water-sanitation.asp>

Most sewage/wastewater systems worldwide are subsidized and not directly financed by user/residential fees. Unfortunately, however, these services are often not subsidized for the poor who live in urban slums. As in the case of fresh water supply, it is unjust that the poor have to pay more for these services, which are often of poor quality. Sanitation solutions, such as toilet bags, require subsidies in order to reach the poorest segment of society, ensuring that fees match with the economic situation of the users. Toilet Bags offer the added advantage of producing valuable fertilizer, which can help to lower subsidies.

Dignity. Are Toilet Bags a dignified solution? For the successful use of toilet bags, a functional distribution system is indispensable - once established, people can choose to participate, but would never be forced to do so. It is an option available to those who see value in the bags and are willing to pay for and comfortable using them. In Mymensingh, many participants expressed an interest having toilet bags available for purchase. Their reasons for wanting to be able to defecate regularly into a bag were revealed in the survey; with respect to their sanitation situation before testing the bags, 93% of those interviewed stated that they feel dissatisfied, ashamed or worried about their sanitation situation and 38% practiced open defecation regularly.

Ultimately, Bangladesh is not a country for flush toilets or pit latrines. In light of its geographic location as a river delta, its regular monsoons, the expanse of surface water and its land-use patterns, alternatives that require or contaminate water are not the right approach. An appropriate sanitation solution has to be both people-centered and environmentally sound. Toilet bags can contribute to changing the mind set of those for whom sanitation facilities are not in reach and can be also understood as a first step towards establishing dry toilets (i.e. ecosan) as an effective approach to sanitation in this country.

Ashley Wheaton and Alexander Jachnow

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Finally, the author would like to acknowledge the hard work and support of the GTZ-Bangladesh team, particularly Ahmed Rukhen Uddin and Mehedi Ahsan.

More photographs from this study are available online at:
<http://www.flickr.com/photos/gtzecosan/sets/72157620750794055/>

Contact information for key persons involved in this study is provided in Appendix 1.

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EXECUTIVE SUMMARY

In an effort to contribute to Good Urban Governance, GTZ Bangladesh supports four Municipalities in Bangladesh under the Second Urban Governance and Infrastructure Improvement Project (UGIIP-2). Municipal Governments in Bangladesh, known as Pourashavas, are responsible for providing a number of facilities and services to their constituents. One of these is sanitation.

Poor sanitation is a significant problem worldwide, and contributes significantly to mortality rates in developing countries, especially among children under five. In poor urban settlements in Bangladesh, there is a critical lack of sanitation facilities, and municipal authorities face huge challenges in trying to close the gap. In an effort to establish a suitable solution for the sanitation problems faced by resource-poor urban communities in Mymensingh, Bangladesh, GTZ supported the Pourashava to conduct a medium-scale trial on the use of single-use, self-sanitising, biodegradable toilet bags (referred to in this report as Toilet Bags, in this case supplied by the Swedish company Peepoople).

The objective of this study was to establish whether Toilet Bags are a feasible sanitation alternative for poor urban settlements given the local socio-cultural context. Bangladesh is a relatively conservative society with a culture based largely on Muslim foundations. The act of defecation is traditionally considered a taboo subject, especially for women. Close contact with human excreta is considered religiously and culturally inappropriate by most Bangladeshis, both Muslim and Hindu. In addition, Bangladeshis use water to wash their anal area after defecating and their genitals after urinating, which could make approaches, such as the Toilet Bag, that encourage defecation inside the home, a challenge. Moreover, the practice of using human excreta as fertilizer is not widespread in Bangladesh and could be considered unacceptable by those who are unaccustomed to it.

From a gender perspective, the study also wished to see how Toilet Bags could improve the sanitation situation of women who - given the negative social attitudes towards defecation - are known to wait until nightfall to defecate under the cover of darkness. This causes many health-related problems such as dehydration, urinary tract infections and constipation, and exposes women to the threat of physical and sexual violence while outside at night.

In order to determine the usefulness of Toilet Bags in poor urban settlements in Mymensingh, surveys were carried out with users before and after a 10-day trial of the Toilet Bags. This enabled a comparison of attitudes towards Toilet Bags before and after testing them. The study included 100 participants (only 8 of these ended up not using the bags), who used a total of 738 Toilet Bags over that time period. The average usage was 0.8 bags per day and the bags were usually filled with faeces and while some used it for both, faeces and urine.

Some of the key findings from the study include:

- A high acceptance and usage rate by participants
- The perception of important benefits by users, including cleanliness and ability to go to the toilet more often
- Socio-cultural factors proved to be less of an obstacle than anticipated and the participants used the bags in their homes, stored the bags in their homes and adhered to anal washing practices. Some participants even openly handed over their used bags to the collectors
- Use of Toilet Bags had a positive impact on the self-perception of most participants
- The participants would be reluctant to buy the bags at an unsubsidised price, as they are currently not paying anything for the (deplorable) sanitation services in their areas.

The positive findings of the study indicate the potential for Toilet Bags to form the basis for a sustainable sanitation system in poor urban settlements in Bangladesh. More trials are required over a longer period and on a larger scale in order to optimise such a system, to prove its beneficial impacts on public health and to prove the fertiliser value of the used (filled) bags. Within its support to the Second Urban Governance and Infrastructure Improvement Project (UGIIP-2), GTZ- is currently considering how to best make use of this approach.

INTRODUCTION

2.1 Second Urban Governance & Infrastructure Improvement Project

Poor urban settlements in Bangladesh (referred to locally as slums) suffer numerous insufficiencies, from limited water supply to lack of schools. In recognition of the challenges facing urban areas in Bangladesh, the Second Urban Governance and Infrastructure Improvement Project (UGIIP-2) of the Local Governance and Engineering Department (LGED) is working to enhance the quantity and quality of facilities and services in urban centres. UGIIP-2 works with 35 Pourashavas (Municipalities) to invest in vital infrastructure and improve numerous dimensions of municipal governance. GTZ is supporting four Pourashavas to meet the governance criteria that will allow them to access funds for infrastructure improvement. In Mymensingh, in addition to providing technical capacity building support, GTZ is also working together with the Pourashava to develop sustainable solutions for solid waste management and sanitation, two crucial urban services.



Image 1 : Unsanitary hanging latrines are used in many poor urban communities in Bangladesh.

2.2 Sanitation Coverage in Bangladesh¹

In particular, sanitation represents one of the most formidable challenges to poverty reduction in poor urban settlements. Lack of adequate sanitation leads to poor health, and diarrheal diseases kill over 100,000 children below the age of five in Bangladesh every year.

The figures for sanitation coverage in Bangladesh vary greatly. Depending on the source, the percentage of the national population said to be using sanitary facilities ranges from 36% to 85%. This figure is always significantly higher for urban areas, where middle and upper class households have greater access to improved sanitation facilities such as sewage systems. However, this misrepresents the reality of poor urban settlements, where sanitation coverage can be as low as 14%.

2.3 Policy Framework²

The national and international policy frameworks recognize the importance of sanitation to poverty reduction and national development. The 1998 National Policy for Safe Water Supply and Sanitation strives to improve both public health and the environment by:

- facilitating access to basic level of services in water supply and sanitation;
- bringing about behavioural changes regarding use of water and sanitation;
- reducing incidence of water borne diseases;
- building capacity in local Governments and communities to deal more effectively with problems relating to water supply and sanitation;
- promoting sustainable water and sanitation services;
- ensuring proper storage, management and use of surface water and preventing its contamination;

1-2. See References for sources.

2.4 Challenges in Poor Urban Settlements

Despite growing awareness of the importance of sanitation and progress in providing sanitation facilities in urban areas, *poor* urban settlements present a unique challenge to the process of improving sanitation. The main reason for this is that the majority of such settlements are built on public land - land owned by a branch or department of national, regional or local government. As a result, almost none of the residents of poor urban settlements own the land on which they live. This lack of land tenure is a major disincentive to both private and public investments in infrastructure such as sanitation facilities. Individuals and families who feel under threat of eviction are unwilling to make investments in infrastructure or facilities that they could be forced to leave behind at any moment, as are governments agencies who are reluctant to contribute to the permanency of such settlements.

Moreover, poor urban settlements are usually crowded and land for latrines or other kinds of sanitation infrastructure is scarce. This forces sanitation facilities to be shared among many families or designed as 'community toilets', both of which are highly undesirable arrangements for most residents; community or shared toilets³ tend to be poorly maintained and underutilized as a result.

2.5 Alternative Sanitation Solution for the Urban Poor: Peepoo Toilet Bags

In recognition of the sanitation situation of poor urban settlements in Bangladesh, and in alignment with the objectives with UGIP-2 and the policy framework outlined above, Mymensingh Pourashava, with the support of GTZ, began to address the sanitation situation of its own poor urban settlements by considering an alternative approaches to sanitation: a single-use biodegradable 'toilet bag'. Developed by the Swedish company Peepoople, the Peepoo bag (referred to hereafter generically as the Toilet Bag) was designed in recognition of the difficulties in providing infrastructure-based sanitation solutions to the 2.6 billion people worldwide that lack access to improved sanitation⁴. The Peepoo bag is a slim, elongated bag (14 x 38 cm) with a thin inner liner (25 x 24 cm) designed to be used once for defecation and urination.

The bag is made from degradable bioplastic (EU standard EN13432) and comprises a mixture of aromatic co-polyesters and polylactone acid, with small additives of wax and lime (the base ingredient of the mixture is "Ecoflex" manufactured by BASF in Germany). The plastic is produced using 45% renewable materials (Peepoople intends to find a solution to make the plastic 100% renewable in the future).

As a non-infrastructure based technology, the Toilet Bag offers a number of advantages:

- It does not require investment in infrastructure, which many are unwilling to make in what are considered 'temporary' poor urban settlements;
- As a single use system, it is private and does not require sharing sanitation facilities.
- This approach also saves scarce water resources, as it does not require flushing.

The system is particularly beneficial for women, who:

- Can go to the toilet at their convenience in places where it is not socially acceptable for women to leave the home or to be seen accessing sanitation facilities (or defecating in the open);
- Experience reduced stress and health problems related to withholding urine and faeces (such as urinary tract infections and constipation);
- Are not exposed to physical and sexual abuse that occurs at night when many women wait to go to the toilet under the cover of darkness.

3. The term 'toilet' in this document is used to refer to all kinds of toilet facilities, including all types of latrines.

4. Peepoople, www.peepoople.com

In addition to these benefits, the Toilet Bag is exceptionally hygienic:

- Its two-layer design ensures that the bacteria in human excreta do not come into contact with skin because the inner, wider tube helps to keep the hands clean when holding or closing the bag;
- Closure after use cuts contact between excreta with land, water, insects, animals, people;
- Each bag contains 4 g of urea, which work to rapidly destroy pathogens (including the hard to destroy helminth eggs). This so-called “ammonia-based” sanitation technology makes the excreta safe to use as fertilizer within a relatively short period of time (2-4 weeks at average temperatures of at least 20°C).⁵

2.6 Study Objectives

Despite the clear potential merits of the Toilet Bag alternative, it is a relatively new technology and its vast departure from the traditional approach to sanitation raised concerns that it might not be an appropriate solution for the context of urban poor settlements in Bangladesh. Therefore, it was decided by Mymensingh Pourashava and GTZ-Bangladesh to conduct a study and medium-scale trial to determine the viability of introducing Toilet Bags as a sustainable sanitation solution for poor urban settlements in Mymensingh.

5. See Section 6 or visit www.peepoople.com

METHODOLOGY

3.1 Background

The choice to conduct a medium-scale study as opposed to a pilot project was based on the concern that the Toilet Bag technology could be completely rejected, given the social, cultural and religious factors at play. Therefore, a full-scale pilot was considered too much of a risk. It is also important to note that the study carried out did not include an impact assessment (regarding environmental or health benefits), as this was considered unrealistic given the limited scale and duration of the study.



Image 2 : A surveyor introduces the Toilet Bag to a selected participant during the Pre-Test Survey.

3.2 Focus Group Discussions

The first step of the study was to carry out Focus Group Discussions (FGD). The objective of the FGD was to understand the initial reactions of resource-poor urban residents in Bangladesh to the Toilet Bag and ultimately determine whether or not it was worthwhile conducting a medium-scale trial. In addition, in the case that Toilet Bags were not rejected by the participants, the FGD were intended to gather information that would help in the design of the subsequent trial.

Two FGD were held on April 1, 2009 in Kristopur Colony of Mymensingh Pourashava. Men and women attended separate FGD, given the sensitive nature of the subject. Twelve males, ranging in age from 18 to 55, attended one FGD, and twelve females, ranging in age from 18 to 55, attended the other. For more details, see the Summary Report in Appendix II.

3.3 Selection of Study Areas

Two poor urban communities were initially selected for the trial. The selection was based on existing information about the sanitation situation in Mymensingh's 94 poor urban settlements and on-site visits, with the support of the Pourashava's Slum Development Officer. The two areas selected were chosen based on the poor state of sanitation as well as a significant prevalence of open defecation (see map in Appendix III for site locations). The areas in which the FGD were held were not selected for two reasons: firstly, it was found that these areas had considerably better sanitation facilities than other poor urban communities and secondly, the research team did not want the results of the study to be affected by prior knowledge of the Toilet Bags or participation in the FGD.

Box 1: Overview of Study Activities in 2009

April 1	Focus Group Discussions
April 8-9	Training of Surveyors
April 10-13, 15	Pre-Test Survey & Participant Selection
April 23-May 3	Field Test
May 4-6	Post Test Survey
May 4-6	Demonstration Plots
May 4-6, 18-20	Follow-up Interviews

Kalibari/ Thana Ghat is a community on the bank of the Brahmaputra River in Ward 9 of Mymensingh Pourashava. The community was established on this stretch of municipal land 45 years ago and is currently home to over 650 families (3450 residents), both Muslim and Hindu⁶. Most families reside on the upper riverbank, while a number of families (approximately 40 households) were forced to resettle on the lower riverbank after a new embankment was built last year⁷. The upper riverbank of Kalibari has 3 community toilet blocks with 4 toilets each; these were built by CARE Bangladesh in 2002-03. At the time of the study, 4 of the 12 community toilets were functional. The majority of toilets in this area are privately owned and vary in type and condition. On the lower riverbank 14 'hanging toilets' - with polythene sheets or jute sacks for privacy - have been built that empty directly into fields and channels that run into the river, the main source of water for bathing and also occasionally for cooking or even drinking. The Thana Ghat side of the community has no community toilets and most families share privately owned toilets. Open defecation is practiced, usually on the lower riverbank, by those who cannot access private toilets and do not wish to use the community ones.



Image 3 : The lower bank of the Kalibari community, along the Brahmaputra river.

Malgudam (also known as Rail Gate) is a community next to Mymensingh's railway station. The land is owned by the national railway and most houses have been built by railway staff who rent them out. There are no community toilets. The limited prevalence of private latrines requires that 3-4 families share each. In addition to 700 brick and tin households housing 4000 residents, there are 18 polythene structures lining the

railway tracks that are home to just under 100 further residents. Mainly 'tokai' - waste collectors - live in this area and have done so for 25 years.

A third area, an extension of the *Freedom Fighters' Colony*, was added at a later stage after a visit there proved it to be a suitable place for testing. This riverbank area 2 km south of Kalibari is home to nine Hindu and one Muslim households who all share one unsanitary latrine.

In all three communities, access to the toilets that do exist is generally free of charge and the practice of investing money or paying user fees for sanitation is not prevalent.



Image 4 : An extension of the Malgudam community along the rail line

6. Information on communities provided by staff of Mymensingh Pourashava. For more information collected during this study, please contact GTZ Bangladesh (see References for contact details).

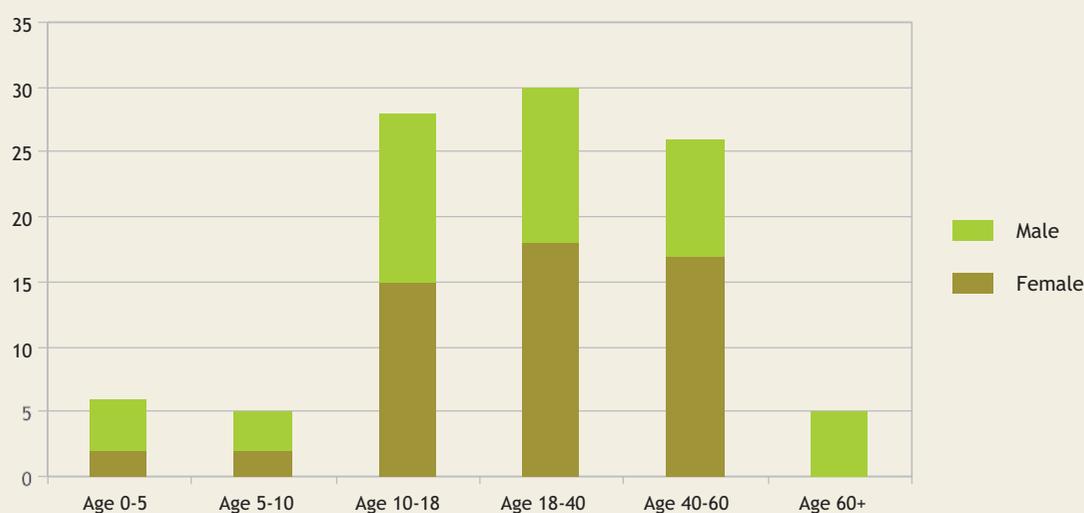
7. Within two months of completing the study, these families were forced to leave the lower riverbank due to heavy rains and resulting high water levels.

3.4 Pre-Test Survey and Participant Selection

The pre-test survey was divided into two parts: a household scan, and a participant survey⁸. All together, 200 households were 'scanned' and basic information was collected on their family composition, their income levels and their housing materials. The objective of this was to better understand the makeup of each community.

It is important to note that about half of the participants have floors of mud in their houses/shacks and around one quarter of them has a brick floor (Household Scan, v012). This is important as the houses with the mud floors, anal wash water can just infiltrate into the ground. Grey water is typically disposed of in open drains in front of the houses, which are often clogged and do not work well. All of the participants were "washers" (using water for anal and genital cleansing after defecation and urination); none of them were "wipers" (using toilet paper).

Figure 1: Participants by Age & Gender



Breakdown of the 92 participants by age and gender

Once the household scan was complete, participants were selected for a field test and follow-up survey based on their willingness to participate in the study and on their age and gender (so as to have a mix of ages and genders among participants). All together, 100 participants between the ages of 7 months and 75 years were selected, including 54 women and 46 men. Of these 100 participants, eight (four men and four women) dropped out before the field test began (see Figure 1 for breakdown by age and gender).

Participants were selected on an individual as opposed to a family basis in order to ensure the desired distribution of age and sex. In addition, the study wished to incorporate some of the views and reactions of family members who were not using the bag.

The participant survey focused on sanitation practices and on initial reactions to the Toilet Bags. This was done to better understand the current sanitation situation and to see later if and how practices and attitudes changed as a result of the field test. At a later date, all participants confirmed their participation by signing a consent form and received 25 BDT⁹ to offset the costs of participating in the study. This amount was based on the cost of a used tin, which - as it was revealed in the FGD and the Pre-Test Survey - was the preferred method of using the Toilet Bag.

Participants were also given an information sheet that provided visual and written instructions on how to use the Toilet Bag and on its main benefits (see Image 5). While the bag can be held in the hand during use, the sheet clearly showed how to place the bag over a container, since it was clear from the FGD that this would be the preferred method of using the bag.

8. For survey questions and responses, please contact GTZ Bangladesh (see References for contact details).

9. Bangladeshi Taka, the local currency. This is equivalent to EUR 0.27 (during the period of the study the average exchange rate was 1 EUR = 92.55 BDT). In Mymensingh during the period of the study, 25 BDT was approximately the cost of one liter of milk.



Image 5: Information Sheet (in Bangla) given to participants

3.5 Field Test: Distribution, Collection and Transport

The field test, which lasted 10 days, gave participants a chance to use the Toilet Bag on a daily basis. For the purposes of distributing and collecting the bags, two collectors - one man from Kalibari/Thana Ghat and one woman from Malgudam - were hired. These collectors were recommended and chosen by the community members and leaders to ensure their acceptance by participants and community members. Collectors were paid daily for their work throughout the duration of the field test.

On the first day each participant was given two new Toilet Bags and on subsequent days used bags were collected daily and replaced with new bags, one-for-one (in total, **738 bags** were used). The used bags in Kalibari and Malgudam were collected in plastic buckets and transferred by wheelbarrow to a motorized trolley provided by the Pourashava (see Image 6). The trolley bed approximately 1 m x 2 m - was open (not covered) and was made of metal. The trolley driver then collected the used bags from Freedom Fighters' Colony and drove to the processing site daily, just south of the Bangladesh Agricultural University (BAU) campus (see map in Appendix III), approximately 3km from Kalibari.

During the test, the bags were given to participants for free (see Section 4.6.3 for further information on costs).

3.6 Burial, Processing and Testing

Processing¹⁰ of the used bags into fertilizer was managed by Bangladesh Agricultural University (BAU), who secured a private piece of fenced land (225 sqm) in which holes (1.5 m long X 0.5 m wide X 1 m deep¹¹) were dug for burying the bags collected each day (one hole for each day, 10 holes in total). The total number of bags collected each day (between 50 and 80) was placed into one hole and covered with soil. Biological testing is also being done to see how quickly bacteria are destroyed and the deterioration of the bio-plastic given the particular climate and soil of the area is being observed. Once the bags have decomposed sufficiently (the expected degradation time for the biodegradable plastic bags is 6 to 12 months; this will be checked by BAU), the resulting fertilizer will be tested for carbon and nitrogen levels and then applied to a test field of crops to compare its effects against a control field. Eventually, the fertilizer produced will be packaged and market research will be done to determine the level of interest in fertilizer produced from human waste and the appropriate price level.



