

# In-Depth Consumer Assessment Report for Sanitation Marketing Pilot – Tororo District Uganda

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The USAID Hygiene Improvement Project (HIP) is a six-year (2004-2010) project funded by the USAID Bureau for Global Health, Office of Health, Infectious Diseases and Nutrition, led by the Academy for Educational Development (contract # GHS-I-00-04-00024-00) in partnership with ARD Inc., the IRC International Water and Sanitation Centre in the Netherlands, and The Manoff Group. HIP aims to reduce diarrhoeal disease prevalence through the promotion of key hygiene improvement practices, such as hand washing with soap, safe disposal of faeces, and safe storage and treatment of drinking water at the household level.

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## **Acronyms**

AED	Academy for Educational Development
CLTS	Community-Led Total Sanitation
HA	Health Assistant
HIP	Hygiene Improvement Project
LC	Local Council
MOGLSD	Ministry of Gender, Labour, and Social Development
MOH	Ministry of Health
NAAD	National Advisory Agricultural Services
SACCOS	Savings and Credit Organisations
USAID	United States Agency for International Development
UWASNET	Uganda Water and Sanitation NGO Network
UWESO	Uganda Women's Efforts to Save Orphans
VIP	Ventilated Improved Pit
WC	Water Closets

## Executive Summary

This report is the result of an in-depth consumer study conducted in Tororo District on behalf of the Hygiene Improvement Project (HIP) financed by USAID and implemented by the Academy for Educational Development (AED) in partnership with Plan Uganda and Uganda Water and Sanitation NGO Network (UWASNET). The research was intended to accomplish two main objectives:

- Document sanitation practices in Tororo District, especially latrine ownership and use, technology and design preferences, and desires of consumers, and their willingness to acquire safe sanitation facilities at the household level, in order to guide development of a sanitation marketing strategy.
- Field-test draft in-depth demand assessment tools and guidelines, which will become part of a field manual for sanitation marketing managers developed by HIP.

The research was carried out in September–October 2008 and involved in-depth interviews with 30 heads of households, including 16 latrine adopters and 14 non-adopters. The in-depth interviews were conducted in Tororo District in the five sub-counties of Molo (five adopters, three non-adopters), Kwapa (three adopters), Mukuju (four adopters, two non-adopters), Iyolwa (two adopters, three non-adopters), and Paya (two adopters, six non-adopters).

Information was collected on the following parameters:

- Current sanitation practices
- Motivations for household sanitation investments
- Constraints to household sanitation adaptation
- Desirable sanitation product technologies and attributes
- Communication channels households use to learn about new products, ideas, and/or behaviours

The key findings of this activity are presented below and will feed into the development and design of a district level sanitation marketing strategy and help refine the field manual of guidelines and tools.

### Latrine Types Known/Experienced

Three distinct latrine technologies were identified:

- *Permanent structured latrines* with concrete slab, burnt brick walls, and corrugated iron roofing
- *Semi-permanent latrines* with unburnt brick/mud and wattle walls roofed with iron sheets/ grass and a log-based floor
- *Traditional pit latrines* with log-based floor, mud and wattle walls, and grass roof

Some of the traditional latrines have roofs and walls covered with banana fibres and leaves. The traditional type was the most commonly known and used.

### **Most Preferred Latrine Type**

Most respondents preferred the permanent latrine because it is easy to clean and maintain and is durable. A cemented concrete floor is perceived to be strong and easy to clean. They also think that a good latrine should be deep enough (10 to 15 feet) and well ventilated with elevated foot rests and an inclined floor to allow urine released during defecation to drain into the pit.

### **Least Preferred Latrine Type**

The traditional latrine was the most disliked of those surveyed because the nondurable construction materials commonly used—mud, wattle, grass, and logs—are susceptible to destruction by termites, wind, and heavy rain. Because it is usually shallow, the traditional latrine smells bad which discourages use. The mud floor is difficult to keep clean and provides a favourable breeding ground for disease-spreading vectors such as flies, maggots, and cockroaches.

### **Motivations to Have a Latrine**

Latrine adopters and non-adopters are motivated by three different types of benefits accruing from latrine adoption: economic, health, and social.

- *Health benefits:* Latrine adoption is perceived to provide protection against diseases like diarrhoea, dysentery, and typhoid, fostering a reduction in morbidity. Adopters believed their families were healthier because latrine usage prevents pollution from bad smells and flies brought by faeces that are not properly disposed of.
- *Economic benefits:* Latrine adoption reduces medical costs and makes more time available for income generating activities.
- *Social benefits:* Status enhancement was also cited as a motivating factor—a home with a latrine is held in high esteem by the community.

### **Constraints to Latrine Adoption**

The major constraints to adoption of safe latrines are the following:

- Low income and competing spending priorities of households
- The physical nature of some of the areas (rocky and water logged areas)
- High cost of construction materials
- Abundance of termites (an issue for traditional latrines)
- Lack of affordable and durable latrine designs
- Growing scarcity of traditional building materials like grass and logs

### **Community Measures Taken to Address Constraints to Latrine Adoption**

Community members struggle to save from their meagre earnings or sell property such as domestic livestock to invest in a home latrine. Local latrine builders are hired to dig pits, especially in rocky areas. The help of relatives, friends, and neighbours is sometimes recruited to dig the pit and construct the superstructure. Termites are destroyed by use of pesticides and digging out of anthills to remove the termite queen.

## Sanitation Bylaw Enforcement

The district and sub-county local governments mobilise and sensitise the communities to enforce latrine construction and use. Enforcement of sanitation bylaws by authorities has to a considerable extent compelled the community to adopt latrine construction and use. It was evident, however, that some of the latrine adopters only build poor quality latrines to satisfy the bylaw requirement, hence the risk of more lapsed adopters.

## Communication Channels

Information is mainly received through oral transmission from one person to another or at social gatherings like local council meetings. Self-help groups like the local chapters of National Advisory Agricultural Services (NAADs) and Uganda Women's Efforts to Save Orphans (UWESO) are important for sharing information in the community. Information is also received through formal education institutions, workshops, and seminars. Local FM radio stations were cited as an important source of information in the communities. Alternatively, information on latrine design is conveyed through observation of existing latrines in the community.

## Decision Making

Decisions on latrine acquisition, type of latrine to construct, where, and when are made by household heads. Occasionally the spouse and other family members are consulted. Latrine design is copied from community latrine adopters. It is estimated that it costs about Ush 55,000 (Uganda shillings)<sup>1</sup> to construct a traditional latrine with the participation of household members, relatives, and neighbours.

## Financing

Most members of the target population are engaged in informal income generating activities, especially small scale farming and seasonal work. While they want to and can afford to acquire latrines, their cash flow is restrained and they need the support of financial institutions. Formal lending institutions are unlikely to extend credit for latrine construction to the project's target population, which are mostly peasant farmers. However, the district has a large number of members belonging to Savings and Credit Organisations (SACCOS), microfinance institutions, and community self-help groups that can be used to generate savings and provide access to credit facilities.

**Table 1: Summary of Key Findings from Analysis of All the Adopter and Non-Adopter Transcripts**

Perceived Attributes of a Good Latrine
<ul style="list-style-type: none"><li>• Sufficiently deep (pit of 10 – 15 feet)</li><li>• Permanent cemented concrete floor and foundation</li><li>• Slab design is slanted so that urine flows into the drop hole to keep it clean and dry</li><li>• Elevated foot rests</li><li>• A wall constructed of baked brick</li><li>• Iron sheet roof protects wall, floor, and logs against rain/sunshine damage and</li></ul>

<sup>1</sup> At the time the study was carried out \$1 was equivalent to Ush 1,900.

<p><i>makes user comfortable</i></p> <ul style="list-style-type: none"> <li>• <i>Durable</i></li> <li>• <i>A lockable door for privacy</i></li> <li>• <i>Adequate ventilation</i></li> <li>• <i>A drop-hole cover</i></li> <li>• <i>Toilet paper/materials for cleaning</i></li> <li>• <i>A broom for cleaning</i></li> <li>• <i>A hoe for removing children's faeces</i></li> <li>• <i>Water and soap for hand washing after use</i></li> <li>• <i>Has a clear access path</i></li> <li>• <i>Located far away from any water source</i></li> <li>• <i>Located a good distance from the main living house</i></li> </ul>
<p><b>Characteristics of a Bad Latrine</b></p> <ul style="list-style-type: none"> <li>• <i>Bad smell</i></li> <li>• <i>Temporary structures susceptible to destruction by termites, heavy rains, and wind</i></li> <li>• <i>Lack of privacy due to absence of a lockable door and walls</i></li> <li>• <i>Lack of water for washing hands after a visit to the latrine</i></li> <li>• <i>Difficult to keep the floor clean and dry</i></li> <li>• <i>Poor ventilation</i></li> <li>• <i>Flies in the latrine</i></li> <li>• <i>Lack of drop-hole cover</i></li> </ul>
<p><b>Motivations to Construct a Good Latrine</b></p> <ul style="list-style-type: none"> <li>• <i>Reduce incidences of family ill health by avoiding diseases like cholera, diarrhoea, dysentery, intestinal worms</i></li> <li>• <i>To avoid air pollution through foul smells from scattered faeces</i></li> <li>• <i>Reduce family medical expenses and attendant travel costs arising from frequent visits to medical facilities</i></li> <li>• <i>Increase man hours for income generating activities</i></li> <li>• <i>Self-esteem, it enhances status in the society</i></li> </ul>
<p><b>Motivations to Upgrade a Latrine</b></p> <ul style="list-style-type: none"> <li>• <i>Durability, which provides long-term savings as the same latrine can serve a long time</i></li> <li>• <i>Comfort for user</i></li> <li>• <i>Cleanliness and maintenance, e.g., a cement floor can be washed with water and soap, but not a mud floor</i></li> <li>• <i>Availability of construction materials, e.g., thatching grass is in short supply, but iron sheets available</i></li> <li>• <i>Improved location of water and soap near the latrine makes hand washing easier</i></li> <li>• <i>Floor design improves ability to clean because incline allows urine released during defecation to flow into the pit</i></li> <li>• <i>Better designed drop hole suits tight-fitting cover</i></li> <li>• <i>Comfort linked to privacy from a good superstructure and bedroom type of compartment</i></li> <li>• <i>Smoking out latrine does not result in roof fires with iron sheets</i></li> <li>• <i>A clean latrine ensures enjoyment of an environment devoid of bad smell and flies</i></li> <li>• <i>Proper ventilation provided through a vent pipe</i></li> </ul>
<p><b>Constraints to Constructing a Good Latrine</b></p> <ul style="list-style-type: none"> <li>• <i>Perceived expense of building materials such as wire mesh, iron bars, aggregate stones, sand, cement, bricks, iron sheets, among others</i></li> <li>• <i>Non-availability/ inaccessibility of cheap and affordable latrine designs</i></li> <li>• <i>The rocky texture of the terrain makes it difficult to dig deep pits</i></li> <li>• <i>Sandy nature of the terrain makes latrines easily collapse</i></li> <li>• <i>Cost and scarcity of thatching grass, which is the most common material for</i></li> </ul>

