Accelerating uptake of household latrines in rural communities in the Volta region of Ghana

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ABSTRACT

This study was done in four rural communities in Ghana to assess uptake of household latrines. A total of 156 household interviews, 16 focus group discussions and 8 in-depth interviews with key informants were conducted. Study findings show that only 8.5% of households were using improved sanitation facilities with more than 75% of the households relying on open defecation and communal trench latrines. Knowledge of technological options was very limited and the cost for preferred latrines was unaffordable. Though health-related benefits motivated household latrine uptake, those related to personal security, privacy, social status and convenience were ranked higher. Sanitation uptake was constrained mainly by finances, poor sanitation promotion and general biophysical factors. High costs of latrine construction could be reduced by introducing cheaper technological options, using low-cost construction materials and labor contributions from households. Financing models like microcredit financing can also be explored and adapted for use in Ghana. We recommend the use of approaches aimed at behavior change while giving households a range of technological options such as community led total sanitation (CLTS). Hence, despite the low coverage of improved sanitation in rural Ghana, there exist real opportunities to accelerate sanitation uptake.

INTRODUCTION

Lack of access to improved sanitation is a major development impediment in low-income countries. Improving access to sanitation and hygiene, which is Target 10 of the Millennium Development Goals (MDGs) now stands out as a major hindrance to achieving goals such as those related to poverty reduction, gender and health (Hesselberth 2005). The mere fact that 2.5 billion people still have no access to improved sanitation should be of great global concern (United Nations Children’s Fund [UNICEF] & World Health Organization [WHO] 2012a). Unimproved sanitation leads to fecal contamination of the environment, gastroenteric infections, loss of dignity and quality of life (Jenkins & Curtis 2005).

The WHO-UNICEF Joint Monitoring Program (JMP) estimates improved sanitation coverage in Ghana at 14% (19% urban, 8% rural) (UNICEF & WHO 2012b). The remaining households mostly use shared facilities mainly public toilets (58%), unimproved facilities like pan/bucket latrines (9%) and 19% (6% urban, 33% rural) practice open defecation (UNICEF & WHO 2012b). Public latrines are in very poor condition (Jenkins & Scott 2007). On latrine technologies, most households use simple pit latrines (32%), the ventilated pit latrines (12%), flush water closet (WC) toilets (10%) and pan/bucket latrines (1.3%) (GSS 2008). Sewerage coverage in the country is very low (about 5%) and is restricted to the major cities (MLGRD 2010). The current national policy emphasizes promotion of household latrines and recommends public latrines only for the transient population in commercial and other public centers (MLGRD 2010).
The low sanitation coverage and poor condition of sanitation facilities raise critical research and development questions. In Ghana, the key question is on how to generate sustained demand for sanitation to accelerate uptake and proper use of sanitation facilities such as household latrines. Global reviews have identified sanitation-specific barriers such as lack of political commitment, unsustainable financial models for sanitation promotion, lack of human resources and capacity in the sanitation sector, low demand from end users, inappropriate technological designs and poor monitoring indicators (Danida 2010). Jenkins & Sugden (2006) argue that addressing questions related to sanitation demand, sustainability, subsidy and institutional environment is central to ensuring sustained sanitation uptake. In Ghana and Benin, social factors such as prestige, well-being and situational drivers have been shown to be key motivators for latrine uptake in rural communities (Jenkins & Curtis 2005; Jenkins & Scott 2007). Owing to the complexity in adoption dynamics, in this study we aimed to obtain better understanding of community-specific barriers and motivating factors for household latrine adoption.

**METHODS**

**Description of study area**

The study was conducted in four rural communities i.e. Matse and Dzorkpe in Ho District, and Ve-Deme and Fodome-Kodzeto in Hohoe District, all in the Volta region, in Ghana. These communities relied heavily on subsistence farming for their livelihoods. Dzorkpe and Fodome-Kodzeto were relatively poorer and smaller than Matse and Ve-Deme. All communities had benefited previously from awareness campaigns on safe water, sanitation and hygiene but only the larger communities (Matse and Ve-Deme) got financial support (subsidies) for water and sanitation facilities from external agencies. Prior to the start of this study, the research team visited the four communities in June 2009 and held community level meetings to introduce the study and seek permission for the study. Data collection started only after community members and local leadership agreed to participate in the study.