Image 6: Distribution and collection (Clockwise from top left: Each participant was given two bags at the beginning of the test; each day for 10 days, collectors carried a sack of new bags and a plastic bucket to collect used bags; each used bag was replaced with a new bag; once collected all bags were transported daily by motorized trolley; bags collected each day were placed in the ground together and covered with soil for processing).

3.7 Post-Test Survey

The post-test survey, carried out immediately following the end of the field test (i.e. starting the next day) focused on the practices associated with using the Toilet Bags, the feelings and attitudes of the users as well as other family and community members and the perceptions of the benefits provided by the bag. Also covered were the adequacy of the information provided and the satisfaction with the distribution and collection. The results from this survey are covered in the chapter below .

10. Note: the term 'composting' is not used because technically composting generally refers to an aerobic (requiring oxygen) process of decomposition, whereas Toilet Bags are processed into fertilizer anaerobically.

11. The nearest body of groundwater is estimated by BAU to be at least 6 m below the surface, so there is not a significant concern regarding contamination of groundwater if any of the bags were to leak.

3.8 Demonstration Plots

At the end of the field test, five used (filled) Toilet Bags were put aside and utilized as fertilizer for lemon trees in three demonstration plots (in each test area). Following the 'micro dosage' method, a small hole was dug where a full Toilet Bag was placed and then a lemon tree placed on top before filling the hole with soil. Within the time it takes for the roots of the tree to penetrate the bio-plastic, the pathogens (including helminth eggs) will have been destroyed and the waste in the bag converted into valuable, nitrogen-rich fertilizer. By August 2009, the lemon trees have grown considerably since they were planted on 6 May 2009, providing residents with visible evidence of the effects of the fertilizer (based on observation, BAU estimates 20% more actual growth than similar unfertilized trees). The tree plantings in Malgudam and Kalibari (on May 4 and 5, 2009, respectively) were attended by the Mayor and other Pourashava officials, along with participants, community members and leaders.

3.9 Follow-up Interviews

After the post-test survey, interviews were held with collectors, surveyors, Pourashava officials, community leaders, and individuals from other organizations to collect their views on the study and the Toilet Bags themselves.



Image 7: Members of Mymensingh Pourashava (including the Mayor) water newly planted lemon trees at the demonstration plot in Kalibari

FINDINGS¹²

4.1 Overall Acceptance and Usage

In general, the bag was well accepted by participants. As mentioned, out of 100 selected participants, only eight people (four men, four women) dropped out without testing any bags. The reasons for this varied, but included pressure from family and community members who disapproved of the bag.

Of the 92 participants who tested the bag, the average number of bags used over the 10-day period was 8 - women using a slightly higher average (8.7 bags) than men (7.2 bags) - with only 16% of users testing less than 5 bags. In total, 738 bags were used by participants during the field test.

Participants who chose to discontinue use of the bags after trying them one or more times (four men, one woman; 5% of total participants) cited several factors that led to their decision, namely:

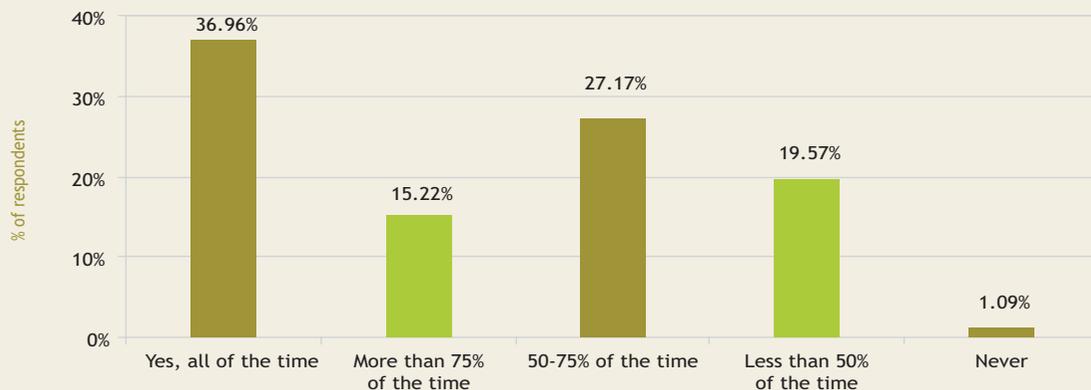
- Lack of a private place to use the bag (or discomfort using the bag inside the home) - no surprise given that 87% of households scanned have only one room (Pre-Test Survey v014)
- Size and design of the bag resulting in spilled urine or faeces
- Difficulty using water to wash after defecation.

In addition, one small child stated that he preferred to go to the toilet in the drain along with the other children his age, a common practice among young children in Bangladesh.



Image 8: A collector retrieves a used bag from its storage place, inside a container.

Figure 2: Did you use a Toilet Bag every time you urinated/defecated?



Responses to Post-Test Survey v001 (total responses n=92)

12. Surveys (Pre or Post-Test) and question numbers (v----) are referenced throughout the text. To obtain a copy of survey questions and responses, please contact GTZ Bangladesh (see References for contact details).

In terms of usage, 37% indicated that they used the bag all of the time, while 20% used the bag less than 50% of the time (Post-Test Survey, v001; see Figure 2). Of those who used the bag less than 50% of the time, 68% were men.

Most participants stated that they did not need to defecate on a daily basis, and therefore used less than one bag per day. It is also possible that some participants had access to toilets at work or other public places outside their community that they may have used in lieu of carrying a Toilet Bag with them. Usage rates were also affected by the movement of some participants to rural areas to participate in rice harvesting, which took place over the same period as the field test.

Usage was lowest on a day of heavy rain, which required people to stay indoors and prohibited use of the Toilet Bag inside the home due to the number of people there (more detail on where Toilet Bags were used by participants is given in Section 4.4.2).

4.2 Sanitation Situation in Selected Poor Urban Settlements¹³

When asked to profile the toilets in their community (Pre-Test Survey, Toilet Profile), most participants (52%) listed one or two toilets. Of the toilets profiled, 36% were said to be 'pacca' (a solid structure with sanitary drainage or disposal system) while 30% were described as temporary 'katcha' latrines (temporary structure with unsanitary disposal system). Only three latrines (1%) were described as 'hanging', despite the fact that a large number of hanging latrines are present, especially on the lower bank of Kalibari (where there were at least 14 at the time of the study). This suggests that hanging latrines may have been classified as temporary 'katcha' latrines given the materials they are usually constructed from (e.g. bamboo, old cement bags). Interestingly, over 15% of the 'toilets' listed referred to places of open defecation, such as riverbanks and drains. This suggests that the practice is so permanent for some poor urban residents that they consider these places their 'toilets'. The majority of toilets (42%) profiled are privately owned, while a large number (27%) were provided by NGOs.

Despite the considerable number of toilets within each community, when asked whether or not the toilets profiled were accessible to participants, 66% of toilets were listed as inaccessible to participants. On the other hand, the vast majority (over 89%) of toilet facilities carried no cost for use, suggesting that cost is not a significant factor in sanitation decisions in poor urban settlements.

Box 2: Overview of current sanitation situation

% of participants who...

Are satisfied with the toilet they use	21%
Consider the toilet they use to be 'clean'	15%
Consider the toilet they use to be 'safe'	22%
Feel dissatisfied, ashamed or worried about their sanitation situation	93%
Practice open defecation	38%

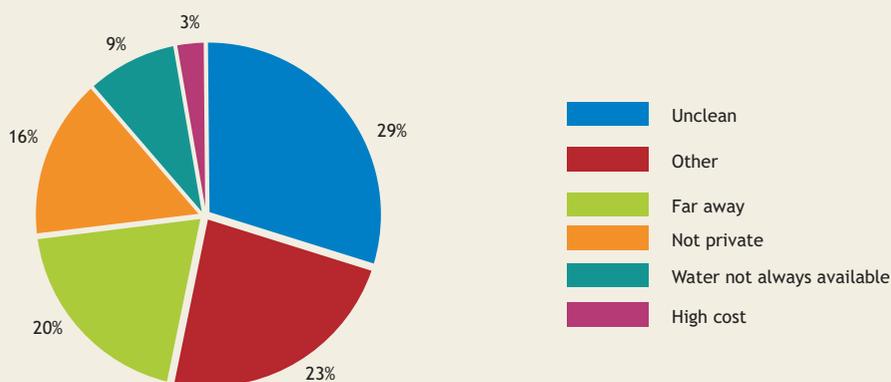
Figure 3: Are you satisfied with the toilet(s) you use?



13. It should be noted that not all participants responded to every question on the survey. As such, percentages presented throughout this report represent the proportion of responses to a particular question, not necessarily a percentage of participants. For graphs, sample sizes (n = number of participants who responded) are given.

In terms of satisfaction (Pre-Test Survey, v025), 79% of participants stated that they were unsatisfied or very unsatisfied with the toilet they used (see Figure 3). The main reasons for dissatisfaction (Pre-Test Survey, v027; see Figure 4) were level of cleanliness (30%), distance (20%) and lack of privacy (16%). In terms of cleanliness (Pre-Test Survey, v028), 85% of responses indicated that the toilet used was not clean. Participants were also asked if the toilet they used was safe (Pre-Test Survey, v029), to which 78% answered no (although it should be pointed out that 'safe' was not defined in terms of hygiene or physical security). In reference to the sanitation situation in general (Pre-Test Survey, v043), 93% of responses were negative: dissatisfied (68%), ashamed (17%) or concerned/ worried (8%).

Figure 4: Reason for dissatisfaction



Pre-Test Survey v027 (n=73)

4.3 Attitudes Towards Toilet Bag Prior to Field Test

Given the bleak state of sanitation in poor urban settlements, it is not surprising that the initial reactions to the Toilet Bag were fairly positive. When asked for initial thoughts about the Toilet Bag (Pre-Test Survey, v044), 93% of responses were positive, indicating that the bag was good (47%), that the participant was interested in the bag (35%) or that the bag would be helpful (11%). Even more encouragingly, when asked if participants would consider using the Toilet Bag regularly (Pre-Test Survey, v046), 100% of responses were positive (yes). The most common reasons given in support of this willingness were related to the perceived cleanliness of the bag, its lack of odour, ease of use and timesaving potential (32%). Flexibility - possibility to use at any time in a variety of locations - and appropriateness for particular people (i.e. sick and disabled) were also considered important (15%) as was the fact that it represented an improvement on the current sanitation situation (15%).

Participants did not feel that it would be difficult to use (76%, Pre-Test Survey, v049) and expected that it would be clean (84%, Pre-Test Survey, v051). Almost all respondents (97%) expected that the bag could improve their sanitation situation, particularly due to its health and environmental benefits (Pre-Test Survey, v052-53).

Box 3: Overview of Pre-Test Attitudes

Before the field test participants were...

Positive about the Toilet Bag	93%
Open to the idea of using it regularly	100%
Not concerned it would be difficult to use	76%
Concerned about social perceptions	74%
Concerned about storing used bags	81%

Despite the positive views on the Toilet Bag prior to testing, it is worth noting that 74% of respondents indicated that they were concerned with social perceptions about using the bag (Pre-Test Survey, v056). However, this was contradicted by the 81% of respondents who believed that using the Toilet Bag could bring them increased respect in their community (Pre-Test Survey, v055).

Another concern prior to testing the Toilet Bag included storage of used bags: 81% of respondents were concerned about the issue of storing used bags (Pre-Test Survey, v068), although 47% indicated a willingness to consider storing used bags inside their home (Pre-Test Survey, v069).

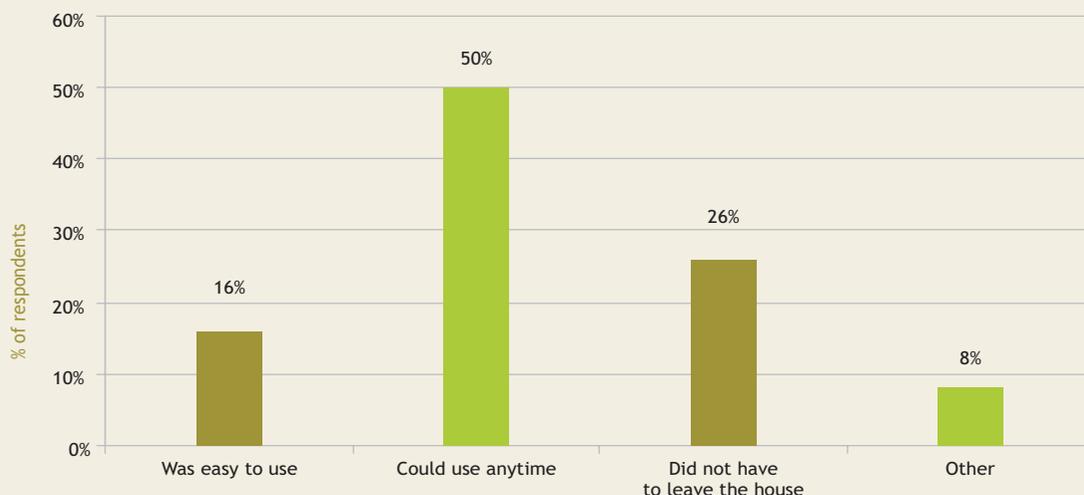
4.4 Experiences Using the Toilet Bag

4.4.1 Feelings about use

When asked about the first time they used the Toilet Bag (Post-Test Survey, v003), 72% of participants indicated that they were uncomfortable, nervous or embarrassed, and 64% felt hesitant to use it (Post-Test Survey, v004). When compared to how they felt the last time they used the bag (Post-Test Survey, v006, only 26% felt uncomfortable, nervous or embarrassed, and 68% said they felt comfortable and/or happy.

When asked what they liked about using the Toilet Bag (Post-Test Survey, v052), the most common response was that it was that it could be used anytime, followed by the fact that it did not require leaving the house and that it was easy to use (see Figure 5).

Figure 5: What did you like about using the Toilet Bag?

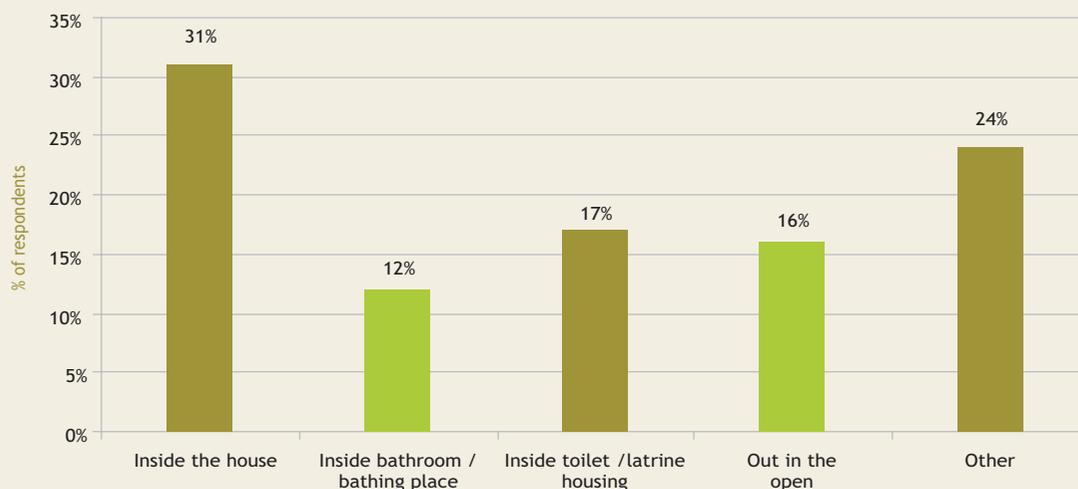


Responses to Post-Test Survey v052 (multiple answers were possible, n=92)

4.4.2 Location of use

Despite the concerns voiced about using the Toilet Bag inside the house, the largest number of respondents (31%) indicated that they used the bag inside the house or shack (Post-Test Survey, v007; see Figure 6). The main reason cited for using the bag in the location of choice (Post-Test Survey, v008) was that it was private (50%) followed by the fact that it was convenient (25%). followed by the fact that it was convenient (25%). About one quarter of users (24%) stated they used the Toilet Bag in neither the house, bathroom, toilet, nor outside.

Figure 6: Where did you use it?



Responses to Post-Test Survey, v007 (multiple answers were possible, n=92)

4.4.3 Method of use

Regarding the method of using the Toilet Bag, it is noteworthy that only 8% of participants used the bag for both urine and faeces, with the vast majority choosing to use the bag for faeces only (Post-Test Survey, v013). The main reason for this was because the bag was considered to be too small to comfortably urinate and defecate in (Post-Test Survey, v014). Almost all participants (98.9%, Post-Test Survey, v015) used the bag inside a container as opposed to holding the bag in their hand (only 1 participant did this). Likewise, 99% of respondents stated that they placed the container on the ground when using the bag (Post-Test Survey, v016), left the container stationary (98%, Post-Test Survey, v017) and sat on top of it (99%, Post-Test Survey, v018). This may have contributed to the difficulty of both urinating and defecating in the bag, which is more easily done if the container is held in the hand and moved forward and backward accordingly.



Image 9: Left: Most participants placed the bag on an empty tin (or similar sized container) and sat on top of it when defecating and/or urinating. Right: children can use the Toilet Bag very easily, similarly to a potty.

Most participants used an old tin (usually a powdered milk tin with a 15cm diameter) as a container to hold the Toilet Bag (see Image 9). Overwhelmingly, this choice was based on the fact that similar containers were used throughout the survey when demonstrating ways to use the Toilet Bag. In fact, the majority of participants (42%) understood that they had been 'instructed' to buy this particular container (Post-Test Survey, v019). It should be noted that, while this container was adequate, it would have been more effective if a container with a slightly larger diameter were used, providing more space in which to urinate and defecate into. Containers of other materials may also have been more suitable and cost effective. Most participants (80%) used the 25 BDT they were provided to purchase a container, while some (19%) did state that they had used the money to purchase items not related to the use of the Toilet Bag (Post-Test Survey, v056).

4.4.4 Bag Closure and Anal Washing

After defecating, most participants (77%) closed the bag immediately (Post-Test Survey, v024). The next step was to wash the anal and genital area (participants are “washers”, not “wipers”), which most participants (67%) did in the same place in which they used the Toilet Bag (Post-Test Survey, v028). As mentioned in Section, 4.4.2, about one third of the users used the Toilet Bag inside of the house or shack. The majority of participants (63%) experienced no problems when washing their anal areas, and of those who did, most (26%) stated that water got onto the floor when washing (Post-Test Survey, v029). As mentioned, the floors of most dwellings are just mud floors, and are not sealed, so water can penetrate.

Most respondents (67%) stated that they washed their hands with soap after using the bag (Post-Test Survey, v048). Hand washing with soap was not included in the instructions or emphasized by surveyors, given that promoting hand washing was not the focus of the study.

Only 23% of respondents stated that they had trouble closing the bag (Post-Test Survey, v039), although subsequent questions revealed that these troubles were emotional, not technical: 47% did not feel good about holding the bag after it was used, and 41% felt embarrassed to hold the used bag (Post-Test Survey, v040). In contrast, observation of the collection process saw numerous participants carrying used bags over to the collector, sometimes in front of their neighbours, without any indication of hesitation or embarrassment (see Image 10).

Despite the low percentage of respondents that reported having trouble with the closure process, there were significant technical problems associated with closing the bag: 79% of participants indicated that waste had ended up in or above the knot at some point (Post-Test Survey, v041). This would create the danger of transmission of disease. Further details were not given about when or how often this may have occurred. It is possible that faecal matter may have ended up above the knot at the beginning of the field test when participants were still getting used to using the bag. Another possible explanation is that some participants may have had diarrhoea which could have made it more difficult to use the bag properly. Next time, more attention will be paid to this point in the survey questions.

Box 4: Overview of Bag Closure & Washing

% of participants who...

Closed the bag after defecation/urination	77%
Closed the bag after washing	22%
Had trouble closing the bag	23%
Found faecal matter above the knot at some point	79%
Washed themselves in the same location as using the bag	67%
Experienced problems when washing	26%
Washed their hands with soap	67%



Image 10: A participant stands out in the open in her community holding a used Toilet Bag.

Once closed, the majority of respondents (64%) stored the bag outside their house (Post-Test Survey, v044). Most respondents (70%) also indicated that they stored the bag in a hidden location, not out in the open (Post-Test Survey, v045), and many (61%) stored the bag inside a container (Post-Test Survey, v046), most likely the one used for holding the bag when in use. The main reason for choice of storage place (Post-Test Survey, v047) related to safety (45%), with a number of respondents also indicated the importance of privacy (17%). Safety was indeed a concern in terms of storage, given that a number of used bags (at least 6, or 0.8%, of all used bags) throughout the study were taken away by dogs. This increases the risk that excreta would be exposed and cause transmission of pathogens.

4.4.5 Toilet Bag Design

Participants had varied experiences using the bag. Most indicated that it was comfortable to use (70%, Post-Test Survey, v020) and that they felt clean (92%, Post-Test Survey, v027), but many (64%) stated that urine and faeces did not enter the bag easily (Post-Test Survey, v022); of those responses, 85% related to it being difficult to urinate in the bag (Post-Test Survey, v023). When asked directly if the size and shape of the bag were suitable, 57% of responses were negative (no; Post-Test Survey, v034): 81% felt that either the outside (59%) or the inside (22%) of the bag should be made wider (see Figures 7A&B).

In regards to the design of the bag, 96% of respondents felt it was good that the bag had two layers (a thin inner tube/funnel and a stronger outer bag) because it made it easier to hold/place in the container (84%)¹⁴. Less than half (49%) of respondents would use the Toilet Bag if it only had one layer (Post-Test Survey, v038). In addition to the difficulty peeing in the bag, the concern with size and shape related to the possibility of touching waste: when asked about problems experienced when using the bag (Post-Test Survey, v032), this was the main concern (35%).