<p>roofing</p> <ul style="list-style-type: none"> <li>• <i>Termites that destroy the latrine floor, walls, and roof</i></li> <li>• <i>Heavy rainstorms and strong wind, which cause structures to collapse</i></li> </ul>
<p><b>Latrine Types Known and Experienced</b></p> <ul style="list-style-type: none"> <li>• <i>Traditional latrines with log and mud floors, mud and wattle walls, roofed with poles, and thatched with grass</i></li> <li>• <i>Traditional latrines with floor constructed using logs and mud, walls covered with grass or dry banana leaves, roofed with poles, and thatched with grass/ banana leaves/ banana fibres</i></li> <li>• <i>Traditional latrines with walls made of wattle and mud but roofed with corrugated iron sheets</i></li> <li>• <i>Latrines with concrete floor built of iron bars, wire mesh, cement, and aggregates; brick and cement walls; roofed with timber or poles and corrugated iron sheets</i></li> <li>• <i>VIP latrines with the above characteristics, with a pipe and vents to allow air in and out</i></li> <li>• <i>Water closets that use water to flush</i></li> </ul>
<p><b>Most Preferred Latrine Type/Reasons for the Preference</b></p> <p><b>Water closet</b></p> <ul style="list-style-type: none"> <li>○ <i>Most comfortable when defecating</i></li> <li>○ <i>Water is inside for flushing and washing, you do everything from inside</i></li> <li>○ <i>Easy to keep clean</i></li> <li>○ <i>Long lasting</i></li> </ul> <p><b>Latrine with cemented floor, brick walls, and iron sheets</b></p> <ul style="list-style-type: none"> <li>○ <i>Easy to keep clean</i></li> <li>○ <i>Lasts long/ strong</i></li> <li>○ <i>Cannot easily sink and therefore less prone to accidents</i></li> <li>○ <i>Does not smell</i></li> <li>○ <i>Easy to keep dry</i></li> <li>○ <i>Prestigious and makes the home look beautiful</i></li> </ul>
<p><b>Least Preferred Latrine Type/ Reasons</b></p> <p><b>Traditional latrine</b></p> <ul style="list-style-type: none"> <li>○ <i>Not long lasting because the materials used for construction are temporal and are easily destroyed especially by rain and termites</i></li> <li>○ <i>Pit fills up easily because it is not dug deep enough</i></li> <li>○ <i>Prone to snakes</i></li> <li>○ <i>Logs used for making the floor easily rot and then floor sinks</i></li> </ul>

## **1.0 Introduction**

This report is the result of an in-depth consumer study conducted in Tororo District on behalf of USAID/HIP and implemented by AED in partnership with Plan Uganda and UWASNET. The study has two primary objectives: (1) document sanitation practices in Tororo District, especially latrine ownership and use, technology and design preferences, and desires of consumers, and their willingness to acquire safe sanitation facilities at the household level in order to guide development of a sanitation marketing strategy; and (2) field-test draft in-depth demand assessment tools and guidelines that form part of a field manual for sanitation marketing managers developed by HIP. This report presents the objectives, methodology, findings of the study, conclusions, and recommendations.

### **1.1 Background to the Study**

Lack of adequate sanitation is a problem across all developing countries. Low latrine coverage is associated with, among other factors, low levels of formal education, low income, taboos and myths, and physical factors that inhibit the construction and utilisation of latrines. Lack of or limited hygiene information available to rural communities and poor latrine design often discourage usage. To increase latrine adoption and sustainable use it is necessary to understand a community's sanitation practices starting at the household level, its desires and preferences, motivations, and constraints in order to mitigate the factors limiting more widespread latrine adoption. Interventions that respond to the above needs and popularise latrine construction, proper use, and maintenance are essential.

HIP will use the results of this research together with information gathered from other activities to design a sanitation marketing strategy for Tororo District. The design of the district level strategy is premised on a demand-driven approach to sanitation programming. The strategy aims to stimulate community demand for latrine products of its own choice and ability to afford, while working with the providers of latrine products to better enable their response to the demand. It is envisaged that sanitation interventions tailored to the demands and desires of the community are more likely to succeed than those that are externally initiated. Evidence on the ground shows that the traditional supply approach of providing highly or fully subsidised household latrines has largely failed.

### **1.2 Objectives of the Study**

The broad objectives of the study were:

- To field test the in-depth consumer research tools and guidelines
- To gather information necessary for design of the pilot sanitation marketing strategy

To achieve the above objectives, the study specifically focused on collection of information on:

- Current sanitation practices
- Motivations for household sanitation investments

- Constraints to household sanitation adoption
- Desirable sanitation product technologies and attributes
- Channels of communication through which households learn about new products, ideas, and/or behaviours

## **2.0 Methodology**

### **2.1 Study Area**

The in-depth interviews were conducted in Tororo District, eastern Uganda. Five sub-counties—Kwapa, Mukuju, Molo, Iyolwa and Paya—were selected to reflect the perspectives of population segments in two different areas: locations where Plan/Uganda had implemented Community-Led Total Sanitation (CLTS) activities and those without CLTS interventions. Those locations where Plan has been working are assumed to have increased exposure to latrine use and information about available technologies and proper hygienic behaviours. The areas selected also represent typical topographic features, ethnic composition, and socio-economic and cultural diversity of the district. In each of the sub-counties, one parish was selected and from each parish one zone, the smallest administrative unit, was selected for purposes of the interviews.

### **2.2 Sample Population, Size, and Selection**

The study targeted heads of households who make important decisions regarding investments related to sanitation in their households. A total of 30 in-depth interviews were conducted, 16 with latrine adopters and 14 with non-adopters. The households were drawn from a sample framework that was used by the sanitation marketing team to conduct an earlier quantitative survey in the district.

The sample took into consideration representation of both high and low latrine coverage communities, adopters and non-adopters, and male and female respondents.

### **2.3 Field Data Collection**

The in-depth interviews were conducted by one researcher who was conversant with the local language and familiar with other conditions in the study area; he had a tape recorder and one research assistant at each of the study sites to provide support. All the research assistants were health assistants (HA) residing in the district who had taken part in the earlier quantitative component of the study; the HAs are staff of the district government. The main tool for the study was a draft in-depth interview guide prepared by HIP/Plan technical consultants. The in-depth interviews lasted between 40 and 60 minutes each. A profile form was also used to collect information about the social and economic characteristics of each of the interviewees—including sex, marital status, age category, occupation, religion, education, and size of household—to provide a more insightful understanding of the target population.

## 2.4 Data Analysis

Information from the in-depth interviews was transcribed and analysed using a thematic framework to establish the reasons for constructing a latrine, types of latrines, and/or places for defecation known or experienced, constraints to latrine construction, favoured attributes of a good latrine, disliked attributes of a bad latrine, communication channels used to receive sanitation messages, and reasons for building improved permanent latrines. A tally of the responses from the in-depth interviews was done to generate frequency data that facilitated further analysis for similarities and divergences across the various categories of respondents: adopters/non-adopters; male/female; and Plan areas/non-Plan intervention areas. The statistics are provided in tables and graphs in the report.

## 3.0 Results

This section presents the results of the in-depth interviews conducted with heads of households with and without latrines (adopters and non-adopters, respectively). The information presented covers the socio-economic characteristics of the respondents, household characteristics, latrine types known and experienced, preferred latrine types, perceptions of important qualities of a good latrine or place of defecation, attributes of a bad latrine, motivations and constraints to latrine adoption, and communication channels used to receive and transmit information.

### 3.1 Socio-Economic Characteristics of the Respondents

A summary of the socio-economic characteristics of those interviewed is provided in Table 2 and discussed in more detail in the following sections.

**Table 2: Socio-Economic Characteristics of Respondents (Adopters vs. Non-Adopters)**

		Adopters	Non-Adopters
<b>Sex</b>	<b>Marital Status</b>		
Male	Married	16	9
Female	Widowed	0	5
<b>Age Category</b>			
20-24		1	1
25-29		0	1
30-34		2	2
35-39		5	2
40-44		3	1
45-49		0	1
50-54		4	3
55- above		1	3
<b>Occupation of Household Head</b>			
Peasant		9	15
Salary employment		2	1
Technician		3	-
Boda Boda		2	-
<b>Religion</b>			
Catholic		12	11
Protestant		1	1

Moslem	0	1
Others	3	1
<b>Household Monthly Income</b>		
< 50,000	8	11
51,000-100,000	2	-
101,000-150,000	2	-
151,000-200,000	3	2
<b>Education of Household Head</b>		
None	1	5
Some primary	6	1
Full primary	4	3
Some secondary	-	2
Full secondary	2	1
Higher	4	1
<b>Size of Household</b>		
1 - 3	1	2
4-6	8	6
7 and above	7	6

### 3.1.1 Household Composition, Income, and Ethnicity

The households visited in the study area tended to have between four to nine family members, usually two adults and children. Their principal source of livelihood is subsistence agriculture on small plots growing mainly food crops such as millet, cassava, sorghum, and potatoes, some of which are sold for cash. The majority reportedly earn between Ush 3,000 and Ush 50,000 per month. The respondents included 25 men and five women. The interviewees were representative of the ethnic composition of Tororo District, a majority of them Jopadhola, and others Itesots mainly from Kwapa, Mukuju, and Molo sub-counties. Most of the households owned bicycles and radios.

### 3.1.2 Respondents' Educational Attainment and Occupation

As shown in Table 2 above the adopters were relatively better educated. Only one of the adopters did not have any formal education compared to five non-adopters. More adopters (10) than non-adopters (four) had at least some primary education. Four adopters compared to one non-adopter had attained tertiary education. All the non-adopters except one were peasant farmers. Among the adopters, two were teachers, three were technicians, and two *boda boda* (commercial bicycle transporters) operators. In regard to income, results indicate that the adopters had higher income. Of the 15 adopters who reported their estimated monthly income, eight earned less than Ush 50,000 and seven reported earning between Ush 50,000 and Ush 200,000. Of the 13 non-adopters who were able to estimate their monthly income, 11 earned less than Ush 50,000, while two earned between Ush 50,000 and Ush 200,000. At the time of this research \$1 was equivalent to Ush 1,900.

### 3.1.3 Widow-Headed Households

Table 2 further shows that more women headed households were likely to be lapsed adopters, mainly widows. All the widowed interviewees had latrines at one time in the past, but at the time of the interview they did not have a functioning latrine facility. Their latrines had collapsed reportedly either due to the effects of heavy

rains or termites. All reported having the traditional latrine of mud, logs, and grass. They had not replaced the latrines mainly because they had no one to help dig and construct a latrine. In addition, they did not have money or other resources to buy construction materials including grass and logs that have become scarce. Even if they had access to the construction materials, they would still have to hire someone to dig the pit and construct the latrine.

### 3.2 Description of Latrine Types Known/Experienced

There were three distinct types of latrine technologies found in the communities visited: permanent structured latrines, semi-permanent latrines, and traditional pit latrines. However, some of the respondents reported having seen (and sometimes experienced) other types of latrines in other places outside their locality. The respondents' views on latrine types known and or experienced:

**Permanent structured latrines:** These are made with concrete slabs, burnt brick walls, and roofed with corrugated iron sheets. The concrete slabs are constructed with iron bars, wire mesh, stone aggregates, and cement.

*There is a type with bricks, cement, and roofed with iron sheets. (Male Adopter; Mukuju; Age: 33; Script No: 4)*

*I have seen two types: the one with bricks and iron sheets and the one of mud and grass. (Female Non-Adopter; Mukuju; Age: 52; Script No: 19)*

**Semi-permanent latrine** with unburnt brick/mud and wattle walls roofed with iron sheets and a floor made of logs. Some of the semi-permanent latrines had grass-thatched roofs.

*I know the type I see here in the village constructed using poles and mud and on top they use grass for thatching, like the one you see there for my son. Some people also have another type built with and roofed with iron sheets. (Female Non-Adopter; Gule – Iyolwa; Age:58; Script No: 2 )*

**Traditional pit latrine:** The most common traditional pit latrine is made of a log-based floor, mud and wattle walls, and grass roof. Some of the traditional latrines have roofs and walls covered with banana fibres and leaves. These are usually smeared with a mixture of soil and cow dung. However, the grass-thatched roofs may soon disappear as the grass used (spear grass for instance) is fast becoming unavailable, making it expensive to build and sustain.

*There is this type here, roofed with grass and the floor and walls constructed with mud.... There are also those ones which they cover with banana leaves. They tie banana leaves around the walls. (Male Non-Adopter; Gule – Iyolwa; Age: 49; Script No: 30)*

**VIP (Ventilated Improved Pit):** A few of the respondents had seen VIP latrines with pipes emanating from the pits for proper aeration and elimination of faecal

stench. Twenty-four of the respondents (17 adopters, seven non-adopters) had seen and/or experienced VIP latrines mainly in urban areas and institutions such as schools and health units. However, none of the latrines observed at the latrine adopters' homes had a vent pipe.

*I have seen the type with brick walls, iron sheet roof, and plastic pipe above the roof, but I do not know how the floor looks because I have never entered such a latrine. (Male Non-Adopter; Pambaya – Paya; Age: 34; Script No: 13)*

*There is a type built with a slab, bricks from the foundation, vent pipes, and on top iron sheets and well cemented. (Male Non-Adopter; Mairo Mbili – Molo; Age: 20; Script No: 9)*

**Water Closets (WCs) or flush toilets:** Some of the respondents reported having seen and even used in-house WCs especially in urban areas. Twelve respondents (three adopters and nine non-adopters) had seen and/or experienced a WC toilet. The WC toilets had reportedly been seen and experienced in urban health facilities, hotels, and other places such as taxi and bus parks. The WC toilet type was particularly liked for being durable, easy to keep clean, the presence of water inside the toilet for flushing, proximity to hand washing, and comfort.

*There is the type that uses water for flushing whereby you just flush the water and the faeces go. (Female Non-Adopter; Mairo Mbili – Molo; Age: 53; Script No: 29)*

### 3.2.1 Latrine Technologies Currently in Use by the Adopters

Results presented in Table 3 show that 14 of the latrines observed in the adopter homes visited in the study were traditional latrines with mud slabs and grass-thatched roofs. Only one of the latrines had brick walls and the rest had mud walls. Of the other two, one had a cement slab, brick walls constructed with cement, and a roof made of iron sheets. The other had a floor constructed using bricks, metallic bars, and cement. The walls were made of bricks and the roof was thatched grass.

The latrine inventory results further show that half of the 16 adopter latrines were built by the owner while the other half were built with assistance of either a hired skilled latrine builder or neighbour/friend/relative, mostly paid in kind with food or alcohol, instead of cash. Most of the latrines were rectangular, unlined, and had no foundation collar. All the latrines had only one cabin and lacked drop-hole covers. Additionally, most latrines had rectangular drop-hole designs and no doors.

**Table 3: Summary of Latrine Inventory Results**

<b>Type of Latrine</b>	
Traditional Latrine, Mud Slab/ Floor	14
Traditional Latrine, Brick/Iron Bar Slab	1
Full Cement Slab, Brick Wall, Iron Sheets	1
<b>Who Built the Latrine?</b>	
Built by Owner	8
Built with External Assistance	8
<b>Shape of Latrine</b>	
Rectangular	11
Round/Oval	5
<b>Is Pit Lined?</b>	
Unlined	15
Partially	5
Fully Lined	0
<b>Foundation Collar</b>	
Yes	14
No	2
<b>Latrine Floor Materials</b>	
Cement, Bricks, Slab	1
Iron Bars, Bricks	1
Mud, Logs	14
<b>Number of Cabins</b>	
1	16
<b>Drop-Hole Design</b>	
Rectangular	10
Round/Oval	5
<b>Drop-Hole Cover</b>	
Yes	0
No	16
<b>Separate Bathing Area</b>	
Yes	1
No	15
<b>Wall Materials</b>	
Mud, Wood	13
Burnt Bricks	1
Unburnt Bricks	2
<b>Door</b>	
Yes	3
No	13
<b>Roofing Materials</b>	
Timber, Iron Sheets	15
Wood, Grass	1

### 3.3 Most Preferred Type of Latrine/Reasons

Among the different types of latrines known and experienced, most respondents preferred the permanent latrine with cemented floor, brick walls, and iron sheets.

*I would also admire to have one built with bricks, cement, and iron sheets. And it would have two stances, one for my children and the other mine. I would also attach a bath room on the aside. But the sickness I got cut me short. (Male Adopter; Pambaya – Paya; Age: 36; Script No: 17)*

The reasons commonly cited for preferring the permanent latrine built of bricks, cement, and iron sheets were strength, maintenance, and cleanliness. According to the respondents, the materials used render this type durable as it can withstand rain and not rot or collapse. The cemented floor can be cleaned regularly with water, soap, and other antiseptics.

*God willing and I get some money I also wish to have one with bricks, cement, and iron bars. It is easy to mop. I will also buy a vent pipe and put it there. If it is dug deep, the water level is far and the soil is good it can last for long, unlike this one of the logs, the logs can rot. (Male Adopter; Age:35; Kwapa; Script No: 18)*

Most respondents preferred latrines with permanent structures but felt financially constrained to build them and so they constructed and used temporary traditional latrines of mud and wattle and roofed them with grass. One respondent who had experience with a WC toilet asserted that it provides the best comfort when defecating. Water is available within the premises for flushing and washing. It is also long lasting and easy to keep clean. Although this was his preferred type of toilet facility, he expressed financial constraints to adopting it.

*My most favourite, at my standard I would have very much wished to have that one of the hotels, the flush toilet. It would give me the best comfort when I am helping myself. I would have the water inside and I just pull down that handle you have to pull and it simply washes down the faeces. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 25)*

### 3.4 Least Preferred Latrine Type/Reasons

While the traditional type of latrine was the least preferred by respondents, it is the most commonly owned because it is also the most easily affordable by residents in the district. The traditional type of latrine was disliked because it is usually dug shallow and the materials used for construction do not last long.

*The logs can rot, and within three to four years it sinks. For example what happened here recently, a woman sunk inside a latrine with a collapsing floor, the thing was so weak and she sunk inside. People went and rescued her. (Male Adopter; Age: 35; Script No: 18)*

Most households opt for the traditional latrine type with the hope of building a better one in the future. Unfortunately, often their dreams are not realised and they end up permanently with this type. They build temporary structures that fill up or collapse within short periods of time. The traditional type of latrine was further disliked because the building materials used are vulnerable to termites and heavy storms.

*... because the type built with grass can be destroyed by termites very fast, that is why I would choose the one of bricks, cement, iron bars, and iron sheets because termites cannot destroy it. (Male Non-Adopter; Pambaya; Age: 56; Script No: 14)*

*Termites are a problem. You can thatch your latrine well, but the roof will not last for three months. (Male Non Adopter; Pambaya – Paya; Age: 26; Script No: 16)*

The traditional latrine type was said to be difficult to keep clean and dry hence it becomes a breeding ground for harmful organisms such as rats, snakes, and wasps.

*When it gets wet [mud floor] it is difficult to remove the smell and flies. (Female Non-Adopter; Gule – Iyolwa; Age: 58; Script No: 2)*

*You can actually come across a place that has snakes and these snakes may actually be a problem to you. When you are inside the latrine you can find a snake disturbing you. And you will find yourself very uncomfortable with that snake, making noise and things like that. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 25)*

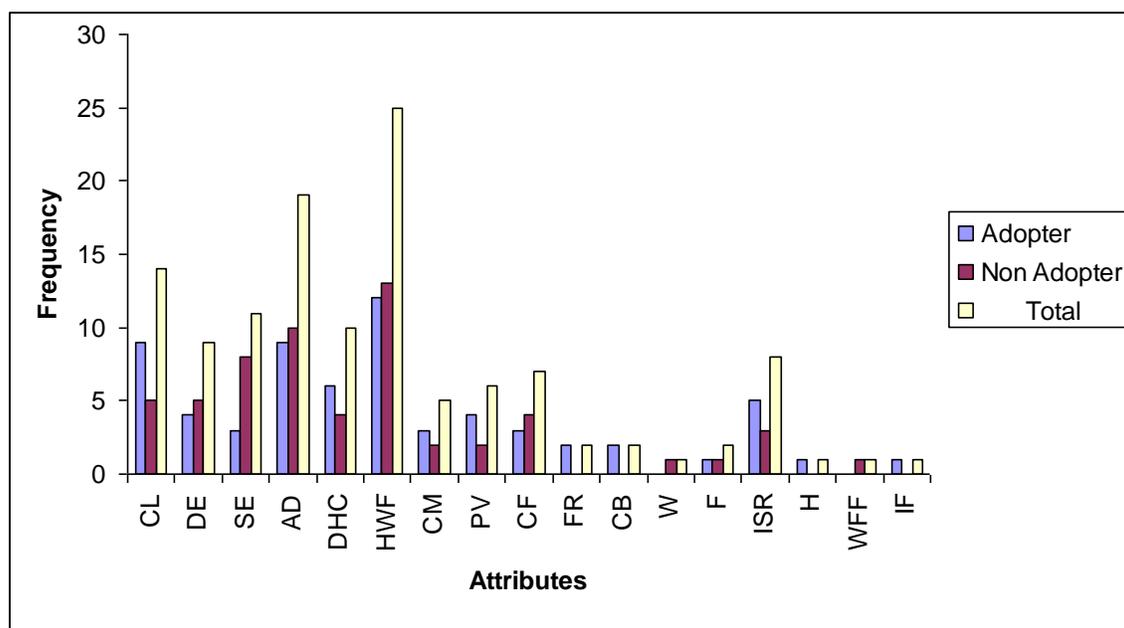
The interviews also revealed that the traditional latrines are usually poorly ventilated, difficult to enter, and produce a lot of foul smell that pollutes the environment. Interviewees also added that such an environment was conducive for breeding flies, which are known vectors for many human diseases such as diarrhoea, dysentery, and cholera.