Figure 7A: Was the size and shape of the bag suitable?

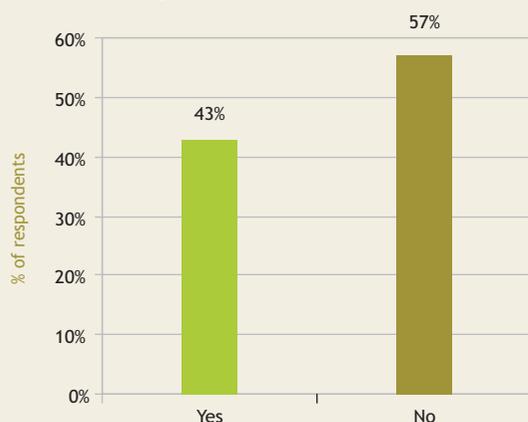
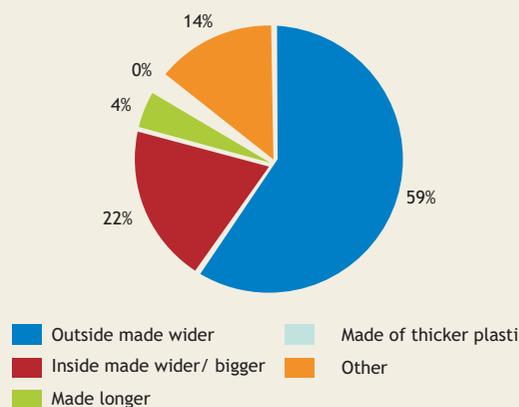


Figure 7B: How should it be improved?



Responses to Post-Test Survey v034 (left, n=91) and v035 (right, multiple answers were possible, n=80)

4.4.6 Odour of Filled Bags

In the hours after filling the bag, very few participants (12%) indicated noticing any bad smell, and those that did stated that it only occurred once or a few times (Post-Test Survey, v049-50).

On the other hand, the Toilet Bags, when collected in significant numbers (i.e. more than 20), emitted a very unpleasant odour, despite being designed not to smell (in the first 12-24 hours) and having successfully contained odours when tested previously¹⁵. The smell grew worse as more bags were placed together (each day around 60 to 80 bags were transported together).

14. More detail was not given about why it was easier to hold. The reason may be due to the fact that the inner layer is currently larger in diameter than the outer layer, in which case it may not be a concern if the outer layer was made bigger.

15. Peepoo bags were first tested in a pilot study in Nairobi, Kenya in 2008. For more information, see JAC (2009) Impact Assessment Report on the Peepoo bag, Silanga Village, Kibera, Nairobi- Kenya, report by Jean Africa Consultants for Peepoo and GTZ. Available: <http://www2.gtzt.de/Dokumente/oe44/ecosan/en-peepoo-bags-assessment-Kibera-2009.pdf>.

The smell was not noticeable to most participants, but was noticeable to collectors and became overpowering when the bags were transported together by trolley. This may have been worsened by the fact that the trolley was open to the sun during a very hot period (average temperatures of 35-40°C) and was made of metal, although the odour persisted even on days when there was not strong direct sunlight.

Ms. Wirseen of Peepoople is investigating ways to improve the bag accordingly. Using a different, denser plastic in bag manufacture is possible, but also more expensive.

4.4.7 Technical Failures of the Toilet Bags

There were minor technical failures with the bag. A small number of bags (approximately 15, or 2% of the bags used) were found to be broken before use, and a few used bags were found to have small holes or rips in them when being collected. Three bags burst (0.4% of bags used), one when still with the participant, one when being transferred to the wheelbarrow, and one when being placed in the ground.

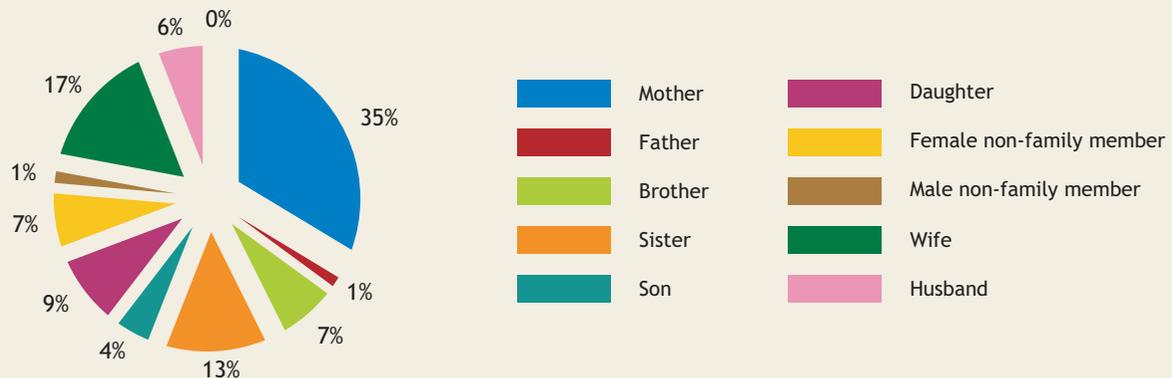
4.4.8 Instructions and Information

Most participants were satisfied with the amount of information provided to them about how to use the Toilet Bag: 98% stated that the information provided was sufficient (Post-Test Survey, v057) and 82% felt that the instruction sheet was helpful (Post-Test Survey, v059). Some recommendations included bigger drawings on the instruction sheet and more comprehensive demonstrations (Post-Test Survey, v060).

4.5 Reactions of Family and Community Members

When asked about the reactions of other family members, including husbands or wives, sibling and parents or children, the majority of responses indicated that family members were positive about the participant's involvement in the test and use of the Toilet Bag (Post-Test Survey, v081). In cases where there was another member of the family testing the bag, almost all responses (98%) indicated that the other participant was more positive about the Toilet Bag than other family members (Post-Test Survey, v079).

Figure 8: Who did you speak to in your family about your experiences?



Responses to Post-Test Survey v089 (multiple answers were possible, n=60)

Some participants (27%) indicated that a family member or members had strong objections to their use of the Toilet Bag (Post-Test Survey, v082), most often indicating that they did not approve of urination or defecation inside the house or that they did not wish the respondent to participate in the study. Participants responded to these objections in a variety of ways (Post-Test Survey, v083), most often (41%) choosing to explain the benefits of the Toilet Bag in an effort to change the opinions of the objectors. Some also chose to ignore the objections (32%) and others (21%) - mostly (71%) women - continued to use the bag in secret.

Only one participant - a man of 50 years of age - indicated that a family had tried, and successfully managed, to stop him from using the Toilet Bag (Post-Test Survey, v085).

16. Note: some relationships are assumed, and relationships through marriage (in-law) are not reflected.

Most respondents (74%) indicated that they talked to their family members about the Toilet Bag (Post-Test Survey, v088-89), to explain how the bag works, its benefits and to share their feelings about using it (see Figure 8 for details about who participants spoke to)¹⁶. The majority of participants (58%) also talked to other community members about the Toilet Bag (Post-Test Survey, v092), again in order to explain the bag and its benefits and to share their feelings about using it. In this case, most female participants talked to other females and all male participants talked to other males (Post-Test Survey, v093). Most participants (72%) were also approached by community members, most often by females and/or people their own age (Post-Test Survey, v096-97). Half of the comments made were negative, while 42% were positive and the rest neutral (Post-Test Survey, v098).

4.6 Attitudes and Feelings of Participants Following Field Test

4.6.1 Benefits of using the Toilet Bag

Almost all (88%) participants indicated that the bag had benefited them in some way (Post-Test Survey, v109). The benefit cited most often was the ability to go to the toilet more frequently (28%; Post-Test Survey, v110; see Figure 9).

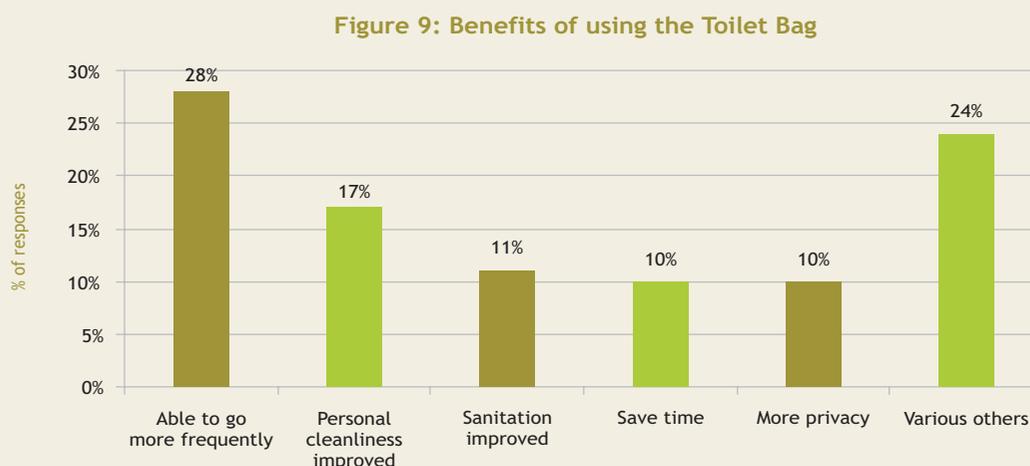


Figure : Responses to Post-Test Survey v110 (multiple answers were possible, n=82)

When asked to rank the top three benefits of the bag, the benefit with the highest score and that most often ranked first was improved sanitation/ cleanliness (Post-Test Survey, v111; see Figure 10). This indicates that the way questions about benefits were phrased (e.g. 'able to go more often vs. 'convenience') affected the results.

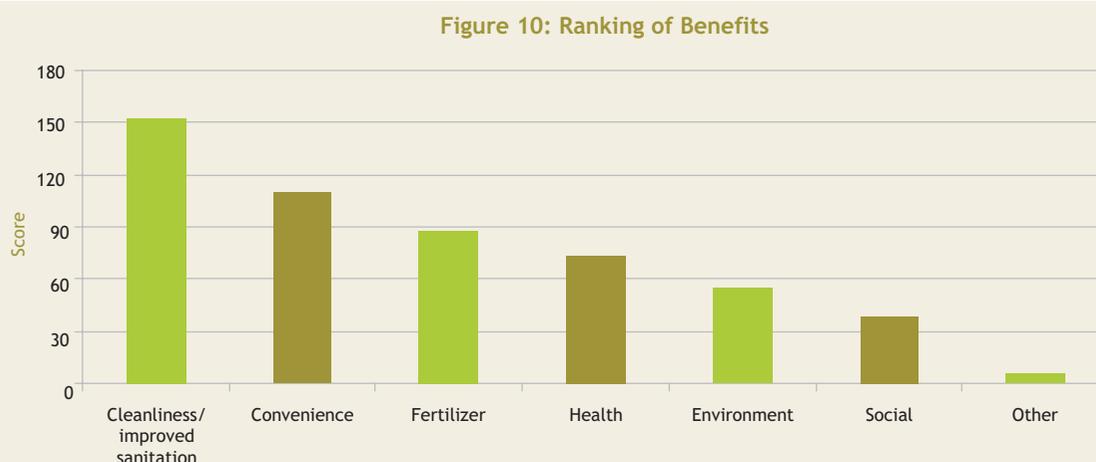


Figure : Responses to Post-Test Survey v111; scores were calculated by awarding 3 points to responses ranked first, 2 points to those ranked second and 1 point to those ranked third (n=87)

Most respondents indicated that the Toilet Bag saved them time: 7 minutes on average (Post-Test Survey, v112)¹⁷. While respondents were not specifically asked how this time was saved, it is understood from discussions with participants that time was most often saved by not having to leave the house or go far to access a toilet and not having to queue to use a shared toilet (59% of respondents indicated that they have to wait to use the toilet they normally use, Pre-Test Survey v023).

The majority of participants (87%) felt that the Toilet Bag was better than their normal sanitation practices (Post-Test Survey, v115), and 80% stated that they would like to use the Toilet Bag on a daily basis (Post-Test Survey, v116). There was an overwhelming recognition that the Toilet Bag is valuable (91%, Post-Test Survey, v117).

4.6.2 Drawbacks of using the Toilet Bag

Only very few respondents (7%) felt that the bag had any disadvantages, and these were, for example, that it took longer to urinate and defecate than usual (Post-Test Survey, v113-114).

4.6.3 Willingness-to-Pay and Pricing

The majority (61%) of respondents indicated that they would not be willing to pay for the bag (Post-Test Survey, v118). About half of the participants felt that they could not afford it and 17% said that they did not wish to pay for any kind of sanitation (Post-Test Survey, v119). This is not a surprise given that currently only 11% of residents in all three communities pay anything for sanitation (Pre-Test Survey, Toilet Profile). The lack of economic value associated with sanitation will be a significant barrier to overcome in establishing a sustainable market-based system for Toilet Bags.

When asked about an appropriate price for the Toilet Bag, the average was 0.65 BDT¹⁸, while the price suggested most frequently (other than 0 BDT) was 0.5 BDT (Post-Test Survey, v120). Asked if they would purchase the Toilet Bag at a cost of 1 BDT per bag, only 19% responded 'yes' (Post-Test Survey, v122). While 1 BDT is not a significant sum of money - there are almost no products that can be purchased for only 1 BDT - the cost of purchasing one bag per day for an average family size of five at this price represents 4% of an average monthly income of 4000 BDT¹⁹. For female-headed households, it represents 6% of an average monthly income of 2500 BDT²⁰.

The estimated cost of the Toilet Bag when mass produced, 0.04 EUR or 3.7 BDT, amounts to a much larger sum when purchased regularly for an average five-person family: 14% of monthly income for regular households and 22% for female-headed households. Given the low proportion of residents in the communities involved in this study who paid for sanitation at present, it is a substantial challenge to ask families to contribute up to 22% of their income on average towards sanitation.

Once mass-produced, it is expected that the bags will cost around EUR 0.04 (at present they cost much more than that because they are still partially hand assembled, which will not be the case over the long term).

The cost of the collection system consisted of three salaries (one collector and trolley driver at 100 BDT, one collector at 150 BDT per day)²¹, some basic equipment, and hire of the motorised collection vehicle (in this case provided by the municipality free of charge). For a full-scale system, the cost of collection either needs to be included in the cost of the Toilet Bag or charged as a separate fee.

17. Average was calculated based on the number of respondents to this question.

18. Equivalent to less than EUR 0.01. At the time of the study, nothing significant could be purchased for 0.65 BDT.

19. Equivalent to EUR 43. The average monthly income was calculated from the 200 households scanned during the Pre-Test Survey. Other information provided by the Pourashava indicates an average monthly income in poor urban communities of BDT 3000 (EUR 32)

20. Equivalent to EUR 27.

21. Equivalent to 1.08 and 1.62 EUR, respectively. These represents an average daily labour wage even though collectors and trolley driver only worked a few hours each day; a premium was paid given the short term nature of the work. Salaries were set based on average local wages and the advice of the Pourashava. The collector for Kalibari was paid more based on the number of houses he collected from.

4.6.4 Fertilizer Production

There is a possibility, however, to subsidize the cost of the Toilet Bag with the revenues generated by fertilizer production²². With respect to the production of fertilizer, 92% of respondents felt that it was a good idea to produce fertilizer from human excreta using the Toilet Bags (Post-Test Survey, v125). Furthermore, 85% said they would be interested in selling their used bags for this purpose (Post-Test Survey, v126) and 99% felt that they would buy and eat food that had been produced using fertilizer from human excreta (Post-Test Survey, v128).

4.6.5 Promotion of the Toilet Bag

Most participants (81%) would recommend the Toilet Bag to others (Post-Test Survey, v130). However, only 42% of respondents said they would feel comfortable talking about the bag to others (Post-Test Survey, v137), and fewer (11%) would feel comfortable promoting the bag formally (Post-Test Survey, v138).

4.6.6 Collection and Distribution

Regarding collection and distribution of bags, 100% of participants were satisfied with the method and time of collection (Post-Test Survey, v139), and 96% of respondents were satisfied with the collectors (Post-Test Survey, v146). Few participants (14%, mostly women) indicated that they would be interested in working as a collector of Toilet Bags (Post-Test Survey, v152). This could be interpreted as an indication of the quantity of employment opportunities available for men as opposed to women.

The most important finding with respect to collection is the importance of the collection system to the success of the Toilet Bag itself: 53% of respondents indicated that they would not use the Toilet Bag if there were no collection system (Post-Test Survey v154).

4.6.7 Participation in the Study

Most participants (84%) were happy that they had participated in the study (Post-Test Survey, v157). Those few (15 people) who were not happy gave a number of different reasons, such as feelings of embarrassment (Post-Test Survey, v158).

More than half (55%) of the participants said that the test made them feel differently about themselves (Post-Test Survey, v105), and over half of these respondents stated that they felt more confident (51% or 27 people) or proud (13%) and less than one third stating that they felt embarrassed (26%) or less confident (4%; Post-Test Survey, v106).

4.7 Gender Considerations

Data was analysed according to gender, and some variations were uncovered. In most cases, women and men represented close to 50% of the responses provided. In some cases where it was expected that women would respond more prominently, such as issues of privacy, men actually responded in higher numbers. Gender-sensitive findings - those where one gender represented more than 60% of responses - are summarized below:²³

Questions regarding menstruation were not asked during the surveys, so no statements can be made whether menstruating women liked using the Toilet Bags or rather avoided it.



Image 11: A used Toilet Bag is utilized as fertilizer, according to the micro-dosage method.

22. Currently it is not known what the economic value of fertilizer on the local market will be. Further research will be carried out once the fertilizer from this study has been processed.

23. Not all results were gender analyzed, only those considered to be potentially gender-relevant. Percentages given are the percentage of men or women that responded a certain way to a question (sample size ranges from 1 to 92).

Box 5: Gender-Sensitive Findings

<i>Of those who...</i>	Women	Men
Cannot go to the toilet whenever they want because a family member won't allow it (Pre-Test Survey v040)	100%	0%
Cannot go to the toilet whenever they want because they are not allowed to leave the house alone (Pre-Test Survey v040)	100%	0%
Considered Toilet Bags to be worse than their regular sanitation practices (Post-Test Survey v115) - this is the % values of the 8 people who said it was worse	88%	12%
Expressed an interest in working as collectors (Post-Test Survey v152)	85%	15%
Users who, when facing objection from family members, used the bag in secret (Post-Test Survey v083)	79%	21%
Cannot go to the toilet whenever they want because it is socially unacceptable (Pre-Test Survey v040)	79%	21%
Considered saving time to be a benefit of using the Toilet Bag (Post-Test Survey v110)	21%	79%
Would like to be able to go to the toilet more often (Pre-Test Survey v036)	78%	22%
Considered leaving the house unattended a problem when going to the toilet (Pre-Test Survey v032)	76%	24%
Could choose to spend household income on Toilet Bags independently (Post-Test Survey v123)	32%	68%
Cannot go to the toilet whenever they want because they don't feel comfortable going at certain times (Pre-Test Survey v040)	67%	33%
Considered the Toilet Bag to be cost effective (Post-Test Survey v119)	67%	33%
Feel the toilet they use is designed to meet their needs (Pre-Test Survey v030)	64%	36%
Considered harassment a problem when going to the toilet (Pre-Test Survey v032)	64%	36%
Choice of which toilet to use was based on privacy (Pre-Test Survey v022)	38%	63%
Feel the toilet they use is safe (Pre-Test Survey v029)	61%	39%
Go to the toilet between 9pm and 6am (Pre-Test Survey v041)	61%	39%

4.8 Findings from Follow-up Interviews

Three officials from Mymensingh Pourashava were interviewed - the Mayor, the Executive Engineer and the Slum Development Officer - all of whom were supportive of the study and the Toilet Bag concept. The Slum Development Officer in particular felt it was a good solution for sanitation not only in poor urban settlements, but also among the middle and upper socio-economic classes. The Pourashava expressed an interest in further testing the bags in a larger pilot and indicated a willingness to be involved in the planning, management and funding of any such venture.

Both collectors, Julekha Khatun and Md Abul Hashem, were interviewed and expressed positive feelings about their experience. Both were motivated to accept the job for financial reasons, but ultimately they came to believe strongly in the benefits and importance of the Toilet Bag. Both suffered verbal harassment from some community members, but did not feel bothered by it because they felt proud of the work they were doing. Hashem stated that some community members held such strong feelings against the Toilet Bags that they even offered to pay him to stop collecting the bags.

Interestingly, Julekha felt very positively about her involvement with the Pourashava and enjoyed going there on a daily basis because she felt it earned her respect, while Hashem dislike his involvement with the Pourashava because he felt that the Pourashava would ultimately force him to do other 'sweeper' (waste collector) work if he were hired directly by them.

All five surveyors were interviewed, and all expressed very positive views about their experiences. They indicated that they overheard some negative comments about the bags, but that overall, the community was supportive of the idea. Above all, the surveyors were impressed with how well they were treated by the community and the participants that they were interviewing and monitoring. They stated that their views on poor people and 'slums' had changed entirely, and that spending time in those communities was what they had most enjoyed about their work. They were supportive of the Toilet Bags as a solution to sanitation challenges in poor urban settlements and felt that a long-term project should be implemented in these areas.

Community leaders were interviewed in each community and were generally very positive about the Toilet Bags and the study. Both men were particularly pleased with the demonstration plots, as they felt that they would effectively prove to people the benefits of using human excreta as fertilizer. The fertilizer aspect was what most impressed the community leader in Malgudam, and he was strongly in favour of promoting their use for this purpose. In Kalibari, the community leaders were most concerned with how the bags could solve the problem of open defecation, as well as the fact that valuable fertilizer could be produced. The leaders in Kalibari wished to see the availability of Toilet Bags expanded, although they felt that some adjustments needed to be made, namely the construction of a suitable place to use the bags so that they would not have to be used inside the home.