*The problem with that one [the traditional pit latrine] is that it leaks when it rains. Secondly, it can collapse easily with heavy rains. The smell also makes the stomach to swell because there is no ventilation. (Male Non-Adopter; Pambaya – Paya; Age 34; Script No: 13)*

### **3.5 Favoured Attributes of a Good Latrine**

According to results in Figure 1, the most commonly mentioned positive attribute of a good latrine was the availability of a hand washing facility in or around the latrine followed by a door for privacy, cleanliness, strength (durability), drop-hole cover, iron sheet roof, and cemented floor, in that order. There were no significant variations between latrine adopters and non-adopters regarding what they perceive as important qualities of a good latrine.

**Figure 1: Favoured Attributes of a Good Latrine**



**Key**

Code	Constraint	Code	Constraint
LI:	Low Income	RS:	Rocky soils
SCM:	Scarcity of construction materials	HC:	High cost of materials
TM:	Termites	HR:	Heavy rains
WCM:	Weak construction materials	LCF:	Lack of credit facilities
LZ:	Laziness	LR:	Lack of responsibility
NBA:	Nobody to assist in construction	AA:	Availability of alternatives
SN:	Sickness	HCL:	High cost of labour
LLA:	Lack of local artisans	NA:	Negative attitudes
NS:	Negligence by school authority		

### 3.5.1 Facilities for Good Sanitary Practices

The availability of water in a jerry can and soap for washing hands after a latrine visit was emphasised. Respondents reported that washing hands after a visit to the latrine eliminates the transmission of diseases from faecal material such as diarrhoea, dysentery, intestinal worms, cough, and colds. In addition, a good latrine facility should have a broom, antiseptics, toilet paper, and a hoe for removing children's faeces left outside.

*It should have hand washing facilities like a jerry can, soap, and toilet paper. If the toilet paper is difficult to afford we should at least have these papers from books or even if papers are not there we should have at least soft leaves. (Female Non- Adopter; Mairo Mbili – Molo; Age: 53 Script No: 29)*

### 3.5.2 Comfort and Privacy

A good latrine should have a complete wall with a lockable door to ensure privacy during use. A lockable door also helps to regulate trespassers who would otherwise mess up the facility. It should have a roof for protection against rain and sunshine to ensure comfort during defecation.

### 3.5.3 Drop-Hole Cover

A good latrine should have a tight-fitting drop-hole cover to limit the number of flies within the superstructure and the home environment. The cover also reduces smell and the need to smoke the latrine, one of the methods used to control flies, cockroaches, and smell.

### 3.5.4 Durability and Easy to Clean

Many respondents concurred that a good latrine should be deep enough—preferably 10 to 15 feet—have a cemented concrete floor with elevated foot rests, and an incline to allow urine to drain into the pit. The incline reportedly makes it easy to keep the latrine floor dry. A deep pit takes long to fill and reduces the bad smell emanating from the deposited faeces. The cemented concrete floor is perceived to be strong and easy to clean using water, soap, and other disinfectants.

*It should be well built with a foundation and about 15 feet deep. It should be built with bricks and it should have a strong floor constructed using metallic bars. It should have a jerry can of water and ventilators. (Male Non-Adopter; Pambaya – Paya; Age: 38; Script No: 28)*

*You see you must make the floor raised so that when you are squatting and urinating, urine comes back to the pit. You see when urine collects in this rammed thing it looks as if it is mud whereby it smells bad unlike the cemented one where the smell disappears. (Male Adopter; Kwapa; Age: 35; Script No: 18)*

### *3.5.5 Good Ventilation*

Good ventilation commonly figured as one of the important characteristics of a good latrine. Ventilation was said to provide proper aeration that keeps out flies known to spread infections, eliminates stench, and reduces the need to smoke the latrine to ensure fresh air. Good ventilation promotes regular use of the latrine because of the absence of bad smells.

### *3.5.6 Located a Distance Away from any Water Source*

This concern was mostly expressed by the female respondents who were all non-adopters. They agreed with the prescription of a good latrine as outlined by the male latrine adopters. However, they added that it should be sunk far away from any water source to ensure it

\does not contaminate water with faecal materials and germs that can cause diarrhoea, dysentery, cholera, intestinal worms, and malaria.

### *3.5.7 Accessibility to the Users*

A good latrine should have a clear path that makes it easily accessible and safe for its users. However, it should be located a good distance from the main living house.

## **3.6 Perceived Attributes of a Bad Latrine**

Latrine adopters and non-adopters were unanimous on what constituted a bad latrine and emphasised that latrines made of temporary structures are basically poorly designed and inherently bad. They are susceptible to destruction by termites and heavy rains and lack privacy and ventilation. As a result, they have a bad smell that pollutes the environment and discourages use. They are difficult to keep clean and are often a breeding ground for flies, a major vector of diseases.

Respondents indicated that temporary latrines are made of mud/log slabs, which are susceptible to erosion and rot; the drop hole tends to grow bigger with time, posing risk to child users who may fall into the pit. Lack of a standard design often makes it difficult to use a latrine with small doors and short walls. A bad latrine lacks roofing, walls, and foot rests. Another attribute of a bad latrine cited was a floor design that makes it difficult to use a tight-fitting drop-hole cover.

## **3.7 Current Defecation Practices of Adopters**

Adult members of households with latrines use their home latrines when they are at home. During working hours, members of the households who are employed use latrine facilities at their workplace. Those in agriculture use latrines within the neighbourhood of their farms when working. However, when working in their gardens and no one else is around, they resort to nearby bushes for defecation. Some do it in the open while others dig holes in which they defecate. The same is done at home late at night where the latrine is located far away from the main living house.

It is common for children under three years to relieve themselves outside the latrine and afterwards the faeces are collected using a hoe/spade by an adult or older

children and deposited into the latrine. Young children are taught to use the latrine from the age of three years. School-going children defecate in their school latrines during school time. In one household, however, it was reported that the children who were attending a nearby school ran back home to relieve themselves because they found their home latrine to be cleaner than the one at school.

*My children go to that school but you find them running back home to use the home latrine. And you find them voluntarily cleaning the latrine. They say our latrine is very clean compared to the one at school. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 25)*

### **3.8 Defecation Practices of Non-Adopters**

Unlike the adopters, it was evident that non-adopters were not comfortable discussing their defecation habits and practices. However, it was discerned that non-adopter families ease themselves in the surrounding bushes/gardens, road sides, or where permitted in neighbours' latrine facilities. Some non-adopters dig holes, defecate, and cover them up as cited by latrine adopters who ease themselves late in the night.

*They go to nearby bushes that are not under cultivation and also to the neighbours' latrines. (Male Adopter; Mairo Mbili – Molo; Age: 58; Script No: 24)*

*Around here most people use my toilet and the other one of my immediate neighbour. I am even the one who helped him to dig it. (Male Adopter; Mukuju; Age: 41; Script No: 20)*

*If you go to the bush you can be bitten by a snake. You can also be pierced by something sharp. Somebody can even ambush you from there and cut you with a panga. Those are some of the problems we meet in the bush there. (Male Non-Adopter; Pambaya – Paya; Age: 38; Script No: 28)*

The Jopadhola, a dominant ethnic group in Tororo, are understood to despise non-latrine adopters as evidenced by their adage “*Japielo ithengi royo kinguti*” literally meaning “*those who defecate by the road side never repent.*” To the Jopadhola defecating by the roadside is considered to be indecent, unacceptable behaviour. This sentiment could provide an opportunity for sanitation marketing messages. A one-time sensitisation and campaign programme would not likely have the desired effect.

A significant number of respondents said that many latrines they know are badly maintained and in poor hygienic condition. Floors are usually covered with excrement and urine, and they are a breeding ground for disease-causing germs. Such latrines are characterised by a foul smell that discourages usage in both adults and children.

### 3.9 Motivations for Latrine Adoption

The in-depth interviews provided insight into factors motivating latrine adoption among adopters and non-adopters. Both groups have the same perceptions of why latrines should be built and both realise the health and economic benefits accruing from the construction and sustainable use of a latrine by household members and the general community. But non-adopters are constrained by a number of factors relating to the capacity to construct, use, and maintain latrines.

**Table 4: Motivations for Latrine Construction by Category of Respondents**

Motivation	Total Count	Adopters	Non-Adopters	Male	Female
Disease prevention	25	15	10	6	4
Visitors' convenience	17	11	6	13	4
Self esteem	14	7	7	8	4
Proper faeces disposal	11	7	4	9	2
Privacy	10	6	4	10	0
Clean compound/home	10	4	6	9	1
Avoid bad smell	10	4	6	9	1
Comfort/convenience	8	5	3	7	1
Avoid flies	8	3	5	8	0
Avoid conflicts with neighbours	3	1	2	2	1
Lack of alternatives e.g., bushes	2	2	0	2	0
Avoid bushes because of snakes	2	1	1	2	0
Sharing with parents unacceptable	2	2	0	2	0
Reduced medical expenses	1	1	0	1	0
Increased working hours	1	1	0	1	0
Saving for other purposes	1	1	0	1	0

#### 3.9.1 Disease Prevention

As shown in Table 4 above disease prevention was the most frequently mentioned motivating factor for latrine construction and use among all categories. Latrine usage protects families from sanitation-related diseases, among which the following were cited: diarrhoea, dysentery, cholera, malaria, coughs, and colds. It is perceived that latrine usage keeps away flies that spread disease-causing organisms. In addition it is believed that bad smells from improperly disposed faeces can cause or spread bad

diseases and that latrine adoption reduces air pollution by faeces scattered in the environment.

Asked why he built a latrine, one adopter gave this response:

*Because I wanted to prevent diseases here at my home, and it is worse if you have young children. (Male Adopter; Mairo Mbili – Molo; Age: 36; Script No: 6)*

### 3.9.2 Reduced Medical Costs

Absence of diseases reportedly reduces visits to medical facilities and health providers and hence medicine and transport costs. It also increases the number of man hours available for economic activities and leisure. This improves household savings and income, an essential ingredient in poverty reduction.

### 3.9.3 Convenience When Visitors Come

Table 4 above reveals that the second most frequently mentioned motivating factor for constructing a latrine was visitors' convenience, followed by self-esteem, proper disposal of faeces, privacy, clean compound, and avoidance of bad smell in that order. A good latrine was said to be an important status symbol in the community. A home with a latrine is held in high esteem by the community while one without a latrine is despised. Such a home is seen as enlightened with people who are health conscious, reasonable, and have exemplary qualities.

*They can abuse you in drinking places [if you don't have a latrine at home]. "Look at this one who does not have a latrine at his home also talking." So you feel ashamed and look small in front of people. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 22)*

*I feel bad because you cannot use a neighbour's latrine every day. You may use it for three days and the next time you find it locked, so it is better to have your own. (Male Adopter; Gule – Iyolwa; Age:40; Script No: 15)*

Possession of a home latrine reduces the stigma and embarrassment associated with defecation. Generally, people do not want to be seen relieving themselves. It enhances the feeling of personal privacy to use a proper latrine for defecation. It was observed that when a visitor comes to a home that has a latrine facility, both the visitor and the household members feel at ease and comfortable. One of the most embarrassing moments in a latrine non-adopter's household is when a visitor needs to ease himself and has to be directed either to the bush or a neighbour's latrine facility.

*It helps when you receive visitors. You do not feel embarrassed. (Female Non-Adopter; Gule – Iyolwa; Age: 58; Script No: 2)*

*Now it is very easy for me to ease myself. Secondly when visitors come I feel very comfortable and not scared. If you do not have a latrine and a visitor comes you will be very embarrassed and look very small. So you feel very comfortable and you feel that you are a man at home. Even outside there you walk like other men walk. (Male Adopter; Mukuju; Age: 35; Script No: 18)*

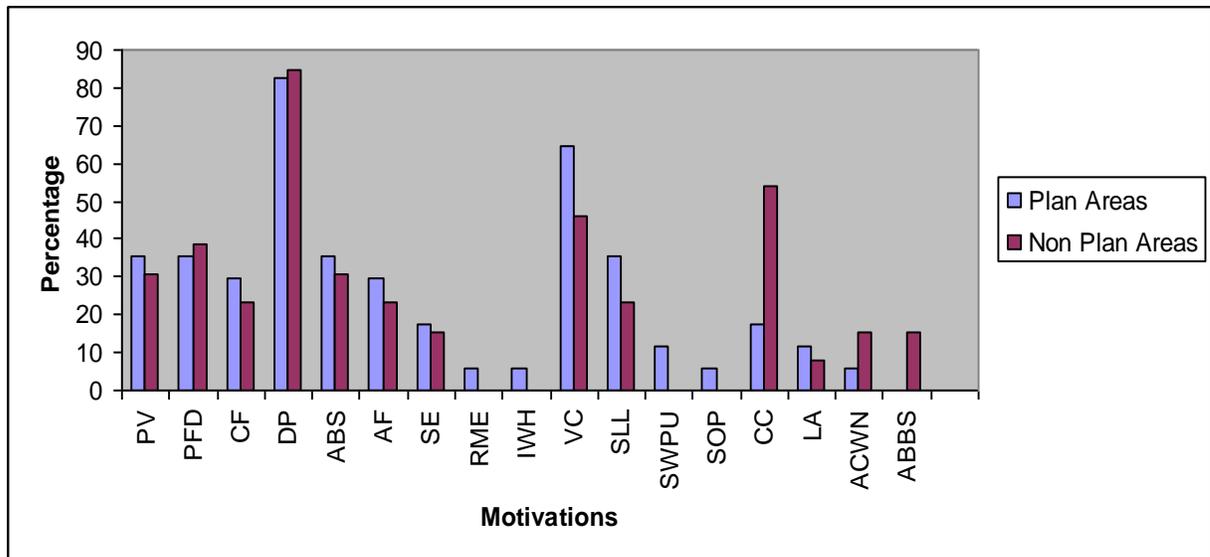
Homes with latrines inculcate a culture of latrine usage for life in children. The children benefit from a home latrine because they do not have to go out of the home and expose themselves to risks of contracting infections in search of a place to ease themselves.

Comparison across the different segments reveals that more adopters reported disease prevention, visitors' convenience, and comfort compared to the non-adopters. On the other hand, a clean compound and avoiding bad smells and flies were cited by more non-adopters than adopters. Both groups considered self esteem as an important motivator for latrine adoption. Women were mainly concerned with disease prevention, visitors' convenience, and to a lesser extent, proper faecal disposal.

#### *3.9.4 Motivations for Latrine Adoption in Plan and Non-Plan Areas*

Comparison between responses of interviewees in sub-counties where Plan Uganda, the local implementing partner, has ongoing activities (i.e., Kwapa, Mukuju, Molo sub-counties) and non-Plan areas (i.e., Iyolwa and Pambaya sub-counties) shown in Figure 2 reveals desire for comfort and a good image as the main motivations for latrine acquisition. Hence, visitors' convenience, shame if there is no latrine in a home, self esteem, keeping away flies, avoiding bad smells, and privacy were more commonly mentioned as important motivating factors for latrine adoption in Plan areas than in non-Plan areas. On the other hand, clean compound/home, avoiding conflicts with neighbours, and avoiding risks associated with defecation in the bush such as snake bites figured more in the non-Plan areas, where concerns related to safety appeared to be stronger motivators.

**Figure 2: Motivations for Latrine Adoption in Plan and Non-Plan Areas**



Key

Label	Constraint	Label	Constraint
PV	Privacy	PFD	Proper faeces disposal
CF	Comfort/convenience	DP	Disease prevention
ABS	Avoid bad smell	AF	Avoid flies
SE	Self esteem	RME	Reduced medical expenses
IWH	Increased working hours	VC	Visitors' conveniences:
SLL	Shame	SWPU	Sharing with parents unacceptable
SOP	Saving for other purposes	CC	Clean compound /home
LA	Lack of alternatives	CWN	Avoid conflicts with neighbours
ABBS	Avoid bush dangers		

### 3.10 Motivations and Reasons for Upgrading a Latrine

Some adopters reported that they wanted to upgrade their latrines to improved, more permanent facilities for various reasons. Many of the reasons for wanting a more permanent latrine and specific design preferences are associated with motivations based on the local context. These reasons include:

- Traditional thatching grass is in short supply and the substitute grass is of poor quality
- Mud floors are more difficult to keep clean with water than cement floors
- Urine does not turn cement floors into mud and rot them
- Tight-fitting drop-hole cover is possible with cement floor to prevent odour and keep away flies
- Smoking out latrines does not result in roof fires when roofs are made of iron sheeting
- Water is available for washing hands
- A deep pit takes long to fill and does not smell bad
- An inclined floor design allows urine to flow into the pit

- Cemented concrete floor is perceived to be strong
- Good ventilation
- Foot rests improve comfort and make latrine easier to use

Below are some of the responses regarding why some of the adopters want to upgrade:

*I also want to install foot rests so that when you go there you have something to step on. (Male Adopter; Mairo Mbili; Age: 58; Script No: 24)*

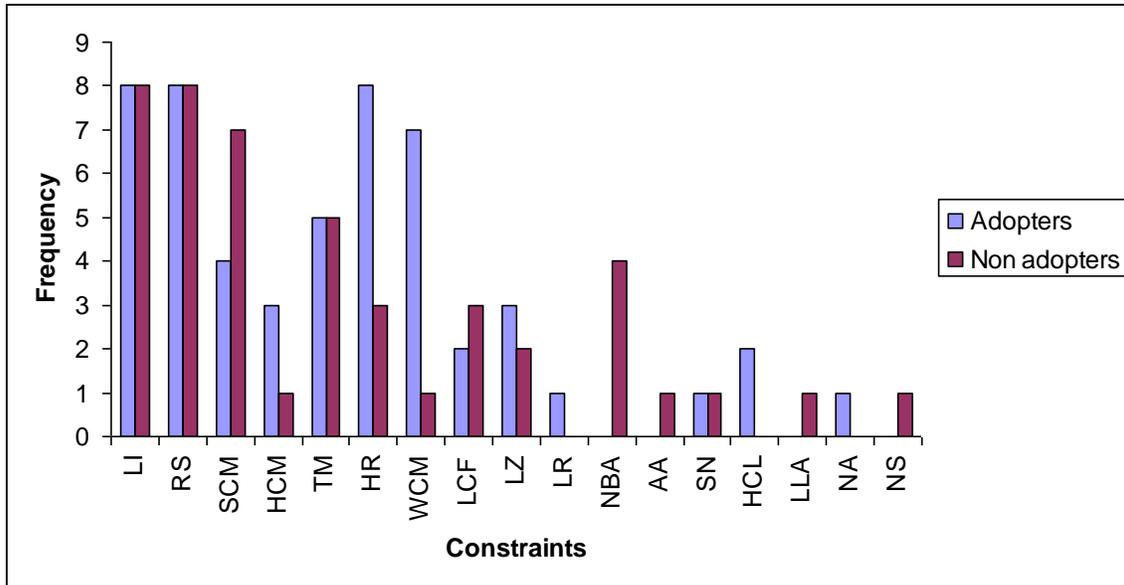
*I would level the floor, buy a slab that has an organised floor, and fix it properly. I would smear it with sand also. (Male Adopter; Kwapa; Age: 35; Script No: 18)*

*I would cement the wall in order to make it more durable. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 25)*

### **3.11 Constraints to Latrine Acquisition**

The in-depth interviews revealed a number of constraints to latrine acquisition, some of which are socio-economic while others are inherent in the prevailing physical conditions of the areas. Figure 3 indicates that equal numbers of adopters and non-adopters reported low income, rocky soils, and termites as the major constraints to latrine adoption in their areas. Eight out of nine (88 percent) of adopters cited low income and rocky soils as a major constraint both for acquiring and upgrading latrines. The same percentage of adopters cited these same constraints. Five out of nine adopters (55 percent) cited termites as a constraint because they eat the logs and force latrines to collapse after a short time. The same number of non-adopters cited this constraint. More adopters were concerned with heavy rains (88 percent) and weak construction materials (78 percent) than non-adopters (33 percent and 11 percent, respectively). On the other hand, more non-adopters (78 percent) reported scarcity of construction materials as a major constraint, compared to 44 percent of adopters. Forty-four percent of the non-adopters reported lack of help with digging the pit and construction as a major constraint to acquiring a new latrine and upgrading to improved ones. This concern was reported mainly by female non-adopters who were also widows, and therefore household heads. About 20 percent of adopters reported the high cost of labour as a constraint, but none of the non-adopters.