One Muslim religious leader in Kalibari was also interviewed briefly and, while he did not have much knowledge about the Toilet Bags or the study, he said that he thought they were a good idea and had no concerns about people using them. He also said that it was not a concern to eat food produced with fertilizer from human excreta; he noted that currently people are defecating near or into rice paddy fields and that people eat that rice, so there should be no concern about using treated fertilizer from faeces.

Further unsolicited feedback was collected from a number of participants who approached individuals involved in running the study to ask when the bags would be available again, confirming that they wanted to keep using them. Finally, one community member of Malgudam was interviewed after learning that he had shared unsolicited feedback with two surveyors. Mironjon, the Yard Master of the Mymensingh Rail Station, heard about the Toilet Bags from the surveyors when they were working in his area. He was very impressed with the concept and felt that it was an extremely effective solution to both the sanitation situation in poor urban areas as well as the deteriorating quality of topsoil in Bangladesh.

CONCLUSIONS

5.1 Key Findings

Given the objective of the study - to determine whether Toilet Bags were a feasible sanitation solution in the context of poor urban settlements in Bangladesh - the overall outcomes of the study were very positive. Most importantly, the bags were used and accepted as a viable, beneficial solution to the sanitation situation of the majority of participants. This is a fundamental basis on which a wider trial of Toilet Bags can be developed in order to establish a sustainable system that overcomes the shortcomings of sanitation in poor urban settlements.

In addition to the overall success of the medium-scale trial, there are some other key findings worth noting.

5.1.1 Perceived Benefits

Participants perceived the main benefits of the bag to be its ability to be used at any time and consequently go to the toilet more frequently, and the improvements it facilitated in terms of cleanliness and sanitary conditions. It is a positive finding that participants valued not only the convenience of the bag, but also the improved level of sanitation, given that this has major health implications.

5.1.2 Cultural Considerations

Another important finding of the study was that culture was not to be an insurmountable obstacle. The culture of washing with water after defecation was a prior concern, given that the bag is designed for use inside the home, where washing with water could be a challenge. Participants overcame this challenge, however, and few reported having difficulties with washing.

Using and storing used bags inside the home was also a concern, given the cultural and religious views on, and norms surrounding, contact with human excreta. Despite these cultural concerns, and despite the spatial limitations faced by each household, many participants did use the bags inside their home and some stored the used bags inside before collection. This is an important finding as it indicates the potential to create a sustainable system based on Toilet Bags without providing separate places for them to be used.

Some hesitation remains, however, surrounding use of the Toilet Bag and proximity to human excreta. There were individuals who felt bad holding a used bag or felt concerned about the social perceptions regarding their use of the bag. More time and awareness campaigns would be required to see if these socio-cultural concerns could be entirely eliminated.

5.1.3 Use of the Toilet Bag

While some participants did not like using the bag, most found it comfortable and easy to use and preferred it to their regular sanitation practices. The few who had difficulties referred to the bag being small and difficult to both urinate and defecate into.

Most people also found the bag easy to close, although the fact that many of them found some faecal matter above the knot at least once is a significant concern. If faeces are not contained within the sealed portion of the bag, transmission of bacteria and spread of disease can occur.

Although two thirds of the users reported washing their hands with soap afterwards, hand washing should be emphasized more in the future.

5.1.4 Collection and Processing

There was virtually unanimous satisfaction with door-to-door collection and distribution system. Collectors faced some negative feedback within their communities, but overall both participants and collectors were happy with the system. The majority of participants were also comfortable with the fact that their excreta was being processed into fertilizer and stated that they would buy and eat products that had been grown using fertilizer produced from Toilet Bags.

5.1.5 Feelings of Dignity

Encouragingly, many participants stated that they felt more confident or proud as a result of using the Toilet Bag. This confirms the notion that sanitation is related to our sense of dignity, and that a sanitation solution that offers cleanliness and privacy, despite being unorthodox, can improve self-perceptions.

One unanticipated finding from the study was the changed views of the enumerators who stated that they view poor people and communities differently as a result of working closely with them. This is an important finding as it highlights the stereotypes faced by poor communities and their ability to be broken down when people interact more with poor people and within poor communities.

5.2 Challenges

Despite all the positive findings from the study, a number of challenges remain in establishing Toilet Bags as a viable sanitation solution.

5.2.1 Overcoming Negative Social Perceptions

The remaining negative social perceptions of the Toilet Bag could potentially be a significant challenge if influential members of the community spread negative attitudes. This study found that, overall, attitudes towards the Toilet Bag were very positive, among participants and the wider community. However, some of those who disapproved of the Toilet Bag held extremely negative views and made efforts to persuade others. Social hierarchies are very strong in Bangladesh, and if individuals of influence chose to oppose the promotion of the Toilet Bag it could have severe consequences on the existing goodwill towards the Toilet Bag.

5.2.2 Reducing odour during transport

When many bags are collected together in an open vessel, they do emit a strong odour. This is not a problem for the users (individual bags emit hardly any odour for the first 12-24 hours of storage) but is a problem for the bag collectors. Hence, closed transport vehicles need to be used, similarly to solid waste collection vehicles.

5.2.3 Developing a Sustainable System

In order to be a sustainable solution, Toilet Bags must be part of a wider system that includes their distribution, collection and processing. The structure of this system may be different in every context: in some places, it may be a public service managed by a government agency, while in others a market-based system managed by one or more private enterprises may be more suitable. Regardless of the structure, the key elements of a sustainable system include:

- Cost-effective production of Toilet Bags, preferably as close to the end user as possible
- Regular distribution of Toilet Bags, or easy access to them in market-based outlets within targeted communities
- Regular (at least daily) collection of Toilet Bags from users
- An efficient transport system of the used bags without excessive odour nuisance for bystanders
- A method of processing or distributing used (filled) bags to end users of the fertilizer.

In addition to these requirements, perhaps the most important factor for a sustainable system for Toilet Bags is recognition by users of their economic value. Currently, the poor urban communities of Mymensingh are reluctant to incur costs for sanitation and consequently to pay for Toilet Bags. As a result, Toilet Bags cannot achieve sustainability, as the cost of each bag would have to be covered by a third party. Effort must be put into raising awareness among users about the economic benefits of Toilet Bags - namely improved health, which reduces medical expenses and improves productivity - in order to change spending habits around sanitation.

Fortunately, Toilet Bags create economic value when used, by producing rich fertilizer. The potential to use the revenues generated from fertilizer production in order to subsidize the cost of Toilet Bags in poor urban settlements is an opportunity that must be leveraged to the greatest extent possible. This could be complex in a multi-stakeholder market-based system, where bags could potentially be sold by different entities than those who collect and process them. As such, it may be best for a system to be introduced and managed by government or non-government agency that can oversee the process from start to finish and more easily determine a viable financial model.

5.3 Recommendations

Clearly, Toilet Bags represent a feasible solution to one of the world's greatest challenges: providing sustainable sanitation to the millions of urban slum dwellers worldwide. Based on the positive findings of the study, and that challenges that need to be taken into account, there are a number of ways in which the development of a sustainable system for Toilet Bags can be developed.

5.3.1 Wider-Scale Piloting

Further testing over a longer period and on a wider scale is essential to develop a sustainable system of distribution, collection and processing. This should be managed in a way that resembles what a sustainable system might look like in order to test different approaches and develop best practices. It would be recommendable to conduct a wider trial of Toilet Bags under both private and public management to see which might be more suitable. It will be important to ensure that the system developed is scaleable and can ultimately be rolled out to entire poor urban populations.

It needs to be investigated how a suitable transport system can be set up on a large-scale, and whether subsidies (or incentives) from the municipality would be required. Most urban sanitation systems are subsidised or cross-subsidised in one way or another, so this could apply also to the Toilet Bag systems.

5.3.2 Awareness Raising and Behaviour Change

More effort should be put into marketing the Toilet Bags to target users and raising awareness about the benefits of Toilet Bags. Importantly, poor urban residents need to recognize the economic value of such a product and start to view Toilet Bags as an investment in good health and productivity that will ultimately benefit them economically. Establishing this demand for the Toilet Bags is critical to making any system that promotes them sustainable. It is also essential to ensure that community, religious and political leaders are supportive of and involved in the promotion of the Toilet Bag.

5.3.3 Improved Implementation

Some improvements can be made to the way Toilet Bags are introduced to users. Specifically, methods of how to most effectively use the Toilet Bag including what kind of container to use, how to hold it, how to manage both urination and defecation, how to wash and how to close the bag should be better established and gone over in more detail with participants.

It could also be beneficial to experiment with different methods such as designated Toilet Bag stalls where people who are not comfortable to use the bags in their home have access to a private place in which to use them. While this may not be considered a method for mainstream use it may prove beneficial for some poor urban residents who would not use the bag otherwise. Different collection systems, such as a central depository, could also be tested to find the most effective approach to collection and distribution.

5.3.4 Further Research

More study is needed to determine the impacts of the Toilet Bag on individuals, families and communities. It is important to understand and be able to measure how the Toilet Bag benefits people and their communities economically, medically, environmentally and socially in order to effectively create demand for the product. More research should be done on the situation of women vis-à-vis sanitation and how the Toilet Bag benefits them, as this study did not uncover significant findings with regards to women.

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APPENDIX II: FOCUS GROUP DISCUSSION ON PEEPOO BAGS IN MYMENSINGH POURASHAVA

Overview

Two FGDs were held on April 1, 2009 in Mymensingh Pourashava. The FGDs took place at 9.00 am in the Kristopur colony, with participants from Malancha and Adorsho sub-communities. Twelve males, ranging in age from 18 to 55, attended one FGD, and twelve females, ranging in age from 18 to 55, attended the other. The female FGD took place in a school, and the male FGD took place in a school cum office of the colony. The discussions were facilitated by Rukhen Ahmed Uddin of GTZ Bangladesh and Rokeya (Chairman of Akua UPPR Cluster), with assistance from Mehedi Ahsan of GTZ Bangladesh and Afroza (Member of Akua Community Development Committee).

The objective of the FGDs was to assess the viability of a broader study on Peepoo bags in poor urban settlements in Bangladesh, and to gather information that would contribute to the design of such a study. The findings are outlined below.



Objective 1: Find out how much people know about sanitation and understand how much value they place on sanitation.

Overall, participants in both groups had a good understanding of sanitation. Generally speaking, people equated sanitation with 'toilets'. They were able to identify or understand what makes a toilet sanitary vs. unsanitary. They held no wrong or false assumptions about sanitation. Most importantly, they understood the relationship between sanitation and health and were able to identify illnesses caused by poor sanitation.

Objective 2: Get a picture of the overall situation of sanitation in poor urban settlements. Find out how often people *desire* to go to the toilet to know how many bags to budget for.

Latrines in this slum are almost exclusively privately owned (as opposed to community based), with around 3 families sharing one toilet. There were between 70 and 100 toilets in Malongsho and around 190 toilets in Adosha, while the number of households is approximately 300 and 400 respectively. Most of these latrines are ring-slab, single pit latrines. The only costs associated with the latrines are occasional maintenance and pit emptying, approximately once every 1.5 years at a cost of 500 BDT.

None of the participants felt that their latrines were sanitary. They stated that the water connection to the latrines was poor, making it difficult to keep them clean, that the drainage was poor and that frequent flooding (communities are on low-lying land that is prone to flooding) caused overflowing that led to many environmental and health-related problems. The condition of the toilet superstructures was also poor - some had no roofs and broken walls, which made people uncomfortable and prevented use during rainfall. In addition, because the toilets were shared among many families, people stated that even if they kept the toilet clean, the others using the toilet often didn't, exposing them to unsanitary conditions and related health problems and discomfort.

Malongsho residents also stated that there were 4 public toilets in their area that had been built by the Pourashava and were under management of a voluntary committee. Participants felt the maintenance of these facilities was poor and they did not feel comfortable or motivated to use them. In this part of the community there are also 10-12 'hanging' latrines.

Both women and men reported defecating 1-2 times a day and urinating more frequently²⁴. Everyone was said to use a latrine, except small children who practice open defecation (often directly into open drains).

Participants said that sanitation-related illnesses were frequent among the community, with around 1-2 family members suffering from a related illness each month.

Water for bathing and washing after going to the toilet comes from tubewells. Many people also bathe in the local pond where the water is said to be of poor quality.

Generally speaking, access to toilet facilities is quite high in this area. As a result, the sanitation situation may not be representative of other poor urban settlements.

Objective 3: Uncover some of the problematic issues associated with sanitation, especially for women, such as access, safety, privacy, etc

Neither groups had anything positive to say about their sanitation situation. Their major concern was with the physical condition of the toilets - the fact that they structures were often decaying or damaged.

Both groups said that men and women can freely go to the toilet at any time of day. The only difference between men and women's sanitation practices is that it is acceptable for men to urinate outside, or even defecate if necessary.

Sharing toilets resulted in occasional waiting times of up to 30 minutes, and also caused some quarrelling between neighbours because some were less clean than others.

Some participants felt that sanitation problems should be dealt with holistically, in conjunction with other problems such as roads, drains, etc.

24. Later, in the actual study, it was found that people were defecating less than one time per day (although this was not quantified exactly); it is possible that the participants of the FGD were wealthier and had a higher food intake.

Objective 4: Understand perspectives on what 'improved sanitation' looks like, what their priorities are, their assumptions and approaches

Participants wished for their existing toilets to be improved, including:

- Raised floors to prevent flooding
- Brick walls
- Solid, durable roofs
- Pipes to remove methane gas

They also said they would like to build more latrines but that there was not enough land available. (At this point they were asked how they would feel about a toilet without land, and they were amazed at such an idea!)

Objective 5: Understand how water fits into people's daily routine, and whether water is ever used for bathing inside the house

Women generally collect water from the tubewell and bathe outdoors. Men most often bathe in the pond. Seven or eight households have a room in their house for bathing. In no other cases do people bathe inside their homes.

Objective 6: Understand the different roles and responsibilities that men and women play in sanitation

Women were seen to share the main burden of responsibilities related to sanitation, including:

- Supervising children's sanitation, such as collecting faeces from open defecation and dumping it in the drain
- Cleaning toilets
- Collecting water for washing (also sometimes collected by children)
- Repairing damages to toilets (shared responsibility with men)

Toilet pits are emptied by sweepers approximately once every year and a half at a cost of 500 BDT. The contents are dumped into the drain.

Objective 7: Understand the *initial* reaction to the idea of the Peepoo bag

At first, neither group recognized the Peepoo as a 'toilet' and simply said it was a plastic (or polythene) bag. They observed initially that there were two compartments and that there was a 'medicine' (chemical) in the bottom of the bag.

Once told it could be used as a toilet, they quickly understood/agreed, although they identified the need to arrange a 'system' for its use, as they did not feel it would be appropriate to hold it with the hand.

There were many questions asked by participants, including:

- Is it compostable?
- How is it used?
- Can it be used on a seat?
- What does it cost?
- Who will supply it?
- How will guests use it?
- Is it possible to use it only for pee?
- How can people wash themselves with water?
- How can it be used inside the house?
- Is it odour free?
- Is it disease-free?
- Is it environmentally friendly?

Overall, the initial reactions to the Peepoo were positive, although negative reactions arose in reference to certain issues (e.g. cost, washing, etc). Some people laughed, indicating a certain level of initial discomfort or disbelief, but this did not last.

The most prominent initial concerns were related to cost - both groups felt that the cost of supplying all family members with bags on a daily basis would be very expensive, and men equated this cost over one year with the cost of a permanent sanitary facility.



Objective 8: Understand if/how reactions to the Peepoo change as more information is provided and more discussion takes place

Participants understood the Peepoo clearly and felt that it was better alternative to their current sanitation situation. They described it as 'digital' meaning that it was modern.

Men felt it could not be used inside the house, given the cultural and religious belief that faeces should not be inside the house (where people pray, etc). It was also suggested that, although it is quite easy to use, people would need training on how to use it.

Men felt that elderly people would not use the Peepoo because they would be unwilling to change their habitual practices. Women, on the other hand, felt that everybody would be willing to use them.

Objective 9: Understand the practicalities of using the bag, the potential problems that might arise, and how these problems will affect people's ability and willingness to use the bag

Participants agreed that a suitable private place with a fence or wall would be needed in order to use the bag. This was understood to be a permanent set-up, as opposed to a temporary screen that could be put up and taken down or moved around to different places. Women recognized that establishing this privacy would involve some cost and suggested that resources should be provided for them.

Everyone felt that the bag should be used inside a container (like the cans used for demonstration) and that the hand should not be used to hold the bag.

Given the facilities available to the participants, they felt that the best solution would be to use the bags inside their existing toilets, which could be reformed slightly to accommodate a container if necessary.

A number of people also commented that, in some cases, the Peepoo would be helpful when travelling (when on the train or visiting relatives' houses, etc) as a sanitary alternative to the facilities available.

In general, people felt it would be comfortable to use given adequate arrangements for privacy and washing.

Objective 10: Understand people's feelings towards using water to wash themselves inside the home and consider how they will manage the washing and disposal of the water

People were not willing to consider using toilet paper instead of water. For defecation they said that washing is a must. If they could not use water to wash themselves, they said this would be a big problem and they would not use the bags as a result.

If used inside their existing latrines, people can wash themselves as usual, and this was seen as the best alternative.

Objective 11: Understand how people feel about storing the used bags and how they think they would go about doing so

Neither men nor women felt comfortable storing used bags inside their house, particularly because people pray inside the household and faeces should not be stored in an area where prayer takes place. Men preferred the option of having one central dustbin where bags could be deposited, while women preferred the idea of each house having a box outside their door (they felt that the bag sitting outside without a box posed some risk, although did not identify exactly what risk), in which case they thought everyone should have a box outside so that one household would not be alone. One other concern was that children might get into the storage boxes and get dirty.

People had many questions about how fertilizer processing would take place, who would manage it, and, essentially, who would benefit. At one point, some participants suggested that they should store and process the bags themselves to sell as fertilizer. People are clearly concerned about the cost and interested in the benefit - research should be done to demonstrate clearly the cost-benefit for each family and the optimal system of distributing and collecting (selling and buying) bags so that people can see what the financial outcome will be.

Some participants did indicate that once they saw how the bags worked they might reconsider the issue of storage. In particular, if the used bags come to have a clear monetary value, views on storage may change drastically.

Objective 12: Understand the social intricacies of using the Peepoo and how the design of the distribution system may affect people's attitudes towards using the bag Understand preferences in terms of the logistics of the distribution system in order to improve its design

Men said there would be no problem dropping the bags off in a central dustbin, although it is possible that women would be the ones ultimately given responsibility for doing so. At first men suggested that the Pourshava be responsible for collecting bags, and then after considering the potential financial benefit of the used bags they stated that no one had to collect the bags, that the community would take care of it.

Women had no problem with having a basket outside or with someone visiting their door to collect the bags. Women at first felt that Sweepers should collect the bags, but they also changed their opinion once considering the potential financial interest and said that they themselves would collect the bags.

Both groups said the bags should be collected daily, and men preferred the morning. In neither case did anyone appear to have significant reservations about the process of collection vis-à-vis social perceptions.



Objective 13: Understand how family/social dynamics will affect people's willingness to participate in the Field Test

Men did not support children using the bags because they felt children would require too many bags and that this would be very costly. They also felt that elderly people would not be interested in the Peepoo, unless significant motivational training was provided.

Men said they would use the Peepoo if they were the only person in the house to use them, while women said they would want everyone in the house to use them. For testing purposes, however, they said they would be willing to use it alone.

Neither men nor women felt they needed anyone's permission to use the Peepoo - women said "This is good, it is sanitary. We don't need to ask anyone!"

Objective 14: Understand what kind of informational or instructional materials should be distributed during the Field Test and how they should be designed

People agreed that it was not complicated to use the bag. But they did feel that some instructional/informational materials would be helpful. They suggested providing information on how to use the bag (including how many times it can be used and how many people can use one bag!) and its benefits, via leaflets, posters and, if possible, TV. They suggested including pictures or illustrations of people using the bags as well as a cost-benefit calculation. They also requested a demonstration on how to process the bags into fertilizer.

Objective 15: Understand how to best present the Peepoo to people in the study (what benefits to emphasize, what vocabulary to use, what things to avoid, etc)

Participants engaged in the discussion without hesitation and reported no problems with the issues discussed or vocabulary used. Both groups separately agreed that 'Toilet Bag' would be the best name to use when referring to the bag in the local context, although the women also said they had no problem with Peepoo (although it didn't carry a significant meaning to them).

Everyone felt that they would adopt the Peepoo if was available to them, but they wanted to try it first. Some of the women in the end suggested that they would in fact only use the Peepoo as a secondary toilet, if there were problems with their latrine or if they were in a place with no sanitary facilities available.

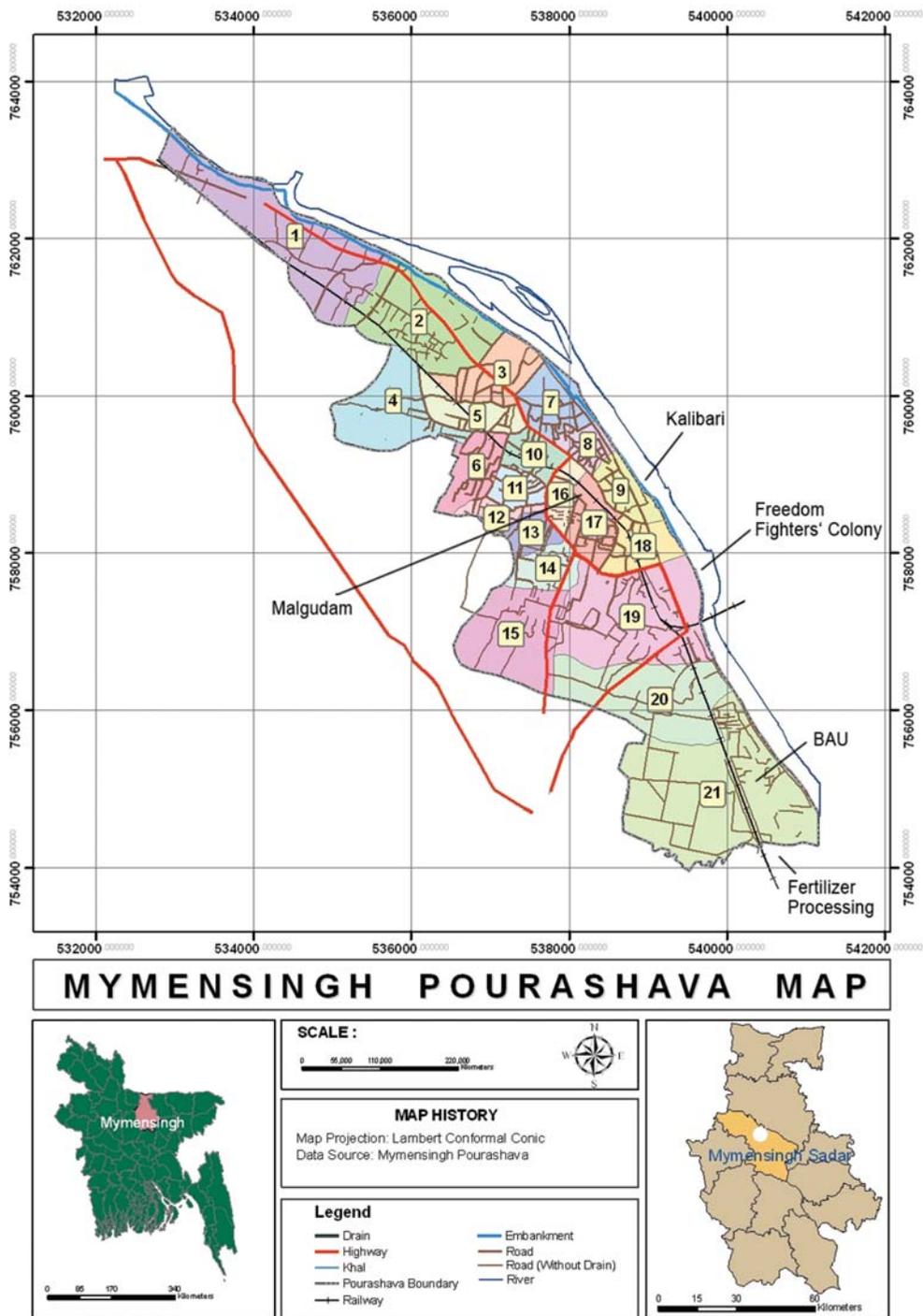
Price was discussed with the women, and they suggested that they would be willing to pay 20-25 paisa per bag (1 BDT for 4-5 bags).

Conclusions

Overall, there is a clear interest in the Peepoo bags as people can clearly see the benefits that it provides. The major concerns to be taken into consideration are:

- **Cost -benefit** - it must be clearly demonstrated that the Peepoo does not represent a significant extra cost with respect to other sanitation options. Cost-benefit should be taken into account when designing the collection system so that the maximum possible benefit from the fertilizer produced can be returned to the user.
- **Privacy and washing** - use of the Peepoo will require a well established private place as well as adequate washing facilities. For this reason, it may be best to recommend that the Peepoo be used inside an existing latrine (although contact with an unsanitary latrine could reduce the sanitary benefits)
- **Collection** - a system must be designed whereby used bags can be safely and separately stored for collection in a way that does not interfere with cultural and religious values.

APPENDIX III: MAP OF MYMENSINGH²⁵



25. Source: Mehedi Ahsan, on behalf of Mymensingh Pourashava

APPENDIX IV: RESULTS FROM HOUSEHOLD SCAN²⁶

OVERVIEW		Freq.	%	Notes
No of HH		202		
No. FHH		45	22.28%	
HH Participating in field test		84		
HH with >1 participant		16	19.05%	
SECTION 1: BACKGROUND INFORMATION		Freq.	%	Notes
v003 - Religion:	Muslim HH	190	94.06%	
	Hindu HH	11	5.45%	
	Christian HH	1	0.50%	
	Buddhist HH	0	0.00%	
	Other Religion HH	0	0.00%	
v004 - How many people eat from the same cooking pot?	Min Family size	1		
	Max family size	11		
	Avg family size	4.52		
	Mode Family size	6		
v005 - How many people sleep inside the house?	Min	1		
	Max	12		
	Avg	4.50		
	Mode	6		
	No of HH with more/less people sleeping than family size	18		
v006 - What is the primary source of your household income?	= Day Labourer (1)	24	12.06%	
	= Rickshaw/Van Puller (2)	27	13.57%	
	= Construction Labourer (3)	5	2.51%	
	= Servant/Maid (4)	7	3.52%	
	= Garments worker (5)	1	0.50%	
	= Small business (6)	60	30.15%	
	= Business owner using hired labour (7)	6	3.02%	
	= Self employed in business/service provision (8)	3	1.51%	
	= Regular salaried employment in gov., NGO or other institution (9)	13	6.53%	
	= Regular salaried employment in some fixed business (shop, factory, hotel, etc) (10)	18	9.05%	
	= Allowance/stipend (old, divorced, child, education, etc) (11)	0	0.00%	
	= Foreign Remittance (12)	1	0.50%	
	= Domestic Remittance (13)	1	0.50%	
	= Not applicable (14)	1	0.50%	
	= Other (15)	32	16.08%	
Total		199	100.00%	3 responses miscoded

26. Note: questions were numbered using 'v' for 'variable', according to the practice used by research experts at GTZ Bangladesh.

(v006) What is the secondary source of your household income?	= Day Labourer (1)	7	8.64%	
	= Rickshaw/Van Puller (2)	6	7.41%	
	= Construction Labourer (3)	2	2.47%	
	= Servant/Maid (4)	9	11.11%	
	= Garments worker (5)	1	1.23%	
	= Small business (6)	17	20.99%	
	= Business owner using hired labour (7)	2	2.47%	
	= Self employed in business/service provision (8)	0	0.00%	
	= Regular salaried employment in gov., NGO or other institution (9)	3	3.70%	
	= Regular salaried employment in some fixed business (shop, factory, hotel, etc) (10)	10	12.35%	
	= Allowance/stipend (old, divorced, child, education, etc) (11)	0	0.00%	
	= Foreign Remittance (12)	0	0.00%	
	= Domestic Remittance (13)	0	0.00%	
	= Not applicable (14)	1	1.23%	
	= Other (15)	23	28.40%	
	Total	81	40.10%	of HH responded
<hr/>				
V007 - How many persons from your household contribute to the household income?	No. single earners	122	61.00%	
	No . double earners	56	28.00%	
	No. >2 earners	22	11.00%	
	Total HH with earners	200	0.99%	of HH have no earner
	FHH with no earner	2	100.00%	of HH with no earner are FHH
<hr/>				
v008- -009 - How much income does your HH earn (in cash and kind)?	Min Income (Cash)	200		
	Max Income (Cash)	17500		
	Avg Income (Cash)	4032		
	Min Income (Cash + Kind)	0		
	Max Income (Cash + Kind)	17500		
	Average Income (Cash + Kind)	4059		
	FHH avg income	2499	38.43%	less than average
	MHH avg income	4507	11.02%	more than average
<hr/>				
Household Profile	Number of children <15 who are students	156	62.90%	of children age 6-15
	Women who do unpaid HH work	134	47.18%	of women over 15
	Women with some form of employment (response <11)	67	23.59%	of women over 15
	Women unemployed, elderly, beggar, other (response >12)	179	63.03%	of women over 15
	Female Students	99	55.31%	of students
	Female avg hrs in HH	21.16	27.30%	More than males
	Male average hrs in HH	16.63	21.45%	Less than females
	Girls under 18 married	3	1.49%	of girls under 18
<hr/>				

v010- What is the main construction material of the walls of your main house?	Brick (1)	21	9.05%	
	Cl (tin) sheet / wood (2)	104	44.83%	
	Mud (3)	2	0.86%	
	Bamboo (4)	49	21.12%	
	Straw/ Sticks / leaves (5)	1	0.43%	
	Thatch / polythene (6)	50	21.55%	
	Other (7)	5	2.16%	
	Total Responses	232	100.00%	of HH

v011- What is the main construction material of the roof of your main house?	Concrete (1)	2		
	Cl sheet / tin (2)	153		
	Plastics (3)	6		
	Bamboo (4)	10		
	Straw/ Jute/ Sticks / leaves (5)	0		
	Thatch / polythene (6)	31		
	Other (7)	2		
	Total Responses	204	99.50%	of HH

v012- What is the main construction material of the floor of your main house?	Brick (1)	40		
	Wood (2)	4		
	Mud (3)	156		
	Bamboo (4)	1		
	Other (5)	1		
	Total Responses	202	100.00%	of HH

v013- How big is your house (sqft)?	Max	27000		
	Min	35		
	Avg	289.65		
	Avg for FHH	115.82		

v014- How many rooms does your house hold have?	=1	175	87.06%	
	=2	22	10.95%	
	=3	4	1.99%	
	>3	0	0.00%	
		Total Responses	201	99.50%

v015- Does your house have any private space aside from the main living area?	Yes (1)	64	31.68%	
	No (2)	138	68.32%	
		Total Responses	202	100.00%

v016- Does your household have homestead area?	Yes (1)	100	49.75%	
	No (2)	101	50.25%	
		Total Responses	201	99.50%

v017- Type of ownership of the house	Owner (1)	95	47.03%	
	Rented (2)	45	22.28%	
	Rent free (3)	22	10.89%	
	Other (4)	40	19.80%	
		Total Responses	202	100.00%

v018- If rented, how much do you pay per month?	Min	11		
	Max	2000		
	Average	682		

APPENDIX V: RESULTS FROM PRE-TEST SURVEY

PARTICIPATION		Freq.	%	Notes
Number of Selected Participants		100	100.00%	
Female Participants		54	54.00%	
Male Participants		46	46.00%	
Number of Dropouts		8	8.00%	
Female Dropouts		4	50.00%	% of dropouts (7.4% of all women)
Male Dropouts		4	50.00%	% of dropouts (8.7% of all men)
Age 0-5		6	6.00%	
Age 5-10		5	5.00%	
Age 10-18		28	28.00%	
Age 18-40		30	30.00%	
Age 40-60		26	26.00%	
Age 60+		5	5.00%	
Avg Age		29.9		
Min Age		0.58		
Max Age		75		
Mode Age		14		

SECTION 3: SANITATION PRACTICES		Freq.	%	Notes
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TOILET PROFILE: How many toilets do you know of in your community?

Number of Toilets = 1	28	28.00%	
(listed by = 2	24	24.00%	
participants) = 3	23	23.00%	
= 4	14	14.00%	
= 5	10	10.00%	
= 6	1	1.00%	
Total (No of toilets)	257		
Avg	2.57		
Max	6	1.00%	
Min	1	28.00%	
Mode	1	28.00%	

Ownership	Private (1)	107	41.63%	
	Government (2)	45	17.51%	
	NGO (3)	69	26.85%	
	Community (4)	7	2.72%	
	Other (5)	29	11.28%	
Total Responses	257	100.00%	of participants responded	

Type	Pucca (1)	95	36.96%	
	Kaccha (perm) (2)	45	17.51%	
	Kaccha (temp) (3)	77	29.96%	
	Hanging (4)	3	1.17%	Less than seen to exist

	Other (5)	37	14.40%	
	Total Responses	257	100.00%	of participants responded
	Refer to places of open defecation	40	15.56%	E.g. riverbank, open fields, etc.
<hr/>				
Cost	No cost (3)	229	89.11%	
	Per use (1)	12	4.67%	
	Per month (2)	16	6.23%	
	Total Responses	257	100.00%	of participants responded
	Avg per month cost	16.56		of those that have per month cost
	Max per month cost	60		
	Avg per use cost	1.17		of those that have "per use" cost
	Max per use cost	2		
<hr/>				
Access (Can you use this toilet if and when you want to?)	Yes (1)	82	33.74%	
	No (2)	161	66.26%	
	Total Responses	243	99.00%	of participants responded
	No access men	85	52.80%	
	No access women	76	47.20%	
<hr/>				
V019 -How far away is the nearest toilet min walking?)	Avg minutes	3.82		
	Max minutes	15		
	Min minutes	1		
	Mode minutes	2		
<hr/>				
v020 -Do you use one/some of these toilets?	Yes (1)	74	74.00%	
	No (2)	26	26.00%	
	Total Responses	100	100.00%	of participants responded
<hr/>				
v021 - Which one(s)?	Pucca (1)	25	31.25%	
	Kaccha (perm) (2)	21	26.25%	1 'kaccha (perm)' response refers to a drain
	Kaccha (temp) (3)	17	21.25%	At least 1 'kaccha (temp)' response refers to a hanging latrine
	Hanging (4)	1	1.25%	
	Other (5)	16	20.00%	All 'other' responses refer to places of open defecation
	Total Responses	80	108.11%	of those who responded 1 to v020 of participants (26 responded 2 to v020, 12 whose 'toilet' refers to place of open defecation)
	Practice open defecation	38	38.00%	
<hr/>				

v022 - Why?	Proximity (1)	38	45.78%	of those who responded 1 to v020
	Cleanliness (2)	1	1.20%	
	Privacy (3)	8	9.64%	
	Other (4)	36	43.37%	
	Total Responses	83	106.76%	
	Women Privacy	3	37.50%	
	Men Privacy	5	62.50%	
<hr/>				
v023 - Do you usually have to wait to use the toilet?	Yes (1)	46	58.97%	of participants responded
	No (2)	32	41.03%	
	Total Responses	78	78.00%	
<hr/>				
v024 - How long?	Avg minutes	15.64		
	Max minutes	30		
	Min minutes	1		
	Mode minutes	10		
<hr/>				
v025 - Are you satisfied with the toilet(s) you use?	Very satisfied (1)	1	1.28%	of participants responded
	Satisfied (2)	9	11.54%	
	Neutral (3)	6	7.69%	
	Unsatisfied (4)	42	53.85%	
	Very unsatisfied (5)	20	25.64%	
	Total Responses	78	78.00%	
	Women unsatisfied and very unsatisfied	35	56.45%	
	Men unsatisfied and very unsatisfied	27	43.55%	
<hr/>				
v026 - Reason for satisfaction	Clean (1)	3	30.00%	Multiple responses possible
	Close (2)	4	40.00%	
	Free (3)	0	0.00%	
	Private (4)	2	20.00%	
	Water available (5)	1	10.00%	
	Other (6)	0	0.00%	
	Total Responses	10	100.00%	of those who responded 1,2 to v025
<hr/>				
v027 - Reason for dissatisfaction	Unclean (1)	35	29.91%	Multiple responses possible
	Far away (2)	23	9.66%	
	High cost (3)	3	2.56%	
	Not private (4)	19	16.24%	
	Water not always available (5)	10	8.55%	
	Other (6)	27	23.08%	
	Total Responses	117	107.35%	of those who responded 3,4,5 to v025
<hr/>				
v028 - Is the toilet you use clean?	Yes (1)	13	16.05%	of participants responded
	No (2)	68	83.95%	
	Total Responses	81	81.00%	
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v029 - Is the toilet you use safe?	Yes (1)	18	22.50%	
	No (2)	62	77.50%	
	Total Responses	80	80.00%	
	Women Yes	11	61.11%	
	Men Yes	7	38.89%	
	Women No	32	51.61%	
	Men No	30	48.39%	
<hr/>				
v030 - Is the toilet designed to meet your needs?	Yes (1)	22	27.16%	of participants responded
	No (2)	59	72.84%	
	Total Responses	81	81.00%	
	Women Yes	14	63.64%	
	Men Yes	8	36.36%	
	Women No	29	49.15%	
	Men No	30	50.85%	
	Women No as % of women who answered		67.44%	
Men No as % of men who answered		78.95%		
<hr/>				
v031 - If no, why not?	Don't have enough money (1)	19	24.68%	Multiple responses possible. Some post - survey coding of responses is unclear.
	Don't know (2)	5	6.49%	
	Don't have adequate land (3)	8	10.39%	
	Not owner (4)	5	6.49%	
	Walls are not suitable (5)	1	1.30%	
	Many people have to use it/waiting (6)	4	5.19%	
	Land level high (7)	1	1.30%	
	Have to carry water in from outside (8)	14	18.18%	
	Roof broken/leaks (9)	2	2.60%	
	Public (made by gov.) so user needs not considered (10)	1	1.30%	
	Location not suitable (11)	3	3.90%	
	Far from house (12)	3	3.90%	
	Not safe (13)	3	3.90%	
	Open place (14)	6	7.79%	
	Not suitable for children (15)	1	1.30%	
	Floods in rainy season/underwater (16)	1	1.30%	
Total Responses	77	105.08%	of those who responded 2 to v030	
<hr/>				
v032 - What other problems do you face when using the toilet?	Harassment (1)	11	12.94%	Multiple responses possible
	HH left unattended (2)	17	20.00%	
	Other (3)	57	67.06%	of participants responded
	Total Responses	85	74.00%	
	Women Harassment	7	63.64%	
Women HH unattended	13	76.47%	% of responses = 2	
<hr/>				
v033 - If you don't use a toilet, how do you urinate/defecate?	Open field (1)	57	59.38%	Multiple responses possible
	Pond (2)	27	28.13%	
	Other (3)	12	12.50%	

	Total Responses	96	280.77%	of those who responded 2 to v020 (73% of participants)
	Women	38	52.78%	of respondents to this question
	Men	34	47.22%	
<hr/>				
v034 - What problems do you face when urinating/defecating (in the open)?	Harassment (1)	9	10.00%	Multiple responses possible of those who responded 2 to v020 (70% of participants)
	HH left unattended (2)	12	13.33%	
	Lack of privacy (3)	37	41.11%	
	Other (4)	32	35.56%	
	Total Responses	90	269.23%	
<hr/>				
v035 - How many times do you go to the toilet each day?	Avg times	1.64		
	Max times	3		
	Min times	1		
	Mode times	1		
	Women Avg times	1.54		
	Men Avg times	1.76		
<hr/>				
v036 - Would you like to be able to go to the toilet more often?	Yes (1)	18	18.00%	
	No (2)	82	82.00%	
	Total Responses	100		
	Women yes	14	77.78%	% of responses = 1
<hr/>				
v037 - How many times (do you think) you would like to go to the toilet each day?		1.817		
	Avg times	20430		
	Mode times	2		
<hr/>				
v038 - Do you go to the toilet by yourself, or does someone accompany you?	Alone (1)	92	92.93%	of participants responded of accompanied of accompanied
	Accompanied (2)	7	7.07%	
	Total Responses	99	99.00%	
	Women accompanied	2	28.57%	
	Children <5 accompanied	4	57.14%	
<hr/>				
v039 - Are you free to go to the toilet whenever you want?	Yes (1)	52	52.53%	of participants responded
	No (2)	47	47.47%	
	Total Responses	99	99.00%	
	Women No	26	55.32%	
<hr/>				
v040 - If no, why not?	Family member won't allow (1)	1	1.85%	Multiple responses possible
	Can't leave house unattended (2)	5	9.26%	
	Don't feel comfortable going at certain times (3)	3	5.56%	
	Socially unacceptable (4)	14	25.93%	
	Other (5)	31	57.41%	
	Total Responses	54	104.26%	of those who responded 2 to v039
	Women response = 1	1	100.00%	% of responses = 1
	Women response = 2	5	100.00%	% of responses = 2
	Women response = 3	2	66.67%	% of responses = 3
	Women response = 4	11	78.57%	% of responses = 4

v041 - At what time(s) do you normally go to the toilet?	Avg time	10:53		Multiple responses possible Including 9pm and 6am of those who go to the toilet between 9pm and 6am
	Mode time	7:00		
	Total between 9pm and 6am	38		
	Women between 9pm and 6am	23	60.53%	

v042 - Why do you go at this time?	Privacy (1)	7	6.93%	Multiple responses possible of participants responded
	HH attended by others (2)	0	0.00%	
	Don't feel comfortable going at other times (3)	6	5.94%	
	Socially acceptable (4)	1	0.99%	
	This is the time I feel the need to go (5)	81	80.20%	
	Other (6)	6	5.94%	
	Total Responses	101	98.00%	

v043 - How do you feel about your sanitation situation?	Satisfied (1)	4	3.33%	Multiple responses possible of participants responded
	Dissatisfied (2)	82	68.33%	
	Proud (3)	0	0.00%	
	Ashamed (4)	20	16.67%	
	Concerned/ Worried (5)	10	8.33%	
	Indifferent (6)	1	0.83%	
	Other (7)	3	2.50%	
	Total Responses	120	99.00%	

Family Sanitation Practices

Sanitation -related health problems (in the last month)	Diarrhea (1)	47	28.48%	10,000BDT reference to paralysis removed from responses
	UTI (2)	5	3.03%	
	Worms (3)	64	38.79%	
	Other (5)	49	29.70%	
	Total Responses	165		
	Avg cost of illness (monthly)	152.50		
	Max cost of illness (monthly)	1500		
	Min cost of illness (monthly)	0		
	Mode cost of illness (monthly)	50		