**Figure 3: Constraints to Latrine Adoption by Adopters and Non-Adopters**



**Key**

Code	Constraint	Code	Constraint
LI:	Low income	RS:	Rocky soils
SCM:	Scarcity of construction materials	HC:	High cost of materials
TM:	Termites	HR:	Heavy rains
WCM:	Weak construction materials	LCF:	Lack of credit facilities
LZ:	Laziness	LR:	Lack of responsibility
NBA:	Nobody to assist in construction	AA:	Availability of alternatives
SN:	Sickness	HCL:	High cost of labour
LLA:	Lack of local artisans	NA:	Negative attitudes
NS:	Negligence by school authority		

**3.11.1 Low Income**

As shown in Figure 3, low income is perceived by the majority of respondents (88 percent adopters and non-adopters) to be the most common constraint to latrine adoption and upgrading. Durable construction materials such as bricks, cement, iron bars, and iron sheets were said to be too expensive and beyond the reach of the majority of the population. Traditional construction materials such as spear grass, logs, reeds, banana fibres, and leaves are said to be increasingly scarce due to environmental degradation and therefore costly to access.

*I found that I could not afford to build a better [permanent or semi-permanent] type so I decided to construct that [traditional] type. I would have preferred a stronger one, but I cannot afford a better one than that one. (Male Adopter; Gule – Iyolwa; Age: 35; Script No: 26)*

It was noted that given the low incomes and competing spending priorities, other basic needs like food, shelter, clothing, health services, and school fees often take

precedence over latrine construction, whose benefits seem to be more tangible and immediate than those of latrine acquisition.

*They say that if I spend my money on a latrine what will I gain? As you know in this Uganda of ours we are poor. So if somebody gets Ush 50,000 he will say "this money of mine will help me solve some of my immediate problems." If a child falls sick or dies you cannot compare it with instead investing in a latrine. (Male Non-Adopter; Pambaya; Age: 38; Script No: 28)*

### 3.11.2 Rocky Soil

Eight-eight percent of respondents reported that the rocky nature of the terrain in most of the areas visited makes it difficult to sink deep latrine pits. Though rocky soil is more robust for construction, it requires more financial resources and time. Local experts have to be hired to break through the rock structure. Deeper pits are created by heating the rocks with firewood for several days before breaking them with pick-axes. This is considered unaffordable to many would-be latrine adopters and even to those who have adopted but would prefer to have deep and more permanent latrine facilities. The problem of rocky soil and water logging was more pronounced in the parishes of Pambaya (Paya sub-county) and Gule Parish (Iyolwa sub-county).

*In this centre we have one problem. We cannot dig pits because of the rocks we have here. You can only dig up to 4 feet and then you reach the rocks. If you don't plan properly here you cannot dig a pit of 25 feet as I had made. (Male Non- Adopter; Pambaya – Paya; Age: 38; Script No: 28)*

### 3.11.3 Sandy Soil

Whereas sandy soil makes it easy to sink the pit, the latrines in such areas are often susceptible to collapse (the pit walls and superstructures), especially when there are heavy rain storms and strong winds. It was reported that every rain season a number of families are left without latrines.

*In my zone here the majority of households use latrines but last year we got heavy rains and many latrines fell down and even some houses collapsed. My latrine fell down. (Male Non-Adopter; Mairo Mbili – Molo; Age: 30; Script No: 21)*

### 3.11.4 Destruction by Termites

Termites are inimical to the construction and maintenance of semi-permanent and traditional types of latrines and reduce their lifespan drastically as they eat the wood/logs, grass, banana leaves and fibres, and most other natural construction materials used in building this type of latrine. The need for frequent replacement of this latrine type undermines sustainable levels of latrine adoption and reduces the percentage levels of latrine coverage that constantly fluctuate with time.

### 3.11.5 Widowed Non-Adopters

Widows made up a significant and particularly vulnerable proportion of latrine non-adopters and lapsed-adopters as most could not build latrines by themselves and often found it difficult to pay hired labour. Some had not rebuilt latrines after what they owned collapsed years ago because they do not have anyone to help dig a pit and construct the latrine. This group also reported building materials to be expensive, and even those that could be considered cheap, such as grass and poles, are scarce.

*Materials for latrine construction like poles and grass cannot easily be found in this area unless you have money that I do not have. (Female Non-Adopter; Mukuju; Age: 65; Script No: 1)*

### 3.11.6 Lack of Appropriate and Affordable Latrine Designs

Latrine designs are copied from neighbourhood traditional latrines and are not appropriate and conducive for maintaining a clean and disease free environment. A few of the respondents who were aware of new latrine designs, in particular cement slabs, had either seen or heard about them from social institutions such as schools or in workshops/seminars.

*I attended quite a number of workshops. I was an environmentalist appointed by the school. Plan organised for us a workshop at Softel. So they kept teaching us that a proper latrine should be strong enough with a permanent slab. (Male Adopter; Mairo Mbili – Molo; Age: 54; Script No: 25)*

### 3.11.7 Sickness

Another constraint to latrine construction reported was sickness. When the male household head that usually provides most of the labour for latrine construction falls sick, it becomes difficult to construct, maintain, or upgrade a latrine. Sickness takes a lot of family resources even if it is some other family member who is sick and diverts resources that might have been invested in latrine acquisition/maintenance/upgrading.

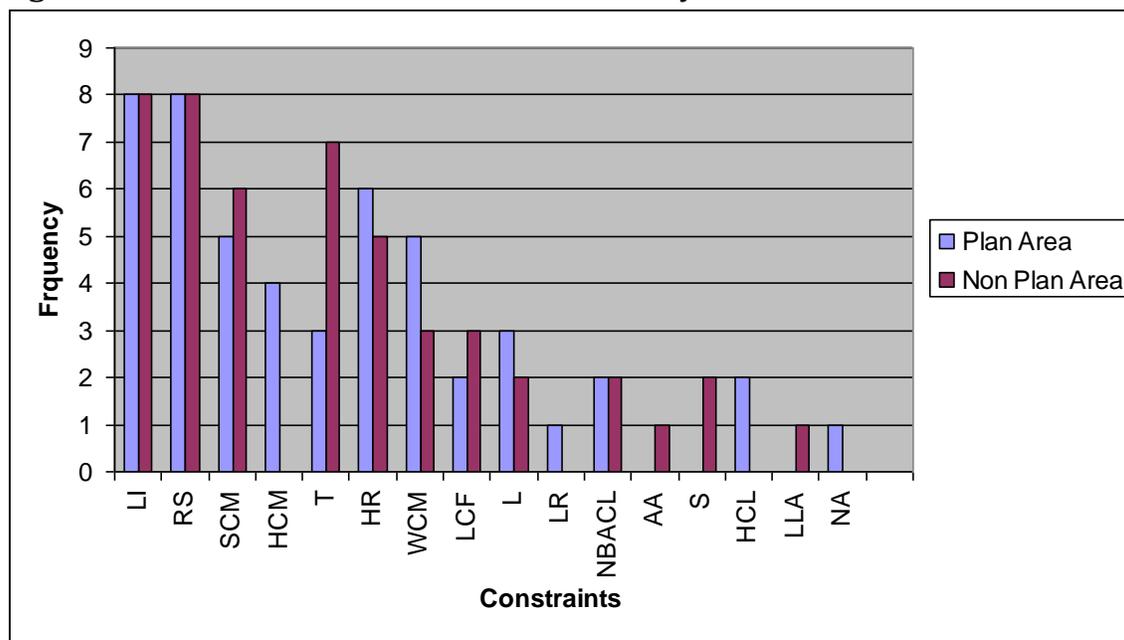
*In many cases it is sickness that hinders someone from having a latrine. You can start but when you fall sick you stay down for two or even more months before resuming construction. (Male Non-Adopter; Pambaya – Paya; Age: 35; Script No: 5)*

### 3.11.8 Constraints to Latrine Construction in Plan vs. Non-Plan Areas

The findings presented in Figure 4 indicate that low income, rocky soil, and lack of anybody to assist in digging and construction are viewed with the same level of importance in both Plan and non-Plan areas. Forty-four percent of interviewees in Plan areas cited the high cost of construction materials as a major constraint, but not interviewees in non-Plan areas. Heavy rains, weak materials, laziness, lack of responsibility, high cost of labour, and negative attitudes were also cited more as

constraints in Plan areas than in non-Plan areas. Apart from low income and rocky soils, the main constraints cited in non-Plan areas included termites, heavy rains, weak construction materials, lack of credit, nobody to assist in construction, sickness, and lack of alternative technologies. Further probing reveals that lack of credit may be an even more prominent constraint, if more respondents considered it as a plausible option for financing latrine construction.

**Figure 4: Constraints to Latrine Construction by Plan vs. Non-Plan Areas**



Key:

Label	Constraint	Label	Constraint
LI	Low income	RS	Rocky soil
SCM	Scarcity of materials	HCM	High cost of materials
T	Termites	HR	Heavy rains
WCM	Weak materials	LCF	Lack of credit facilities
L	Laziness	LR	Lack of responsibility
NBACL	Lack of somebody to assist	AA	Availability of alternatives
S	Sickness	HCL	High cost of labour
LLA	Lack of local artisans	NA	Negative attitude
NSA	Negligence by school authority		

### 3.12 Overcoming Constraints to Latrine Construction

There are both individual and local government efforts to overcome the various constraints to latrine adoption. At the personal level, households struggle to save from their earnings to invest in a home latrine. For instance, they barter their domestic livestock and chicken for labour from both skilled (masons) and non-skilled service providers. Relatives, friends, and neighbours are sometimes asked to help dig the pit and construct the superstructure, with food and refreshments offered as appreciation for their contributions.

*Alternatively you can just sell whatever you have like chicken or a goat to finish the work. (Male Adopter; Gule – Iyolwa; Age: 40; Script No: 15)*

In the event that a latrine collapses, temporary structures are often put in place while a permanent one is under construction. With regard to rocky soil, alternative sites without rocks are sometimes sought. When these are unavailable or far, the rock is often heated using firewood and left to cool before an attempt is made to break them. This process is said to weaken the rock and create cracks, making it easy to crush using heavy hammers and pick axes.