SECTION 4: ATTITUDES TOWARDS TOILET BAGS		Freq.	%	Notes
v044 - What do you think about the Toilet Bag?	It is good (1)	62	46.62%	Multiple responses possible of participants responded
	It is bad (2)	1	0.75%	
	I am interested in/like it (3)	47	35.34%	
	Not interested/don't like it (4)	3	2.26%	
	It is unusual (5)	3	2.26%	
	It is helpful (6)	14	10.53%	
	Don't know (7)	0	0.00%	
	Other (8)	3	2.26%	
	Total Responses	133	99.00%	
	Women good/ like	55	50.46%	
<hr/>				
v045 - Would you consider using the Toilet Bag regularly (outside of the Field Test) for your sanitation needs?	Yes (1)	99	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	99	99.00%	
<hr/>				
v046 - Why or why not?	Healthy Environment (1)	15	9.26%	Multiple responses possible. Some errors made during -post survey coding of responses.
	No Odor (2)	8	4.94%	
	Don't need to go/ go outside at night (3)	2	1.23%	
	Good for personal safety/ security (4)	15	9.26%	
	Portable (5)	2	1.23%	
	Easy to use (6)	10	6.17%	
	-Mosquito fly could not spread diseases (7)	4	2.47%	
	Can be used on Container (8)	1	0.62%	
	Inside of house anytime can be used (9)	2	1.23%	
	Don't have to go in open space (10)	12	7.41%	
	Not spread the germs of different diseases (11)	9	5.56%	
	Want to observe the usefulness/utility of Bag before giving answer (12)	5	3.09%	
	As there is no other alternative (13)	4	2.47%	
	No money is required for toileting (14)	2	1.23%	
	No diseases (15)	4	2.47%	
	Sick/Disable: Cannot go out (16)	6	3.70%	
	Personal secrecy (17)	2	1.23%	
	Time saving (18)	13	8.02%	
	Can be found any time as and when required (19)	8	4.94%	
	Clean (20)	20	12.35%	

	Don't need to go out when it rains (21)	1	0.62%		
	Wastes will be out of contact (22)	0	0.00%	Should not have been coded if no responses	
	Can be produced as fertilizer (23)	0	0.00%		
	Children will be free from different diseases (24)	2	1.23%		
	I will be aware/Create awareness among others (25)	1	0.62%		
	Get rid of hanging toilets (26)	1	0.62%		
	I do not feel good to go in dirty toilets (27)	3	1.85%		
	I do not feel good having to go in others toilet (28)	4	2.47%		
	Money can be earned (29)	1	0.62%		
	Good to use during flood (30)	2	1.23%	Meaning of code unclear	
	It is good for single people (31)	1	0.62%		
	Compostable (32)	1	0.62%		
	Definite alternative solution for Sanitation (33)	1	0.62%		
	Total Responses	162	99.00%	of participants responded	
	Relating to health/disease	19	11.73%		
	Relating to portability, use inside, appropriateness for certain people or situations	24	14.81%		
	Relating preference to current situation	25	15.43%		
	Relating to composting, environment	16	9.88%		
	Relating to cost, income, money	3	1.85%		
	Relating to cleanliness, odor, ease of use, time saving, etc	52	32.10%		
	Other	8	4.94%		
v047 - What things do you like about the idea of the Toilet bag?	Can use anywhere (1)	65	66.33%		of participants responded
	Other (2)	33	33.67%		
	Total Responses	98	98.00%		
v048 - What things do you dislike about the idea of the Toilet Bag?	Seems unclean (1)	7	14.89%	of participants responded	
	Seems difficult to use (2)	14	29.79%		
	Other (3)	26	55.32%		
	Total Responses	47	47.00%		
v049 - Do you think using the Toilet bag will be difficult?	Yes (1)	23	23.96%	of participants responded	
	No (2)	73	76.04%		
	Total Responses	96	96.00%		

v050 - Why or why not?	The size is small (1)	20	15.63%	Multiple responses possible	
	Difficult to use water (2)	13	10.16%		
	Socially not acceptable (3)	2	1.56%		
	Costly, One bag can be used once (4)	6	4.69%		
	It looks difficult to use (5)	36	28.13%		
	It is to be hold by hand (6)	2	1.56%		
	Other responses	49	38.28%		
	Total Responses	128	99.00%	of participants responded	
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v051 - Do you think using the Toilet Bag would be clean?	Yes (1)	83	83.84%	of participants responded	
	No (2)	16	16.16%		
	Total Responses	99	99.00%		
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v052 - Do you think the Toilet Bag could improve your sanitation situation?	Yes (1)	96	96.97%	of participants responded	
	No (2)	3	3.03%		
	Total Responses	99	99.00%		
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v053 - How?	Bio - fertilizer can be produced (Economic) (1)	10	7.09%	Multiple responses possible. Some errors were made during post - survey coding of responses	
	Reduce the risks of different diseases (2)	38	26.95%		
	Odor free environment (3)	14	9.93%		
	No loss of time (4)	2	1.42%		
	Development of Environment (5)	16	11.35%		
	I do not know/ I doubt (6)	2	1.42%		
	Mosquito/Fly will not spread germs (7)	13	9.22%		
	If everybody uses the bag then total environment will be saved (8)	11	7.80%		
	Safe to use (9)	2	1.42%		
	Germs will not be spread/Germ free (10)	10	7.09%		
	Nobody will/can defecate in open place (11)	9	6.38%		
	Can be stored in specific place (12)	1	0.71%		
	Personal secrecy (privacy) can be ensured (13)	6	4.26%		
	Poor will be covered (14)	1	0.71%		
	Others will be aware to see the using (15)	2	1.42%		Meaning of codes unclear
	Everybody will be aware (16)	2	1.42%		
	No quarrel (17)	1	0.71%		
	Anywhere can be used (18)	0	0.00%		Should not have been coded if no responses
	No need to go far to defecate (19)	1	0.71%		

	Everybody will not use this bag (20)	0	0.00%	Should not have been coded if no responses of those who responded 1 to v052
	Total Responses	141	103.13%	
	Relating to health	63	44.68%	
	Relating to environment	51	36.17%	
	Relating to economic value	10	7.09%	
	Relating to awareness	4	2.84%	
	Relating to social concerns	7	4.96%	
	Relating to convenience	4	2.84%	
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v054 - Do you think the Toilet Bag could improve the sanitation situation of other people in your family or community?	Yes (1)	94	94.95%	of participants responded
	No (2)	5	5.05%	
	Total Responses	99	99.00%	
v055 - Do you think using the Toilet Bag could bring you respect from your family and community?	Yes (1)	80	80.81%	of participants responded
	No (2)	19	19.19%	
	Total Responses	99	99.00%	
v056 - Are you concerned about the (social) perceptions of your family/community?	Yes (1)	73	73.74%	of participants responded of those concerned (70% of women)
	No (2)	26	26.26%	
	Total Responses	99	99.00%	
	Women concerned	38	52.05%	
v057 - Would you ever consider paying for Toilet bags?	Yes (1)	72	73.47%	of participants responded of those willing to pay
	No (2)	26	26.53%	
	Total Responses	98	98.00%	
	Women willing to pay	37	51.39%	
v058 - How much?	Avg price	1.033		
	Max price	10.00		
	Min price	0.00		
	Mode price	1.00		
v059 - How do you feel about testing the Toilet Bag?	Excited/looking forward to it (1)	63	62.38%	Multiple responses possible of participants responded
	Hesitant/fearful (2)	21	20.79%	
	Other (3)	17	16.83%	
	Total Responses	101	99.00%	
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v060 - How many bags do you think you would use per day?	Avg no.	1.72		
	Max no.	3		
	Min no.	1		
	Mode no.	2		
v061 - Where do you plan to use it?	Open place outside the room (1)	5	4.90%	Multiple responses possible
	Separate place outside room (2)	22	21.57%	
	Inside the room (3)	34	33.33%	
	In the toilet (Currently using) (4)	15	14.71%	
	Bath Room (5)	9	8.82%	
	Outside the room in Night and Inside the room in Day time (6)	1	0.98%	
	Space between the two house (7)	3	2.94%	
	Corner of Yard (8)	4	3.92%	
	Backside of room (9)	7	6.86%	
	Bank of the River (10)	2	1.96%	
	Total Responses	102	100.00%	of participants responded
	Inside the house	51	50.00%	
	Outside the house	51	50.00%	
	Women outside	27	52.94%	
v062 - How do you plan to use it?	Hold with one hand (1)	1	1.00%	of participants responded
	Place around container (2)	99	99.00%	
	Other (3)	0	0.00%	
	Total Responses	100	100.00%	
v063 - Do you have a container you could use for this purpose?	Yes (1)	10	10.00%	of those who responded 2 to v062
	No (2)	90	90.00%	
	Total Responses	100	101.01%	
v064 - Where do you plan to wash yourself?	Same location as using Toilet Bag (1)	37	37.76%	
	Other location (2)	61	62.24%	
	Total Responses	98	99.00%	
v065 - How will you wash yourself?	Over a bucket (1)	8	7.84%	Multiple responses possible
	Onto the floor (2)	29	28.43%	
	Inside a toilet (3)	15	14.71%	
	Inside a bathroom (4)	7	6.86%	
	Other (5)	43	42.16%	
	Total Responses	102	100.00%	
v066 - Where will you dispose of the water?	Into an open drain (1)	14	13.86%	Multiple responses possible
	Into a latrine/toilet (2)	12	11.88%	
	Onto the ground (3)	44	43.56%	
	Into a pond or river (4)	3	2.97%	
	Other (5)	28	27.72%	
	Total Responses	101	99.00%	

v067 - Where will you store the used bag(s)?	Open place outside the room (1)	27	27.55%	Multiple responses possible
	Separate place outside room (2)	6	6.12%	
	Inside the room (3)	4	4.08%	
	Bath Room (4)	4	4.08%	
	Space between the two house (5)	4	4.08%	
	Inside the room bellow bed (6)	6	6.12%	
	Corner of Yard (7)	29	29.59%	
	Corner of Toilet (8)	4	4.08%	
	In front of the door digging hole (9)	3	3.06%	
	Toilet for pee (10)	2	2.04%	
	In front of house (11)	3	3.06%	
	In front of backside gate (12)	1	1.02%	
	Veranda (13)	4	4.08%	
	Corner/Corner of Bathroom (14)	1	1.02%	
	Total Responses	98	100.00%	of participants responded. Three responses have non - existent codes
	Inside house	15		
	Outside house	83		
v068 - How do you feel about storing the bags there until they are collected?	Concerned (1)	80	80.81%	of participants responded
	Not concerned (2)	19	19.19%	
	Other	0	0.00%	
		99	99.00%	
v069 - Would you ever consider storing the used bags inside your home?	Yes (1)	46	46.94%	of participants responded
	No (2)	52	53.06%	
		98	98.00%	
v070 - What time of day would you like bags to be collected/distributed?	Avg	11:48		
	Max	17:00		
	Min	7:00		
	Mode	10:00		
v071 - How would you like the collection/distribution to be done?	Delivered/collected at door (1)	83	83.00%	of participants responded
	Delivered/collected at central point (2)	16	16.00%	
	Left outside the door (3)	1	1.00%	
	Other (4)	0	0.00%	
		100	100.00%	

APPENDIX VI: RESULTS FROM POST-TEST SURVEY

PARTICIPATION AND USAGE	Freq.	%	Notes
Number of Participants	92	92.00%	of original participants over 10 day period
Number of bags used	738		
Avg bags used	8		
Max bags used	25		
Min bags used	1		
Mode bags used	6		
Avg bags women	8.68		
Avg bags men	7.24		

Question	Response (Code)	Freq.	%	Notes
v001 - Did you use a Toilet bag every time you urinated/ defecated?	Yes, all of the time (1)	34	36.96%	of participants responded of those who responded 4 or 5
	More than 75% of the time (2)	14	15.22%	
	50-75% of the time (3)	25	27.17%	
	Less than 50% of the time (4)	18	19.57%	
	Never (5)	1	1.09%	
	Total Responses	92	100.00%	
	Men Less than 50% (incl never)	13	68.42%	
v002 - If no, why not?	Didn't have enough bags (1)	0	0.00%	Multiple responses possible of those who didn't respond 1 to v001
	At times didn't have enough privacy to use (2)	4	7.02%	
	Did not want to use (3)	9	15.79%	
	Did not use for urine (4)	8	14.04%	
	Other (5)	36	63.16%	
	Total Responses	57	93.10%	
v003 - How did you feel the first time you used it?	Comfortable (1)	22	21.57%	Multiple responses possible of participants responded
	Uncomfortable (2)	44	43.14%	
	Nervous (3)	10	9.80%	
	Embarrassed (4)	19	18.63%	
	Excited (5)	1	0.98%	
	Happy (6)	4	3.92%	
	Other (7)	2	1.96%	
Total Responses	102	100.00%		
v004 - Did you hesitate to use it at all?	Yes (1)	59	64.13%	of participants responded
	No (2)	33	35.87%	
	Total Responses	92	100.00%	
v005 - Why did you hesitate?	Didn't understand how to use (1)	24	30.38%	Multiple responses possible of participants responded of those who responded 2
	Felt embarrassed to use (2)	36	45.57%	
	Not user friendly/ difficult (3)	17	21.52%	
	Other (4)	2	2.53%	
	Total Responses	79	67.39%	
	Men felt embarrassed	14	38.89%	

v006 - How did you feel the last time you used it?	Comfortable (1)	53	54.08%	Multiple responses possible of participants responded
	Uncomfortable (2)	19	19.39%	
	Nervous (3)	2	2.04%	
	Embarrassed (4)	4	4.08%	
	Excited (5)	1	1.02%	
	Happy (6)	14	14.29%	
	Other (7)	5	5.10%	
	Total Responses	98	106.52%	
	Comfortable increase		32.51%	
	Uncomfortable decrease		23.75%	
Nervous decrease		7.76%		
Embarrassed decrease		14.55%		
Happy increase		10.36%		
v007 - Where did you use it?	Inside the house	29	31.18%	Multiple responses possible of participants responded
	Inside bathroom/ bathing place	11	11.83%	
	Inside latrine/toilet	16	17.20%	
	Out in the open	15	16.13%	
	Other	22	23.66%	
	Total Responses	93	100.00%	
v008 - Why did you choose this place?	Private (1)	52	50.00%	Multiple responses possible of participants responded of those who answered 1
	Clean (2)	10	9.62%	
	Convenient (3)	26	25.00%	
	Other (4)	16	15.38%	
	Total Responses	104	100.00%	
	Women Privacy	31	59.62%	
Women Privacy (% of all responses by women)		55.36%		
v009 - Did you have any problems when using this place?	Yes (1)	33	35.87%	of participants responded
	No (2)	59	64.13%	
	Total Responses	92	100.00%	
	Women yes	19	57.58%	
v010 - What kind of problems?	Space no big enough (1)	5	11.90%	of those who responded 1 to v009 of those who responded 2
	Space not private (2)	21	50.00%	
	Space too close to sleeping area (3)	5	11.90%	
	Space too close to kitchen (4)	1	2.38%	
	Space not clean (5)	4	9.52%	
	Other (6)	6	14.29%	
	Total Responses	42	130.30%	
	Women not private	12	57.14%	
v011 - Did you have enough privacy?	Yes (1)	58	63.04%	of participants responded
	No (2)	34	36.96%	
	Total Responses	92	100.00%	
	Women No	0	58.82%	
v012 - At what time(s) did you normally use it?	<i>Question mistranslated - Responses not analysed.</i>			

v013 - Did you use it for both urine and faeces ?	Yes (1)	7	7.61%	of participants responded
	No (2)	85	92.39%	
	Total Responses	92	100.00%	
	Women yes	4	57.14%	of those who responded 1
v014 - If no, why not?	Was worried the bag wouldn't hold both (1)	28	27.72%	Multiple responses possible
	Found it difficult to both pee and poo in the bag (2)	38	37.62%	
	Bag opening too small (3)	27	26.73%	
	Container used too small (4)	7	6.93%	
	Other (5)	1	0.99%	
	Total Responses	101	98.82%	
How did you use it? v015	Held in hand (1)	1	1.09%	
	Put in container (2)	91	98.91%	
	Other (3)	0	0.00%	
	Total Responses	92	100.00%	
v016	Container on the ground (1)	82	98.80%	of those who responded 2 to v015
	Container held in hand (2)	1	1.20%	
	Total Responses	83	91.21%	
v017	Container stationary (1)	61	98.39%	of those who responded 2 to v015
	Container moved forward and back (for pee and poo) (2)	1	1.61%	
	Total Responses	62	68.13%	
v018	Sat on container (1)	82	98.80%	of those who responded 2 to v015
	Squatted over (not touching) container (2)	1	1.20%	
	Total Responses	83	91.21%	
v019 - Why/how did you choose the container you used?	It was what I saw in the demo (1)	37	31.90%	Multiple responses possible
	Was told to buy it by surveyors (2)	49	42.24%	
	Good size (3)	2	1.72%	
	Good price (4)	0	0.00%	
	Readily available (5)	3	2.5%	
	Already had at home (6)	9	7.76%	
	Other (7)	16	13.79%	
	Total Responses	116	97.83%	
v020 -Was it comfortable to use?	Yes (1)	64	70.33%	of participants responded
	No (2)	27	29.67%	
	Total Responses	91	98.91%	
	Women yes	35	54.69%	of those who responded 1
v021 - If no, why not?	Was difficult to squat and hold the bag (1)	1	1.89%	Multiple responses possible
	Was difficult to pee/poo into the bag (2)	23	43.40%	
	Was difficult to squat over/ sit on container (3)	21	39.62%	
	Other (4)	8	15.09%	
	Total Responses	53	125.93%	

v022 - Did the pee and poo enter the bag easily?	Yes (1)	33	35.87%	of participants responded of those who responded 2/No
	No (2)	59	64.13%	
	Total Responses	92	100.00%	
	Women no	29	49.15%	
v023 - If not, how was the pee or poo obstructed when entering the bag??	The pot was too small to hold both together, some pee went outside (1)	12	20.34%	of those who responded 2 to v022
	Problems peeing and using water (2)	5	8.47%	
	Sometimes there was waste left on the bag (3)	5	8.47%	
	The bag was too small (4)	3	5.08%	
	Didn't pee in bag because it might get too full (5)	4	6.78%	
	Must pee outside the bag (6)	9	15.25%	
	Problems peeing in the bag while holding by hand (7)	4	6.78%	
	Pee went outside the bag (8)	14	23.73%	
	Pee got on hand (9)	1	1.69%	
	Child was moving and the bag was not still (10)	1	1.69%	
	Went pee behind the house (11)	1	1.69%	
	Total Responses	59	100.00%	
Relating to pee not entering the bag	50	84.75%		
v024 - When did you close the bag?	Immediately after peeing/pooing (1)	72	77.42%	Multiple responses possible of participants responded
	After washing (2)	20	21.51%	
	After washing hands (3)	1	1.08%	
	Other (4)	0	0.00%	
	Total Responses	93	100.00%	
v025 - Did you feel clean after using it?	Yes (1)	85	92.39%	of participants responded
	No (2)	7	7.61%	
	Total Responses	92	100.00%	
v026 - If no, why not?	Had to close bag with hands (1)	17	43.59%	Multiple responses possible of those who responded 2 to v025
	Could not wash right away (2)	17	43.59%	
	Other (3)	5	12.82%	
	Total Responses	39	414.29%	
v027 - How did you wash yourself after using it?	<i>Question mistranslated - Responses not analysed.</i>			
v028 - Where did you wash yourself?	Same location as used bag (1)	64	67.37%	Multiple responses possible of participants responded
	Other location (2)	31	32.63%	
	Total Responses	95	100.00%	

v029 - What problems did you experience when washing yourself (if any)?	None (1)	58	63.04%	Multiple responses possible of participants responded
	Water got onto the floor (2)	24	26.09%	
	Other (3)	10	10.87%	
	Total Responses	92	98.91%	
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v030 - How did you dispose of the water?	Into open drain (1)	22	23.91%	of participants responded
	Other (2)	70	76.09%	
	Total Responses	92	100.00%	
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v031 - Did you experience any other problems when using the Toilet Bag?	Yes (1)	44	47.83%	of participants responded
	No (2)	48	52.17%	
	Total Responses	92	100.00%	
v032 - Please describe the problems you faced.	Problem using water to wash (1)	4	7.27%	Multiple responses possible Should not have been coded if not responses of those who responded 1 to v031
	Lack of privacy (2)	3	5.45%	
	It's possible that you touch waste when closing the bag (3)	19	34.55%	
	Scared of sitting on the pot (4)	9	16.36%	
	Bad smell and don't like the pot (5)	0	0.00%	
	Pot and bag are both small (6)	1	1.82%	
	Not possible to pee or wash into the bag (7)	4	7.27%	
	Not possible to pee and poo together in the bag (8)	1	1.82%	
	Pee that got out of the bag made the house dirty (9)	2	3.64%	
	Would be easier if bag and pot were bigger (10)	1	1.82%	
	It is difficult to balance on the pot (11)	9	16.36%	
	Someone else tied the bag after use (12)	1	1.82%	
	Pot was small (13)	1	1.82%	
	Total Responses	55	115.91%	
	Relating to difficulty peeing in bag	7	12.73%	
	Relating to difficulty washing	8	14.55%	
	Relating to pot or bag too small	12	21.82%	
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v033 - Were these problems:	Functional (1)	25	50.00%	Multiple responses possible of those who responded to v032
	Social (2)	1	2.00%	
	Emotional (3)	15	30.00%	
	Health related (4)	2	4.00%	
	Logistical (5)	0	0.00%	
	Other (6)	7	14.00%	
Total Responses	50	94.12%		
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v034 - Was the size and shape of the bag suitable?	Yes (1)	39	42.86%	of participants responded
	No (2)	52	57.14%	
	Total Responses	91	98.91%	
	Women no	28	53.85%	of those who responded 2/No
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v035 - How should it be modified?	Outside made wider (1)	54	59.34%	Multiple responses possible of those who responded 2 to v034
	Inside made wider/bigger (2)	20	21.98%	
	Made longer (3)	4	4.40%	
	Made of thicker plastic (4)	0	0.00%	
	Other (5)	13	14.29%	
	Total Responses	91	153.85%	
v036 - Was it helpful/preferable that the bag has 2 layers?	Yes (1)	87	95.60%	of participants responded
	No (2)	4	4.40%	
	Total Responses	91	98.91%	
v037 - Why?	Made it easier to hold (1)	74	84.09%	Multiple responses possible of those who responded 1 to v037
	Made it cleaner (2)	14	15.91%	
	Other (3)	0	0.00%	
	Total Responses	88	95.40%	
v038 - If the bag had only 1 layer (size of inner) would you still be interested to use it?	Yes (1)	45	48.91%	of participant responded
	No (2)	47	51.09%	
	Total Responses	92	100.00%	
v039 - Did you have any trouble closing the bag?	Yes (1)	21	23.08%	of participants responded
	No (2)	70	76.92%	
	Total Responses	91	98.91%	
v040 - If yes, what problems did you have closing the bag?	I do not feel good about holding the bag and tying after using (1)	8	47.06%	of those who responded 1 to v039
	It is embarrassing, hate it (2)	7	41.18%	
	Other people should close the bag after use (3)	1	5.88%	
	The outer portion is too narrow for the inner portion to go into (4)	1	5.88%	
	Total Responses	17	80.95%	
v041 - Was there ever waste in or above the knot?	Yes (1)	73	79.35%	of participants responded
	No (2)	19	20.65%	
	Total Responses	92	100.00%	
v042 - Did the bag ever...	Leak (1)	2	2.17%	of participants responded
	Burst (2)	5	5.43%	
	Get a hole in it (3)	85	92.39%	
	Not applicable (4)	0	0.00%	
	Total Responses	92	100.00%	
v043 - Where did you store the bag before it was collected?	Inside the house (1)	8	23.53%	Some errors were made during post-survey coding of responses. The meaning of some codes is unclear. of participants responded
	Beside the house (2)	14	41.18%	
	On the roof (in pot) (3)	1	2.94%	
	The holes were covered outside the house (4)	2	5.88%	
	Behind the house (5)	3	8.82%	
	The tin made shelf was kept outside the house (6)	2	5.88%	
	In front of house under thatch (7)	1	2.94%	
	Inside the house in earthen pot (8)	2	5.88%	
	Into the pot under (9)	1	2.94%	
	Total Responses	34	36.96%	