*We look for firm and hilly grounds where to construct latrines. (Male Non-Adopter; Pambaya – Paya; Age: 26; Script No: 16)*

*The plan I used here, I gathered logs, then I organised people to set fire on the rock. We applied the fire for over 30 days and after which they managed to break the rock. The rock was 9 feet. (Male Non-Adopter; Pambaya – Paya; Age: 38; Script No: 28)*

The community is sometimes mobilised and sensitised by the line ministries of Health (MOH) and Gender, Labour, and Social Development (MOGLSD). Every sub-county has an HA who is in charge of health education in the communities and works under the MOH, and an assistant community development officer under the MOGLSD. At the local government level, there are water and sanitation bylaws to enforce latrine construction and use through community mobilisation and sensitisation by Local Councils (LC) and other sub-county officials. Operations are usually conducted to enforce sanitation bylaws, and defaulters are cautioned, arrested, imprisoned, or fined.

### **3.13 Source of Knowledge about Latrine Design**

The need for latrines in households is passed on through family traditions (grandparents, parents, and siblings). Latrine designs are copied from other community latrine adopters.

*When I grew up, I found my Mzee (father) with the same style of latrine. He told us that if you want to be comfortable, you must design a latrine that has a compartment like a bedroom and I have seen that it is very good to have it because when you are inside you feel comfortable. There is a lot of privacy in it. (Male Latrine Adopter; Mukuju; Age: 35; Script No: 18)*

### **3.14 Communication Channels**

Transmission of messages from one person to another by word of mouth is the main channel through which community members learn about development issues. LC meetings, social gatherings, the formal education system, health-related workshops/seminars, water user committee meetings, and radio talk shows were cited as other ways of transmitting important messages in the community. Local FM

radio stations, especially Rock Mambo and Open Gate, were frequently mentioned. Additionally, school children and religious groups such as Catholic Women's Guild and Church of Uganda's Mother Union were also identified as important sources of communication in the communities.

*We get information from the trading centre, radios, and in meetings at the sub-county. (Male Adopter; Mukuju; Age: 22; Script No: 7)*

*Me, I would use the children at school. Secondly, I am a member of the church and I would make announcements in the church how I can meet residents according to their zones. I would also talk to the women's guild because when I talk to them they will also circulate the news and I will find that what I wanted to pass on has reached the people. (Female Non-Adopter; Mairo Mbili – Molo; Age: 53; Script No: 29)*

### **3.15 Existence of Sanitation Related Bylaws**

The minimum legal requirement is that every household must have a safe latrine facility fit for use. The experience of most interviewees was that a household head without a latrine is usually summoned to the sub-county headquarters, counselled, and given a specified time period to construct a latrine. If he/she fails to comply, he/she can be arrested and either fined or imprisoned. It was noted that enforcement of sanitation bylaws has resulted in increased latrine coverage in all the sub-counties visited during the study. According to one of the respondents, out of every ten households in her village on average only two do not have a functioning latrine facility and she attributed this development to the recent enforcement of sanitation bylaws in the sub-county.

However, the impact of these laws on sustainable latrine use is still questionable. It was noted while there is evidence that this action enforces adoption, it is also closely related to lapsed adoption as poor quality latrines are set up simply to avoid arrests and possible prosecution by the local authorities. After such inspections have ended people relax, the latrines are not maintained, and often collapse after a short time.

*We go for meetings where they teach us about health, why it is important to build a home latrine. They don't talk about any particular latrine type. All they want is a latrine, whatever type of latrine a person has got. (Male Adopter; Mukuju)*

### **3.16 Decisions on Latrine Adoption**

Simplicity of latrine construction design determines the amount of time spent during construction and the cost of construction. The household head as the main decision maker over family resources often determines whether to construct a home latrine or not. He also decides on the type of latrine to construct, where, and when to do so. Occasionally husbands consult their wives and other family members on the type of latrine and how to meet the costs of construction.

It was reported that wives often influence the decision process by putting pressure on their husbands to construct a home latrine. In cases where a skilled mason is hired to construct the latrine, the mason provides the technical advice related to location of the latrine, design, and type of construction materials. Sometimes the decision to construct a latrine may be prompted by threats/fear of arrest and prosecution for violating sanitary bylaws.

### **3.17 Estimated Cost of Latrine Construction**

It was estimated that the cost of digging a pit ranges from Ush 2,000 per foot to Ush 4,000 depending on the type of soil in the area. The cost of constructing a mud and wattle wall was estimated at Ush 7,000, excluding the cost of poles at Ush 1,500 each and Ush 200 on average per bundle of grass. Logs for constructing the floor cost about Ush 2,000 each.

In total, it was estimated that the cost of constructing a complete superstructure of a traditional latrine facility of mud, wattle, and grass totals between Ush 50,000 to Ush 70,000. It was noted that sometimes people (especially relatives, friends, and neighbours) barter labour for meals or local brew, instead of asking for cash payments. The cost of a latrine is usually met by the household head. However, in some cases, family property, including livestock, poultry, and agricultural produce, can be sold to meet the cost of constructing a home latrine. Total cost of constructing a latrine could well be upwards of Ush 100,000.

### **3.18 Participation in Construction of a Home Latrine**

Most latrines are built by household heads with assistance from neighbours, relatives, or local providers. The male household head does (or takes the lead in doing) most of the tasks from digging the pit to construction of the superstructure. Household heads prefer to participate in the construction of their home latrines reportedly because it provides opportunity for monitoring and supervision that leads to improved quality of the product. It also offers personal satisfaction.

Women and children often assist in collecting water for constructing the mud floor and walls and carrying local construction materials such as grass, reeds, mud, and poles from the source to the construction sites. Naturally, women do the cooking for the people doing the work. Widows and other women-headed households seek help from close relatives or sympathetic neighbours to dig and construct latrines for them.

*A person like me I had one that fell down which had been sunk by my grandchildren. I took long to dig another one because I am a widow who has no help. (Female Non-Adopter; Mukuju; Age: 52; Script No: 19)*

### **3.19 Type of Groups Found in the Communities**

There are various groups—social, cultural, economic, and others—through which individual interviewees interact with others in their communities. These include churches, women’s self-help groups, youth groups, etc. National-level institutions

like NAADS and UWESO have promoted formation of community-level chapters in the areas visited. The groups are mainly involved in agricultural activities including providing access to credit, improved breeds, and markets; improving yields in the cultivation of crops; and rearing livestock with the aim of improving household income.

SACCOs were reported in some of the sub-counties. These groups are active within the communities and they meet regularly. Most of these groups are dominated by women and present opportunities to reach women with sanitation messages. In addition, the women can easily influence their husbands on important sanitation decisions such as latrine adoption and upgrading. Given the seasonal character of most farming/harvesting activities, SACCOs provide an opportunity to mobilise savings and credit for enhanced latrine adoption among non-adopters and latrine upgrading among adopters. These organisations also provide an opportunity for sensitisation and awareness raising and monitoring and evaluation services for accelerated latrine adoption and coverage.

### **3.20 Perceived Consequences of Lack of a Home Latrine**

Lack of a home latrine, improper use, and poor maintenance were blamed for foul smells that pollute a home environment. The bad smell was said to cause diseases such as diarrhoea and dysentery. Maggots and flies that are known vectors of various diseases are common in households without latrines. This increases the occurrence of sanitation-related illnesses, which can lead to frequent visits to medical facilities, high medical costs, and loss of work hours that aggravate poverty at the household and community level. These consequences were implied/inferred from the transcripts and discussions with the respondents.

### **3.21 Access to Construction Materials**

As mentioned earlier, building materials for traditional latrines (thatching grass, reeds, trees for poles, and logs) are increasingly scarce due to poor land use methods and unsustainable harvesting of the materials. Respondents indicated that trees for logs are few due to deforestation, and if appropriate measures are not taken in the next couple of years they may not be accessible at all or will be too expensive for the majority of the population. Notwithstanding financial constraints, materials for construction of improved permanent latrines are available at most designated trading centres throughout the district. Bricks are laid and burnt locally and are abundantly available. *(This may not be evident in the transcripts but was observed in the field by the researcher.)*

### **3.22 Access to Credit Facilities for Latrine Construction**

Money lending facilities for construction of latrines are either non-existent or difficult to access. Further, even where the pit diggers/masons are willing to extend services on “credit,” poverty constrains the potential users from contracting them for services in the rural setting. Credit facilities are most readily available only to regular monthly salary earners.

## 4.0 Observations

Based on analysis of the findings of the in-depth consumer interviews the following observations are made:

- The most common latrine type known and used in the communities is the traditional type, built of mud, wattle, and grass. Generally the latrine designs are poor; the common building materials including poles, grass, logs, reeds, and mud are susceptible to destruction by termites, rot, and rain. They frequently collapse thus making promotion of sustainable latrine adoption difficult.
- The permanent latrine with cemented concrete floor, brick walls, and iron roof is the most preferred latrine technology. The main reasons cited for the preference are that it is durable and easy to maintain and keep clean. However, most community members are limited to the traditional type due to constraints, including lack of finances to purchase the construction materials.
- The most important latrine features reported were: a deep pit that takes long to fill; permanent cement floor and foundation; iron sheet roof that protects mud and log floor; and a brick wall that is not easily washed off by rain. Others were a lockable door, good ventilation, water for washing hands, and toilet sundries. These features ensure durability, cleanliness, privacy, and a smell and fly-free environment.
- Both latrine adopters and non-adopters agreed on the important attributes of a good latrine. The main difference is the lack of motivation among the non-adopters and the constraints they face. The most common attributes of a good latrine cited by both segments were durability, cleanliness, ventilation, and privacy. To achieve these, it was pointed out that a good latrine should be complete with a slab, a roof, a wall, and a lockable door. The other important features were cemented floor, foot rests, and drop-hole covers. Sanitation amenities such as water for washing hands and cleaning materials were emphasised.
- Adopter households defecate in their home latrines. Young children below the age of three years defecate in the compound or around the latrines, and the faeces are later removed using a hoe and deposited into the latrine. Non-adopters resort to nearby bushes for disposal of excreta, hence the need for increased sensitisation and enforcement of water sanitation bylaws.
- Both the adopters and non-adopters have the same perceptions as to why latrines should be built, but the non-adopters are constrained by a number of factors. Even though they realize there are health and economic benefits accruing from the construction and sustainable use of latrines by household members and the general community, the barriers non-adopters face constrain their ability to acquire and sustainably use latrine facilities.
- The major motivating factor among adopters in Plan Uganda areas for latrine adoption is reduction of disease-causing organisms in the environment responsible for diseases like cholera, dysentery, diarrhoea, worm infestations, among others. These illnesses reduce man hours available for income generating activities, increase medical costs and related expenses. Latrine adoption ensures the enjoyment of a clean environment devoid of bad smells and flies.

- Ownership of a latrine is a status symbol and saves the family from great embarrassment when visitors come to the home. It is perceived that a household head with no latrine is less of a man among his peers. Equally, the better the latrine quality one owns, the higher the esteem among peers.
- Some adopters are motivated to upgrade/improve their latrines to more permanent facilities for the following reasons:
  - Traditional thatching grass is in short supply and the substitute grass is of poor quality
  - Mud floors are more difficult to keep clean with water than cement floors
  - Urine does not turn cement floors into mud and rot them
  - Tight-fitting drop-hole cover is possible with cement floor to prevent odour and keep away flies
  - Smoking out latrines does not result in roof fires when roofs are made of iron sheeting
  - Water is available for washing hands
  - A deep pit takes long to fill and does not smell bad
  - An inclined floor design allows urine to flow into the pit
  - Cemented concrete floor is perceived to be strong
  - Good ventilation
- Low income is cited in all groupings as a hindrance to latrine adoption, sustainable use, and upgrading to a preferred improved permanent structure with all its attributes. Lack of affordable latrine design further discourages adoption of better latrine technologies. To address this constraint, it is necessary to develop an innovative low cost latrine design that takes into account the key desired features of safety and comfort, but is also affordable.
- Rocky soil structure in some of the areas is a major hindrance to latrine construction as it makes it difficult to dig deep pits that can take long to fill, thus causing lapsed adoption. Various local initiatives have been tried like heating the rock to make it easier to break. The efficacy and effectiveness of this solution needs to be explored to minimise the cost and trouble of latrine acquisition in rocky areas.
- Efforts to overcome constraints to latrine adoption are being carried out by individual initiatives and external influences from the community and local government. At the individual level, households/community members try to mobilise whatever financial and human resources are available to construct home latrines. They exploit local expertise and labour within their communities to address physical constraints such as rocky soils when digging pits. Family members, relatives, and friends are relied upon to provide assistance in the form of labour and materials for latrine construction. There are also attempts by local authorities to stimulate latrine adoption through community mobilisation and sensitisation as well as law enforcement in the form of arrests, fines, and imprisonment.
- Enforcement of sanitation laws in the district has helped stimulate latrine adoption as residents are forced to construct latrines to avoid the consequences. However, law enforcement (without sufficient sensitisation, supervision/inspection, and technical support in terms of technological options, expertise,

etc.) may be partly responsible for the prevalence of poor quality latrines as people are forced to build them simply to comply with the legal requirement without wanting to use them. This may be partly responsible for the high incidence of lapsed adoption.

- There are many social networking groups in the community providing social services and income generating activities. The associations target different social groups in the population with diverse services. These groups can be used in promotion, mobilisation, and awareness activities for sanitation marketing, as well as for financing through mobilisation of savings and credit for latrine construction.
- The most common channel of communication is interpersonal communication, mostly by oral transmission of information from one person to another through neighbours, friends, relatives, and associates. Community meetings like LC meetings, social group meetings, religious gatherings, and water user committee meetings are also seen as effective communication forums. Local FM radio stations are also regularly relied on for information.
- On the basis of the identified perceived positive attributes of a good latrine, key motivational factors to install a home latrine or to upgrade existing latrines to improved permanent facilities, and the identified constraints to latrine adoption, sanitation marketing programmes need to emphasise mitigation of the above constraints and de-motivating factors through a multi-pronged approach that includes among others:
  - Developing motivational messages targeting both adopters and non-adopters that highlight specific attributes of new improved latrine designs available that respond to the current dissatisfactions with the traditional latrines in use. The motives for upgrading to an improved, more permanent latrine are outlined in the observations above.
  - Partnering with existing formal and informal microfinance institutions that now operate in Tororo District to develop latrine construction loan products. Potential development associations operating in the district include: Community Vision, BRAC, NAADS, and UWESO.
  - Building capacity of local experts who dig pit latrines, masons, and other related service providers. Identify the best suited people with skills to work with concrete and brick. Train informal sector pit diggers and traditional latrine builders to build new designs with new concrete skills and methods.
  - Developing special tools, moulds, and other material/equipment required to ease and standardise construction of innovative latrine designs/products. There is a need to explore the availability in each parish of supply chains of construction materials such as sand, gravel, cement, timber, iron sheets, and reinforcing iron bars. Explore and develop mutually beneficial opportunities for collaboration with existing small goods stores/outlets and local sources in each sub-county/parish for small scale sales of cement, iron sheets, metallic bars, wire mesh, vent pipes, sand, and gravel.

**Appendix 1:** List of all the different motivations/reasons/benefits/values for latrine adoption for the two distinct sanitation behaviours that have emerged for Tororo

<b>Motivations to Construct a Good Latrine</b>
<p>Disease control: cholera, diarrhoea, dysentery, intestinal worms</p> <p>Self esteem, it enhances status in the society</p> <p>Visitors' convenience</p> <p>Need for a proper place to deposit faeces</p> <p>Not proper to share latrines with parents after marriage</p> <p>To avoid air pollution through foul smells from scattered faeces</p> <p>Reduction of incidences of family ill health</p> <p>Reduction in family medical expenses arising from frequent visits to medical facilities and attendant travel costs</p> <p>Increased man hours for income generating activities</p>
<b>Motivations to Upgrade a Latrine to an Improved Permanent Facility</b>
<p>Cement floor and foundation create a more permanent structure</p> <p>Iron sheet roof protects mud wall, floor, and logs against rain</p> <p>Cement floor can be easily cleaned with soap and water, unlike a mud floor</p> <p>Traditional thatching grass is in short supply and the substitute grass used is of poor quality</p> <p>Water and soap for washing hands would be available near the latrine site</p> <p>An inclined floor design allows urine released during defecation to flow into the pit</p> <p>Small drop-hole size suits tight-fitting drop-hole cover, which is not currently possible with rammed mud floor and a motivation for improved floor design</p> <p>Comfort is linked to privacy when a latrine has a good superstructure and bedroom type of compartment</p> <p>Smoking out a latrine made with iron sheets does not result in roof fires</p> <p>A clean latrine ensures enjoyment of an environment devoid of bad smells and flies</p> <p>Proper ventilation is provided through a vent pipe</p> <p>A deep latrine pit takes longer to fill and does not have a lot of bad smells and flies</p>

## Appendix 2: Motivations for Latrine Adoption by Plan and Non-Plan Areas

Motivation	Plan Areas				Non-Plan Areas			
	Adopters	Non-Adopters	Total	Percent	Adopters	Non-Adopters	Total	Percent
PV	6	0	6	35.3	1	3	4	30.8
PFD	4	2	6	35.3	3	2	5	38.5
CF	5	0	5	29.4	0	3	3	23.1
DP	12	2	14	82.4	4	7	11	84.5
ABS	6	0	6	35.3	0	4	4	30.8
AF	3	2	5	29.4	0	3	3	23.1
SE	3	0	3	17.6	0	2	2	15.4
RME	1	0	1	5.9	0	0	0	0
IWH	1	0	1	5.9	0	0	0	0
VC	8	3	11	64.7	2	4	6	46.1
SLL	3	3	6	35.3	1	2	3	23.1
SWPU	2	0	2	11.8	0	0	0	0
SOP	1	0	1	5.9	0	0	0	0
CC	2	1	3	17.6	2	5	7	53.8
LA	2	0	2	11.8	0	1	1	7.7
ACWN	1	0	1	5.9	0	2	2	15.4
ABBS	0	0	0	0	1	1	2	15.4

### Key

Label	Constraint	Label	Constraint
PV	Privacy	PFD	Proper faeces disposal
CF	Comfort/convenience	DP	Disease prevention
ABS	Avoid bad smell	AF	Avoid flies
SE	Self esteem	RME	Reduced medical expenses
IWH	Increased working hours	VC	Visitors' convenience
SLL	Shame	SWPU	Sharing with parents unacceptable
SOP	Saving for other purposes	CC	Clean compound /home
LA	Lack of alternatives	CWN	Avoid conflicts with neighbours
ABBS	Avoid bush dangers.		

**Appendix 3: Constraints to Latrine Adoption by the Different Segments of Respondents**

<b>Constraints</b>	<b>Total Count</b>	<b>Adopters</b>	<b>Non-Adopters</b>	<b>Male</b>	<b>Female</b>
Low Income /lack of money	16	8	8	14	2
Lack of affordable latrine design	0	0	0	0	0
Rocky soils	16	8	8	16	0
Scarcity of construction materials	11	4	7	8	3
High cost of materials	4	3	1	4	0
Termites	10	5	5	10	0
Heavy rains	11	8	3	11	0
Weak construction materials	8	7	1	8	0
Lack of credit facilities	5	2	3	5	0
Laziness	5	3	2	5	0
Lack of responsibility	1	1	0	1	0
No assistance in latrine construction	4	0	4	1	3
Availability of alternatives, e.g. bush	1	0	1	1	0
Sickness	2	1	1	2	0
High cost of labour	2	2	0	2	0
Lack of local artisans	1	0	1	1	0
Negative attitudes	1	1	0	1	0
Negligence by school authority	1	0	1	0	1

#### Appendix 4: Constraints to Latrine Construction by Plan vs. Non-Plan Areas

Constraints	Plan Areas				Non-Plan Areas			
	Adopters	Non-Adopters	Total	Percent	Adopters	Non-Adopters	Total	Percent
LI	7	1	8	47.1	2	6	8	61.5
RS	7	1	8	47.1	1	7	8	61.5
SCM	3	2	5	29.4	0	6	6	46.2
HCM	3	1	4	23.5	0	0	0	0
T	3	0	3	17.6	2	5	7	41.2
HR	6	0	6	35.3	2	3	5	38.5
WCM	5	0	5	29.4	2	1	3	23.1
LCF	2	0	2	11.8	0	3	3	23.1
L	2	1	3	17.6	1	1	2	15.4
LR	1	0	1	5.9	0	0	0	0
NBACL	0	2	2	11.8	0	2	2	15.4
AA	0	0	0	0	0	1	1	7.7
S	0	0	0	0	1	1	2	15.4
HCL	2	0	2	11.8	0	0	0	0
LLA	0	0	0	0	0	1	1	7.7
NA	1	0	1	5.9	0	0	0	0

#### Key:

Label	Constraint	Label	Constraint
LI	Low income	RS	Rocky soil
SCM	Scarcity of materials	HCM	High cost of materials
T	Termites	HR	Heavy rains
WCM	Weak materials	LCF	Lack of credit facilities
L	Laziness	LR	Lack of responsibility
NBACL	Lack of somebody to assist	AA	Availability of alternatives
S	Sickness	HCL	High cost of labour
LLA	Lack of local artisans	NA	Negative attitude
NSA	Negligence by school authority		