v044 - Was this place..?	Inside (1)	31	36.47%	Multiple responses possible of participants responded
	Outside (2)	54	63.53%	
	Total Responses	85	91.30%	
v045 - Was this place..?	Hidden (1)	41	69.49%	of participants responded
	In the open (2)	18	30.51%	
	Total Responses	59	64.13%	
v046 - Was this place..?	Inside container (1)	44	61.11%	of participants responded
	Loose (2)	28	38.89%	
	Total Responses	72	80.43%	
v047 - Why did you choose this place?	It was safe (1)	39	44.83%	Meaning of code unclear of participants responded
	No other option (2)	10	11.49%	
	It has some value (3)	1	1.15%	
	Might be embarrassing/cause bad reputation if outside (4)	1	1.15%	
	No place to put the bag (5)	9	10.34%	
	For privacy (6)	15	17.24%	
	That is where it made them feel comfortable (7)	3	3.45%	
	Can look after it all the time (8)	3	3.45%	
	Smells bad if kept in house (9)	6	6.90%	
Total Responses	87	94.57%		
v048 - Did you wash your hands with soap after using the bag?	Never (1)	8	8.70%	of participants responded
	Sometimes (2)	22	23.91%	
	Always (3)	62	67.39%	
	Total Responses	92	100.00%	
v049 - Did the bag have any bad smell?	Yes (1)	11	12.09%	of participants responded
	No (2)	80	87.91%	
	Total Responses	91	98.91%	
v050 - How often did the bag smell?	All the time (1)	0	0.00%	of those who responded 1 to v049
	Most of the time (2)	1	5.56%	
	Half the time (3)	0	0.00%	
	Only a few times (4)	7	38.89%	
	Only once (5)	4	22.22%	
	Never (6)	6	33.33%	
	Total Responses	18	163.64%	
v051 - When did it start to smell?	0-1 hrs after use (1)	4	33.33%	of those who responded 1 to v049
	1-3 hrs after use (2)	1	8.33%	
	3-6 hrs after use (3)	2	16.67%	
	6-12 hrs after use (4)	2	16.67%	
	12-24 hrs after use (5)	3	25.00%	
	Total Responses	12	109.09%	
v052 - What did you like about using the Toilet Bag?	Was easy to use	20	15.87%	Multiple responses possible of participants responded of those who responded 2
	Could use anytime	63	50.00%	
	Did not have to leave the house	33	26.19%	
	Was sanitary	0	0.00%	
	Other	10	7.94%	
	Total Responses	126	100.00%	
	Women use anytime	35	55.56%	

v053 - What did you dislike about using the Toilet Bag?	Was difficult to use (1)	19	21.11%	Multiple responses possible of participants responded
	Did not like to go to pee/poo inside(2)	38	42.22%	
	Other (3)	33	36.67%	
	Total Responses	90	78.26%	
v054 - Did you ever use a Toilet bag more than once, or did more than one person ever go to the toilet in 1 bag?	Never (1)	89	96.74%	of participants responded
	Once (2)	2	2.17%	
	Sometimes (3)	0	0.00%	
	Often (4)	0	0.00%	
	Always (5)	1	1.09%	
Total Responses	92	100.00%		
v055 - Did you ever give the Toilet bags that were given to you to other family members to use?	Never (1)	90	97.83%	of participants responded
	Once (2)	1	1.09%	
	Sometimes (3)	0	0.00%	
	Often (4)	0	0.00%	
	Always (5)	1	1.09%	
Total Responses	92	100.00%		
v056 - On what did you spend the 25Tk you were given?	A container (1)	74	80.43%	of participants responded
	Other item related to bag use (2)	1	1.09%	
	Item not related to bag use (3)	17	18.48%	
	Total Responses	92	100.00%	

SECTION 2 - INFORMATION AND INSTRUCTIONS

Question	Response (Code)	Freq.	%	Notes
v057 - Was the information provided by the surveyors sufficient for you to be able to use the bag properly?	Yes (1)	90	97.83%	of participants responded
	No (2)	2	2.17%	
	Total Responses	92	100.00%	
v058 - If no, what other (verbal) information would have helped you understand better?	More comprehensive demo (1)	2	40.00%	Multiple responses possible of participants responded
	Repeated demo (2)	3	60.00%	
	Other (3)	0	0.00%	
	Total Responses	5	200.00%	
v059 - Did the instruction sheet help you understand how to use the bag properly?	Yes (1)	75	81.52%	of participants responded
	No (2)	17	18.48%	
	Total Responses	92	100.00%	
v060 - If no, how could it be improved to be more helpful?	Bigger pictures (1)	11	52.38%	Multiple responses possible of those who responded 2 to v059
	More pictures (2)	7	33.33%	
	Other (3)	3	14.29%	
	Total Responses	21	111.76%	

v061 - What additional information or support would have been helpful?	Diagrams (1)	5	6.41%	Multiple responses possible of participants responded
	Reading materials (2)	5	6.41%	
	Demonstrations (3)	41	52.56%	
	Other (4)	27	34.62%	
	Total Responses	78	82.61%	
v062 - Did you ever ask the monitors or collectors for support or information?	Yes (1)	71	78.02%	of participants responded
	No (2)	20	21.98%	
	Total Responses	91	98.91%	
v063 - Did they provide it?	Yes (1)	71	100.00%	of those who responded 1 to v062
	No (2)	0	0.00%	
	Total Responses	71	100.00%	
v064 - Was it sufficient?	Yes (1)	72	100.00%	of those who responded 1 to v063
	No (2)	0	0.00%	
	Total Responses	72	101.41%	
v065 - What other information would you have liked to facilitate your use of the Toilet Bag?	<i>No responses given.</i>			

SECTION 3 – ATTITUDES TOWARDS TOILET BAGS

Question	Response (Code)	Freq.	%	Notes
v066 - Do you remember your initial reaction towards the Toilet bag?	Yes (1)	92	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	92	100.00%	
v067 - Was it positive or negative (overall)?	Positive (1)	50	54.35%	of those who responded 1 to v066
	Negative (2)	42	45.65%	
	Total Responses	92	100.00%	
v068 - Have your feelings towards the Toilet bag changed?	Yes (1)	62	67.39%	of participants responded
	No (2)	30	32.61%	
	Total Responses	92	100.00%	
v069 - Why?	Bag worked better than expected (1)	32	46.38%	of those who responded 1 to v068
	Bag improved sanitation situation (2)	20	28.99%	
	Other (3)	17	24.64%	
	Total Responses	69	111.29%	
v070 - What concerns did you have about the bag before using it?	Cleanliness (1)	41	33.33%	Multiple responses possible of participants responded
	Comfort (2)	29	23.58%	
	Privacy (3)	32	26.02%	
	Storage (4)	1	0.81%	
	Social perceptions (5)	11	8.94%	
	Other (6)	9	7.32%	
Total Responses	123	100.00%		

v071 - Do you still have any of these concerns?	Yes (1)	48	52.17%	of participants responded
	No (2)	44	47.83%	
	Total Responses	92	100.00%	
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v072 - If yes, which ones?	<i>Question mistranslated- Responses not analysed.</i>			
v073 - How did your family members react to your using the Toilet bag?	<i>Question mistranslated- Responses not analysed.</i>			
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v074 - Was your husband/wife...	Happy/positive (1)	35	56.45%	of participants responded
	Unhappy/negative (2)	10	16.13%	
	Indifferent/neutral (3)	4	6.45%	
	Don't know/no comment (4)	4	6.45%	
	Not applicable (5)	9	14.52%	
	Total Responses	62	67.39%	
Husbands unhappy	7	70.00%		
<hr/>				
v075 - Were your parents/children...	Happy/positive (1)	50	59.52%	Multiple responses possible of participants responded
	Unhappy/negative (2)	16	19.05%	
	Indifferent/neutral (3)	5	5.95%	
	Don't know/no comment (4)	10	11.90%	
	Not applicable (5)	3	3.57%	
	Total Responses	84	90.22%	
<hr/>				
v076 -Were your siblings...	Happy/positive (1)	30	40.54%	of participants responded
	Unhappy/negative (2)	9	12.16%	
	Indifferent/neutral (3)	4	5.41%	
	Don't know/no comment (4)	17	22.97%	
	Not applicable (5)	14	18.92%	
	Total Responses	74	80.43%	
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v077 - Was anyone else in your family also testing the Toilet bag?	Yes (1)	30	32.97%	of participants responded
	No (2)	61	67.03%	
	Total Responses	91	98.91%	
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v078 - Was there a difference in the reactions of those who were also using the bag and those who were not?	Yes (1)	43	64.18%	of those who responded 1 to v077
	No (2)	22	32.84%	
	Not applicable (3)	2	2.99%	
	Total Responses	67	223.33%	
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v079 - If yes, were those who also used the bag?	More positive (1)	48	97.96%	of those who responded 1 to v077
	More negative (2)	1	2.04%	
	Total Responses	49	163.33%	
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SECTION 4 – ATTITUDES OF AND INTERACTIONS WITH OTHERS

Question	Response (Code)	Freq.	%	Notes
v080 - Did any of your family members not participating in the Field Test express an interest in using the Toilet bag?	Yes (1)	31	34.44%	of participants responded
	No (2)	59	65.56%	
	Total Responses	90	97.83%	
v081 - Did any of them have strong objections to it?	Yes (1)	25	27.17%	of participants responded
	No (2)	67	72.83%	
	Total Responses	92	100.00%	
v082 - If yes, what were their objections?	Bags were unclean (1)	7	23.33%	Multiple responses possible of those who responded 1 to v081
	Did not want respondent to participate in survey (2)	11	36.67%	
	Should not pee/poo in the house (3)	11	36.67%	
	Other (4)	1	3.33%	
	Total Responses	30	108.00%	
v083 - How did you respond to this?	Explained bag benefits (1)	14	41.18%	Multiple responses possible of those who responded 1 to v081
	Ignored them (2)	11	32.35%	
	Stopped using bag (3)	2	5.88%	
	Used bag in secret (4)	7	20.59%	
	Invited them to try one (5)	0	0.00%	
	Other (6)	0	0.00%	
	Total Responses	34	120.00%	
v084 - What was the final outcome?	Women stopped using	0	0.00%	of those who responded 1 to v081
	Women used in secret	5	71.43%	
	Objector changed opinion about bags (1)	13	44.83%	
	Participant stopped using bag (2)	2	6.90%	
	Issue didn't come up again (3)	14	48.28%	
	Led to violent argument (4)	0	0.00%	
Other (5)	0	0.00%		
Total Responses	29	120.00%		
v085 - Did any of your family members try to stop you from using the Toilet bag ?	Yes (1)	1	2.17%	of participants responded
	No (2)	45	97.83%	
	Total Responses	46	50.00%	
v086 - How did they try to stop you from using it?	Took the bag away (1)	0	0.00%	of those who responded 1 to v085
	Made verbal threats (2)	0	0.00%	
	Used physical force/violence (3)	0	0.00%	
	Other (4)	1	100.00%	
	Total Responses	1	100.00%	
v087 - Were you able to continue using the bags?	Yes (1)	31	93.94%	of those who responded 1 to v085 (only responded relevant answer = 2/No)
	No (2)	2	6.06%	
	Total Responses	33	3300.00%	

v088 - Did you talk to any of your family members about your experiences with the Toilet bag?	Yes (1)	67	74.44%	of participants responded
	No (2)	23	25.56%	
	Total Responses	90	97.83%	
v089 - Who did you talk to?	Mother (1)	23	33.82%	Recorded. Note some relationships assumed. Some may be in-law status. of those who responded 1 to v088
	Father (2)	1	1.47%	
	Brother (3)	5	7.35%	
	Sister (4)	9	13.24%	
	Son (5)	3	4.41%	
	Daughter (6)	6	8.82%	
	Female non- family member (9)	5	7.35%	
	Male non-family member (10)	1	1.47%	
	Wife (11)	11	16.18%	
	Husband (12)	4	5.88%	
	Other (13)	0	0.00%	
	Aunt (7)	0	0.00%	
	Uncle (8)	0	0.00%	
Total Responses	68	89.55%		
v090 - Why did talk (or not talk) to them?	Explain the benefits of the bag (1)	65	92.86%	Multiple responses possible of participants responded
	So that they would provide moral support (2)	0	0.00%	
	To avoid being judged negatively (3)	0	0.00%	
	They asked (4)	5	7.14%	
	Felt too embarrassed (5)	0	0.00%	
	Other (6)	0	0.00%	
	Total Responses	70	75.00%	
v091 - What did you talk to them about?	How the bag works (1)	22	31.88%	of those who responded 1 to v088
	Feelings about using the bag (2)	26	37.68%	
	Bag benefits (3)	20	28.99%	
	Other (4)	1	1.45%	
	Total Responses	69	102.99%	
v092 - Did you talk to anyone else in your community about your experiences with the Toilet bag?	Yes (1)	53	57.61%	of participants responded
	No (2)	39	42.39%	
	Total Responses	92	100.00%	
v093 - Who did you talk to?	Mostly females (1)	17	28.81%	Multiple responses possible of those who responded 1 to v092
	Mostly males (2)	8	13.56%	
	Both males and females equally (3)	4	6.78%	
	Mostly other participants (4)	8	13.56%	
	Mostly non - participants (5)	3	5.08%	
	Both participants and non-participants equally (6)	4	6.78%	
	Mostly people same age (7)	5	8.47%	
	Mostly younger people (8)	1	1.69%	
	Mostly older people (9)	5	8.47%	
	People of all ages (10)	4	6.78%	
	Other (11)	0	0.00%	
	Total Responses	59	100.00%	
Females to females	16	94.12%		
Males to males	8	100.00%		

v094 - Why did talk (or not talk) to them?	Explain the benefits of the bag (1)	28	49.12%	of participants responded
	So that they would provide moral support (2)	4	7.02%	
	To avoid being judged negatively (3)	2	3.51%	
	They asked (4)	19	33.33%	
	Felt too embarrassed (5)	1	1.75%	
	Other (6)	3	5.26%	
	Total Responses	57	61.96%	
v095 - What did you talk to them about?	How the bag works (1)	18	19.57%	Multiple responses possible
	Feelings about using the bag (2)	39	42.39%	
	Bag benefits (3)	32	34.78%	
	Other (4)	3	3.26%	
	Total Responses	92	101.89%	of those who responded 1 to v092
v096 - Did anyone in your community approach you, talk to you, or make comments about your use of the Toilet bag?	Yes (1)	66	71.74%	of participants responded
	No (2)	26	28.26%	
	Total Responses	92	100.00%	
v097 - What kinds of people?	Mostly females (1)	27	38.03%	Multiple responses possible
	Mostly males (2)	8	11.27%	
	Both males and females equally (3)	3	4.23%	
	Mostly other participants (4)	3	4.23%	
	Mostly non -participants (5)	0	0.00%	
	Both participants and non - participants equally (6)	3	4.23%	
	mostly people same age (7)	17	23.94%	
	Mostly younger people (8)	0	0.00%	
	Mostly older people (9)	0	0.00%	
	People of all ages (10)	9	12.68%	
	Other (11)	1	1.41%	
	Total Responses	71	100.00%	of those who responded 1 to v096
v098 - In general were these comments....?	Positive (1)	30	41.67%	Multiple responses possible
	Negative (2)	36	50.00%	
	Neutral (3)	6	8.33%	
	Total Responses	72	103.03%	of those who responded 1 to v096
v099 - What did they say?	Some people said it is good; other people said it is small and spreads bad smell (1)	2	3.28%	Multiple responses possible. Some errors were made during post- survey coding of responses. Some meanings are unclear. Some responses should have been separate into different codes
	It would be better if the bag is bigger (2)	2	3.28%	
	It is dirty (3)	3	4.92%	
	Why are you doing this survey, expending money? (4)	2	3.28%	
	It is better to build a toilet than this type of survey (5)	1	1.64%	
	Religious values (6)	2	3.28%	
	Longstanding social culture (7)	1	1.64%	
	Not enough space in the house to use it; other than that it is good (8)	1	1.64%	
	The bag is good / The seller of waste does not have (illegible) /hate (9)	10	16.39%	

	The bag can solve sanitation problem (10)	3	4.92%	
	Not possible to use the bag (11)	6	9.84%	
	If the same facilitators remain they will use it (12)	2	3.28%	
	People were laughing (13)	5	8.20%	
	They will never try it because they hate it (14)	4	6.56%	
	They are inspired to use the bag (15)	10	16.39%	
	It is a new system (16)	1	1.64%	
	The bag is very sanitary (17)	2	3.28%	
	They feel shy (18)	2	3.28%	
	Daughter said I am being dirty (19)	1	1.64%	
	Positive opinions about fertilizer production (20)	1	1.64%	
	Total Responses	61	90.91%	of those who responded 1 to v096
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v100 - How did this make you feel?	Good (1)	35	50.72%	
	Bad (2)	22	31.88%	
	Embarrassed (3)	8	0.04%	
	Ashamed (4)	2	2.90%	
	Proud (5)	0	0.00%	
	Happy (6)	0	0.00%	
	Indifferent/neutral (7)	2	2.90%	
	Other (8)	0	0.00%	
	Total Responses	69	104.55%	of those who responded 1 to v096
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v101 - How did you respond to them?	Explained benefits of the bag (1)	57	87.69%	
	Other (2)	8	12.31%	
	Total Responses	65	98.48%	of those who responded 1 to v096
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v102 - Did anybody who criticized the Toilet bag change their opinion about the bags?	Many are changed (1)	5	11.90%	
	Few are changed (many not changed) (2)	12	28.57%	
	Not/none changed (3)	11	26.19%	
	= Few changed (4)			Recorded to 2
	= No change (5)			Recorded to 3
	Few said it is good for the environment (6)	1	2.38%	
	Changed their mind and want to use the bag (7)	10	23.81%	
	They cannot take it easily (8)	3	7.14%	Meaning of code unclear
	Total Responses	42	116.67%	of those who responded 2 to v098
<hr/>				
v103 - Has your relationship with your husband/ wife/ parents/ children (circle one) changed at all as a result of your using the Toilet bag?	Yes (1)	4	4.40%	
	No (2)	87	95.60%	
	Total Responses	91	98.91%	of participants responded

v104 - How?	Relationship improved (1)	2	10.00%	of those who responded 1 to v103
	Relationship deteriorated (2)	4	20.00%	
	Other (3)	14	70.00%	
	Total Responses	20	500.00%	
<hr/>				
v105 - Has using the Toilet bag made you feel different about yourself?	Yes (1)	51	55.43%	of participants responded
	No (2)	41	44.57%	
	Total Responses	92	100.00%	
<hr/>				
v106 - How?	More confident (1)	27	50.94%	Multiple responses possible of those who responded 1 to v105
	Less confident (2)	2	3.77%	
	Embarrassed (3)	14	26.42%	
	Proud (4)	7	13.21%	
	Other (5)	3	5.66%	
	Total Responses	53	100.00%	
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SECTION 5 - BENEFITS/VALUE OF THE TOILET BAG

Question	Response (Code)	Freq.	%	Notes
v107 - For you, what is the most important thing you are looking for in a toilet?	Clean (1)	57	38.51%	Multiple responses possible of participants responded
	Close (2)	3	2.03%	
	Not shared/common (3)	52	35.14%	
	Privacy (4)	9	6.08%	
	Free (5)	14	9.46%	
	Other (6)	13	8.78%	
	Total Responses	148	100.00%	
	Women privacy	4	44.44%	
	Women Clean	31	54.39%	
Women not shared	26	50.00%		
<hr/>				
v108 - What do you dislike most about the toilet you usually use?	Dirty (1)	35	22.01%	Multiple responses possible of participants responded
	Far away (2)	34	21.38%	
	Shared/common (3)	40	25.16%	
	No Privacy (4)	33	20.75%	
	Cost (5)	3	1.89%	
	Other (6)	14	8.81%	
	Total Responses	159	98.91%	
	Women no privacy	22	66.67%	
	Women dirty	17	48.57%	
Women far away	20	58.82%		
Women shared	18	45.00%		
<hr/>				
v109 - Did you experience any benefits from using the Toilet bag?	Yes (1)	81	88.04%	of participants responded
	No (2)	11	11.96%	
	Total Responses	92	100.00%	
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v110 - What were they?	Saved time (1)	14	10.29%	Multiple responses possible
	Saved money (2)	3	2.21%	
	Sanitation improved (3)	15	11.03%	
	Health improved (4)	2	1.47%	
	More privacy (5)	13	9.56%	
	Able to go more frequently (6)	37	27.21%	
	Gained respect (7)	2	1.47%	
	Personal cleanliness improved (8)	23	16.91%	
	Environmental cleanliness improved (9)	12	8.82%	
	Convenient (10)	0	0.00%	
	Easy to use (11)	8	5.88%	
	Other (12)	7	5.15%	
	Total Responses	136	101.23%	of those who responded 1 to v109
	Women able to go more frequently	21	56.76%	of those who responded 6
	Women saved time	3	21.43%	of those who responded 1
	Women mode	6		Able to go more frequently
v111 - Please rate the following benefits in order of importance (top three only, don't include benefits that you do not feel apply to you):	Cleanliness/improved sanitation (1) score	153	58.62%	Score was calculated by giving 3 points to those rated first, 2 points to those rated second, and 1 point to those rated third.
	Convenience (2) score	110	42.15%	
	Health (3) score	73	27.97%	
	Environment (4) score	55	21.07%	
	Fertilizer (5) score	88	33.72%	
	Social (6) score	38	14.56%	
	Other (7) score	6	2.30%	
		Total Responses	261	
	Mode 1st	1		Cleanliness/improved sanitation
v112 - Did the toilet bag save time for you?	Avg minutes	7		
	Max minutes	30		
	Min minutes	0		
	Mode minutes	0		
v113 - Did you experience any disadvantages from using the Toilet bag?	Yes (1)	6	6.67%	of participants responded
	No (2)	84	93.33%	
		Total Responses	90	
v114 - What were they?	Urination/defecation took longer (1)	4	44.44%	Multiple responses possible
	Sanitation deteriorated (2)	0	0.00%	
	Health deteriorated (3)	1	11.11%	
	Privacy reduced (4)	1	11.11%	
	Lost respect (5)	2	22.22%	
	Had to store waste at home (6)	1	11.11%	
	Other (7)	0	0.00%	
	Total Responses	9	100.00%	of those who responded 1 to v113

v115 - How does using the Toilet Bag compare to your regular sanitation practices?	Better (1)	78	86.67%	of participants responded
	Worse (2)	8	8.89%	
	Same (3)	4	4.44%	
	Other (4)	0	0.00%	
	Total Responses	90	97.83%	
	Women worse	7	87.50%	
v116 - Would you like to use the Toilet Bag everyday, for all your urination and defecation needs?	Yes (1)	71	79.78%	of participants responded
	No (2)	18	20.22%	
	Total Responses	89	96.74%	
	Women no	9	50.00%	
v117 - Is the Toilet Bag a valuable product?	Yes (1)	82	91.11%	of participants responded
	No (2)	8	8.89%	
	Total Responses	90	97.83%	
	Women no	4	50.00%	
v118 - Would you be willing to pay for Toilet Bags?	Yes (1)	35	38.89%	of participants responded
	No (2)	55	61.11%	
	Total Responses	90	97.83%	
	Women no	28	50.91%	
v119 - Why or why not?	Don't want to pay for any kind of sanitation (1)	16	16.84%	Multiple responses possible
	Cannot afford it (2)	45	47.37%	
	Toilet bag is cost effective (3)	3	3.16%	of participants responded
	Benefits are worth paying for (4)	25	26.32%	
	Other (5)	6	6.32%	
	Total Responses	95	95.65%	
	Women cost effective	2	66.67%	
Women benefits	13	52.00%		
v120 - How much?	Avg Taka	0.65		
	Max Taka	5.00		
	Min Taka	0.00		
	Mode Taka	0.00		
	> 0	40	43.48%	of participants
	> 0.50	17	18.48%	of participants
> 1.0	7	7.61%	of participants	
v121 - If it cost 5tk per bag would you buy it?	Yes (1)	2	2.35%	of participants responded
	No (2)	83	97.65%	
	Total Responses	85	92.39%	
v122 - If it cost 1tk?	Yes (1)	16	18.82%	of participants responded
	No (2)	69	81.18%	
	Total Responses	85	92.39%	

v123 - To spend Toilet bags would you:	Decide independently (1)	35	40.23%	of participants responded of all responses by women
	Decide after consulting with other family member (2)	23	26.44%	
	Decide together with other family member (3)	20	22.99%	
	Let other family member decide (4)	9	10.34%	
	Total Responses	87	94.57%	
	Women independently	15	31.91%	
	Women after consultation	17	36.17%	
Women jointly	10	21.28%	of women participants responded	
Women let others	5	10.64%		
Women Total Responses	47	100.00%		
v124 - Did you know that your urine and feces, once properly treated, can be used as fertilizer?	Yes (1)	83	92.22%	of participants responded
	No (2)	7	7.78%	
	Total Responses	90	97.83%	
v125 - How do you feel about your urine and feces being used as fertilizer?	Good idea (1)	85	92.39%	of participants responded
	Not good idea (2)	2	2.17%	
	No opinion (3)	5	5.43%	
	Total Responses	92	100.00%	
v126 - Would you be interested in selling your used Toilet bags to people who could use the fertilizer?	Yes (1)	75	85.23%	of participants responded
	No (2)	13	14.77%	
	Total Responses	88	95.65%	
v127 - How much do you think each used Toilet bag is worth?	Avg value	7		
	Max value	40		
	Min value	0		
	Mode value	5		
v128 - Would you buy/eat food that you knew had been fertilized with the fertilizer that comes from Toilet bags?	Yes (1)	91	98.91%	of participants responded
	No (2)	1	1.09%	
	Total Responses	92	100.00%	
v129 - Why not?	Not safe (1)	0	0.00%	
	Don't like the idea (2)	0	0.00%	
	Religious reasons (3)	1	100.00%	
	Other (4)	0	0.00%	
	Total Responses	1	100.00%	

SECTION 6 – ADVOCACY FOR THE TOILET BAG

Question	Response (Code)	Freq.	%	Notes
v130 - Would you recommend the Toilet bag to other people in your area/ community?	Yes (1)	74	81.32%	of participants responded
	No (2)	17	18.68%	
	Total Responses	91	98.91%	
v131 - Who would you recommend it to?	Women (1)	15	18.99%	Multiple responses possible of those who responded 1 to v130
	Men (2)	1	1.27%	
	Children (3)	15	18.99%	
	Elderly (4)	10	12.66%	
	Disabled (5)	5	6.33%	
	All people equally (6)	28	35.44%	
	Other (7)	5	6.33%	
Total Responses	79	98.65%		
v132 - What are the main reasons you would recommend them to use the Toilet Bag?	Easy to use (1)	11	9.40%	Multiple responses possible of those who responded 1 to v130
	Clean/sanitary (2)	37	31.62%	
	Doesn't require leaving house/saves time (3)	9	7.69%	
	Can be used anytime (4)	31	26.50%	
	Does not smell (5)	25	21.37%	
	Other (6)	4	3.42%	
Total Responses	117	98.65%		
v133 - How would you describe the Toilet Bag to people?	It is good, clean and there is no bad smell (1)	19	22.35%	Some errors were made during post-survey coding of responses. The meaning of some codes is unclear, some seem not to relate to the question. of participants responded
	It protects the environment (2)	10	11.76%	
	It is available when needed (3)	8	9.41%	
	It is safe for the environment but not comfortable personally (4)	2	2.35%	
	The bag is health worthy and secret and also available (5)	10	11.76%	
	The bag is good and easy to handle (6)	12	14.12%	
	I could not share with anybody. Others ignored me (7)	3	3.53%	
	I cannot say anything to others (8)	1	1.18%	
	It turns to fertilizer (9)	4	4.71%	
	Everybody should use it (10)	3	3.53%	
	Easy for adults to use (11)	3	3.53%	
	Can improve sanitation situation (12)	8	9.41%	
	Does not spread odor (13)	1	1.18%	
	Would be good if it was bigger (14)	1	1.18%	
Total Responses	85	92.39%		
v134 - What do you think would be a good alternative name for the Toilet bag?	<i>No responses given</i>			

v135 - If you were responsible for promoting the Toilet bag, what positive things would you tell people about it?	Clean and healthy (1)	25	29.41%	Meaning of code unclear of participants responded
	Germs cannot spread and no need to defecate in the open (2)	7	8.24%	
	It can be kept by itself (3)	2	2.35%	
	No need to go to other people's toilet (4)	1	1.18%	
	Will solve the problem of sanitation (5)	3	3.53%	
	Doesn't spread odor, will turn into fertilizer (6)	13	15.29%	
	Feel shy to share with people (7)	3	3.53%	
	I am old, I cannot tell anybody anything, they may misbehave with me (8)	2	2.35%	
	Everybody will benefit from using it (9)	6	7.06%	
	It can be used anytime (10)	10	11.76%	
	It doesn't harm the environment (11)	7	8.24%	
	It is useful for sick people (12)	2	2.35%	
	it is germ free and saves time (13)	3	3.53%	
	I am disabled so it is not possible for me to use (14)	1	1.18%	
Total Responses	85	92.39%		
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v136 - What communication channels would you use for promotion (which ones would be most effective)?	TV (1)	34	36.96%	Multiple responses possible of participants responded
	Radio (2)	0	0.00%	
	Posters (3)	8	8.70%	
	Megaphones (4)	15	16.30%	
	Newspaper (5)	1	1.09%	
	Flyers (6)	1	1.09%	
	Door to door (7)	27	29.35%	
	Other (8)	6	6.52%	
Total Responses	92	92.39%		
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v137 - Do you feel comfortable talking about the Toilet bag?	Yes (1)	38	41.76%	of participants responded
	No (2)	53	58.24%	
	Total Responses	91	100.00%	
<hr/>				
v138 - Would you be comfortable promoting the use of Toilet bags in your community through open meetings, door-to-door visits, etc?	Yes (1)	8	11.43%	of participants responded
	No (2)	62	88.57%	
	Total Responses	70	76.09%	

SECTION 7 - COLLECTION AND DISTRIBUTION

Question	Response (Code)	Freq.	%	Notes
v139 - Were you satisfied with the distribution and collection of Toilet bags?	Yes (1)	92	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	92	100.00%	
v140 - Were the bags distributed and collected at a convenient time?	Yes (1)	92	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	92	100.00%	
v141 - If no, what would be a better time?	Not applicable			
v142 - Did you face any problems in distribution or collection?	Yes (1)	0	0.00%	of participants responded
	No (2)	72	100.00%	
	Total Responses	72	78.26%	
v143 - What problems?	Not applicable			
v144 - If the bags could not be delivered and collected from your house, would you consider collecting the bags at a store and depositing the used bags in a central depository?	Yes (1)	47	51.09%	of participants responded
	No (2)	45	48.91%	
	Total Responses	92	100.00%	
v145 - Why not?	Not socially accepted (1)	3	6.82%	Some errors were made during post-survey coding of responses. Some codes have unclear meanings, others appear not to relate to the question asked.
	Not good for elderly (2)	4	9.09%	
	Would not be accepted by family (3)	1	2.27%	
	Feel embarrassed to take it by hand (4)	7	15.91%	
	Feel embarrassed to carry the bag (5)	2	4.55%	
	Have no time (6)	7	15.91%	
	Might be teased by others (7)	3	6.82%	
	Have no land to compost ourselves (8)	2	4.55%	
	I am doing better comparatively (9)	1	2.27%	
	Can't because female (10)	1	2.27%	
	I am fine with my small (illegible) (11)	1	2.27%	
	Can't because go to school (12)	1	2.27%	
	It is not needed/useful (13)	6	13.64%	
	Would not have permission from other family members (14)	1	2.27%	
	We don't have enough space (15)	2	4.55%	
	Will feel embarrassed (16)	2	4.55%	
Total Responses	44	97.78%	of those who responded 2 to v144	

v146 - Did you feel comfortable with the people distributing/collecting the bags?	Yes (1)	86	95.56%	of participants responded
	No (2)	4	4.44%	
	Total Responses	90	97.83%	
v147 - Did they do a good job?	Yes (1)	91	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	91	98.91%	
v148 - Did they understand the Toilet bag and how it works?	Yes (1)	71	78.02%	of participants responded
	No (2)	1	1.10%	
	Don't know/no comment (3)	19	20.88%	
Total Responses	91	98.91%		
v149 - Would you be happy with this distribution and collection system if it were made permanent?	Yes (1)	76	84.44%	of participants responded
	No (2)	14	15.56%	
	Total Responses	90	97.83%	
v150 - Do you think there is a person/group/organization that would do a better job of distributing and collecting the bags?	Yes (1)	22	30.99%	of participants responded
	No (2)	49	69.01%	
	Total Responses	71	77.17%	
v151 - Why would this organization or person be better?	Those who did are actually doing on a whole (1)	12	26.09%	Meaning of some codes is unclear. of those who responded 1 to v150
	Nobody else told us about this (2)	7	15.22%	
	Anyone like you come to us (3)	4	8.70%	
	People are becoming aware (4)	1	2.17%	
	You did your duty even on the rainy day (5)	8	17.39%	
	That's great (6)	5	10.87%	
	Those will be kept in a specific place to collect the waste (7)	4	8.70%	
	I think it will work regularly (8)	3	6.52%	
	Present organization working well (9)	2	4.35%	
Total Responses	46	209.09%		
v152 - Would you be interested in working as a distributor or collector?	Yes (1)	13	14.44%	of participants responded
	No (2)	77	85.56%	
	Total Responses	90	97.83%	
	Women yes	11	84.62%	of those who responded 1
v153 - Why not?	Would not like to collect pee/poo (1)	41	49.40%	Multiple responses possible of participants responded
	Don't want to be labeled as 'tokai' (2)	8	9.64%	
	Other (3)	34	40.96%	
	Total Responses	83	84.78%	

v154 - What would you do with your used Toilet bags if there were no collection system?	Sell them to someone (1)	19	22.35%	Multiple responses possible of participants responded
	Make fertilizer for own use (2)	2	2.35%	
	Make fertilizer for sale (3)	1	1.18%	
	Throw them in the garbage (4)	5	5.88%	
	Would not use (5)	45	52.94%	
	Other (6)	13	15.29%	
	Total Responses	85	94.57%	

SECTION 8 - EXPANSION OF TOILET BAGS

Question	Response (Code)	Freq.	%	Notes
v155 - Do you think Toilet bags should be available in Mymensingh?	Yes (1)	45	73.77%	of participants responded
	No (2)	16	26.23%	
	Total Responses	61	66.30%	
v156 - If it were, would you buy it and use it?	Yes (1)	39	42.86%	of participants responded of those who responded 1
	No (2)	52	57.14%	
	Total Responses	91	98.91%	
	Women yes	20	51.28%	

SECTION 9 - PARTICIPATION IN FIELD TEST

Question	Response (Code)	Freq.	%	Notes
v157 - Are you happy that you participated in this test?	Yes (1)	77	83.70%	of participants responded
	No (2)	15	16.30%	
	Total Responses	92	100.00%	
v158 - Why or why not?	It is clean (1)	5	5.95%	Meaning of code is unclear
	It is a new idea (2)	7	8.33%	
	No need to go far (3)	8	9.52%	
	No need to go to river bank to go to the toilet (4)	1	1.19%	
	Known about the subject (5)	3	3.57%	
	I am satisfied with the bag (6)	5	5.95%	
	Happy that the gov. can make fertilizer and can make profit (7)	2	2.38%	
	Feel shy/hate (8)	4	4.76%	
	The inner sight of my mind changed (9)	2	2.38%	
	We used it as per the required time (10)	9	10.71%	
	I feel embarrassed (11)	3	3.57%	
	These days were tough/hard for me (12)	1	1.19%	
	Participating in clean sanitation system (13)	5	5.95%	

	We did not defecate in open place (14)	5	5.95%	
	We had doubts, but now it is clear that it is easier to use (15)	9	10.71%	
	I cannot walk so it is easy for me (16)	1	1.19%	
	I felt embarrassed later by incorporating my name as participant (17)	1	1.19%	
	I felt different than others (18)	2	2.38%	
	I felt that I am in trouble (19)	2	2.38%	
	Child fear (20)	2	2.38%	
	Out of contact with hand so it was easy (21)	1	1.19%	
	It is safe and portable (22)	1	1.19%	
	It does not spread odor (23)	1	1.19%	
	It can be used inside the toilet (24)	1	1.19%	
	Saves time (25)	1	1.19%	
	This is an easy method (26)	2	2.38%	
	Total Responses	84	91.30%	of participants responded
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v159 - Do you feel you were given enough information about the test and the use of the Toilet bags?	Yes (1)	92	100.00%	of participants responded
	No (2)	0	0.00%	
	Total Responses	92	100.00%	
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v160 - When you had questions, were you able to address them?	Yes (1)	78	100.00%	of participants responded
	No (2)	0	0.00%	
	Did not have questions (3)	14	17.95%	
	Total Responses	78	100.00%	
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v161 - With who?	Enumerators (1)	71	84.52%	Multiple responses possible of those who responded 1 to v160
	Other participant (2)	13	15.48%	
	Other (3)	0	0.00%	
	Total Responses	84	100.00%	
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v162 - Do you think this test/Toilet bags have helped you?	Yes (1)	81	90.00%	of participants responded
	No (2)	9	10.00%	
	Total Responses	90	97.83%	
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v163 - How?	Fly/mosquito cannot sit on waste (1)	4	4.94%	
	Saves time (2)	14	17.28%	
	No need to go far (3)	8	9.88%	
	Can be used when needed (4)	15	18.52%	
	No need to go to open area/other toilet (5)	11	13.58%	
	The sanitation system improved (6)	5	6.17%	
	I know some good things about the bag (7)	4	4.94%	
	Inside the room (8)	7	8.64%	
	No queue for toilet before going to school (9)	1	1.23%	
	Easy to use (10)	4	4.94%	
	It is complex (11)	1	1.23%	

	Toilet system improved (12)	2	2.47%	
	Get rid from toilet by paying money (13)	1	1.23%	Meaning of code unclear
	Mentality changed (14)	2	2.47%	
	No need to go outside at night (15)	0	0.00%	Should not have been coded if no responses
	Health condition improved (16)	1	1.23%	
	No quarrel using toilet (17)	1	1.23%	
	Total Responses	81		
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v164 - Has it helped your family?	Yes (1)	31	35.63%	
	No (2)	56	64.37%	
	Total Responses	87	95.65%	of participants responded
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v165 - How?	My brother used it (1)	4	12.90%	
	Sanitation system improved (2)	4	12.90%	
	Other family members were inspired (3)	4	12.90%	
	Children were not kept alone in the house (4)	1	3.23%	
	They were informed about the bag (5)	3	9.68%	
	I do not need to waste my time for any family in toileting (6)	2	6.45%	Meaning of code unclear
	Their mentality changed (7)	5	16.13%	
	Financial benefits (8)	1	3.23%	
	Benefited by using it (9)	1	3.23%	
	Everybody encouraged to use (10)	3	9.68%	
	Before using this bag other people helped (11)	1	3.23%	Meaning of code unclear
	Less diarrhea (12)	1	3.23%	
	No requirement to go other places (13)	0	0.00%	Should not have been coded if no responses
	Don't have to leave children alone while going to toilet (14)	1	3.23%	
	Total Responses	31	100.00%	of those who responded 1 to v164
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v166 - Do you feel that people in your family or community view you differently as a result of your participating in this test?	Yes (1)	29	32.95%	
	No (2)	59	67.05%	
	Total Responses	88	96.74%	of participants responded
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v167 - How?	They are teasing (1)	13	46.43%	Some errors were made during post survey coding of responses. Some codes have unclear meanings.
	Mother and husband don't like it (2)	1	3.57%	
	Advised to use this bag by giving money (3)	1	3.57%	
	Neighbours are teasing (4)	4	14.29%	
	Honour much (5)	2	7.14%	
	Honored/treated with honor (6)	7	25.00%	
	As it is (7)	0	0.00%	
	Total Responses	28	96.55%	of those who responded 1 to v166
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v168 - Do you think they have more or less respect for you?	More (1)	5	5.56%	
	Less (2)	11	12.22%	
	Same/unchanged (3)	74	82.22%	
	Total Responses	90	97.83%	of participants responded
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v169 - Do you have any comments or suggestions regarding the test or the Toilet Bags?

No (1)	5	7.94%
Users thought they would be paid for using the bag (2)	1	1.59%
It is good (3)	3	4.76%
Free of cost is very good (4)	12	19.05%
Good for those who have to defecate in the open (5)	1	1.59%
If everybody uses the overall environment will be improved (6)	2	3.17%
Bag is good, beautiful, clean and free from bad smell (7)	2	3.17%
This system should continue in the long run (8)	11	17.46%
Bigger size of bag is better (9)	16	25.40%
Bag should be bigger and think about using water (10)	1	1.59%
Separate system for the child is good (11)	1	1.59%
Let the bag be distributed regularly (12)	3	4.76%
Good for children (13)	1	1.59%
If everybody engaged the habit would be changed (14)	2	3.17%
Good for environment (15)	2	3.17%
Total Responses	63	68.48%

Some errors were made during post survey coding of responses. Some codes have unclear meanings.

of participants responded

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