**Methods used for data collection**

**Household survey**

The four communities had 672 households but only Ve-Deme and Matse had household latrines. Household latrines were defined as those purposively built and being used by one individual household. For households with household latrines, 60 survey questionnaires were administered i.e. 30 each in Ve-Deme and Matse. For households with no household latrines, 96 survey questionnaires (15 each in the small communities of Dzorkpe and Fodome-Kodzeto, 30 in Ve-Deme and 36 in Matse) were administered. So, a total of 156 survey questionnaires were administered in the four communities. The questionnaire was designed to collect household data on household demographics, details on means of excreta disposal as well perceptions, opportunities and constraints for household latrine uptake. Pre-testing of the questionnaire was conducted in non-study communities. Respondents were household heads, who were actual users of the sanitation facilities, so the information collected was based on actual experiences of using the facilities. Questionnaires were administered at home by trained survey enumerators in the local language, Ewe. Characteristics of respondents are shown in Table 1.

**Focus group discussions**

Four different focus group discussions (FGDs) comprising of adult males and females and young (about 12–18 years old) females and males were held in each community (16 in total). Numbers of participants were always 8–12. Discussion guides were designed to generate open discussions in six key areas: means of excreta disposal, motivation for household latrines, enabling environments for uptake of household latrines, technical issues, institutional issues and specific sanitation and hygiene issues. Participants were asked in FGDs to identify key factors that motivated adoption of household latrines. Quantitative ranking of motivating factors was done on a scale from 0 to 1 from individual participants in each focus group and aggregated averages used as ratings obtained from each focus group. Facilitation in group discussions was done by the members of the research team who could speak the native language,
Female facilitators were used for female focus group discussions and male facilitators for male discussions. All facilitators used in this study had previous experience in facilitation in related sanitation and hygiene studies. All discussions were carried out in the native language, Ewe.

**Interviews with key informants**

A total of eight interviews were conducted, with two key informants from each of the study communities. The informants included latrine artisans, water and sanitation committee members, and community opinion leaders. Interviews focused on getting their views on the same six topics addressed in the focus group discussions.

**Observations**

Guided by local resource persons, transect walks were conducted in all communities, where observations were made on general conditions in latrine facilities and behaviors of latrine users. Distances from surveyed households to latrines were recorded. Specific observations regarding the use of public latrines and open defecation were made in the mornings when these facilities were most used. Observations were also made during household surveys.

**Analysis**

All FGDs and interviews were either recorded in notes by the facilitator and interviewer or recorded digitally in the Ewe language. Focus group discussions were translated into English from Ewe by a native Ewe, who was part of the research team. The questionnaires, observations and interviews were structured into subthemes that guided the analysis. Quantitative data from questionnaires were entered into SPSS software program (version 17) and descriptive answers computed in verbatim text.

**RESULTS**

**Latrine facilities in the study communities**

Four main types of latrine facilities were used in the communities. Types and numbers of latrine facilities in the study communities are shown in Table 2. At household level, water closets (WCs) connected to septic tanks and ventilated improved pits (VIPs) commonly referred to as KVIPs in Ghana (known to originate from Kumasi, a city in Ghana, hence the added K before VIPs) were used. All of the nine water closets were in the most expensive modern houses in the community and were rarely used as most of the owners lived in urban centers, and only visited their rural homes occasionally to attend social events like funerals. The 48 household KVIPs were owned by comparatively wealthier households including opinion leaders in the communities and/or households which had benefited from latrine construction subsidies in previous years. At Matse, some household KVIPs were built as part of a low-housing project which integrated household latrines. All the household
KVIPs were attached or were in close proximity to houses, were frequently used and were generally well maintained (no observed feces on latrine slabs, had anal cleansing paper, strong superstructure and base).

Households with no household latrines mainly used shared pit latrines and public trench latrines (adults), while children used children pits (traditional mud mound with seat over a narrow pit) (Figure 1). Widely spaced wooden planks made the base of shared pits and trench latrines and the superstructure was simple (grass-thatch roofing, no walls) while others did not have a superstructure at all. These facilities had no privacy and were in unsanitary conditions. Trench latrines were typical of deep trench latrines used in emergency situations (Harvey et al. 2002). Trench latrines were open to everybody but shared pit latrines were restricted to a few related households, hence locally referred to as family pit latrines. No payment was made for the use these communal toilets. There was one communal KVIP at Ve-Deme for communal use, especially by visitors during social events. However, using the KVIP attracted a fee of 10 GHP per visit (US$ 0.07 in 2011).

Though well maintained, it was hardly used by the community members themselves due to the cost and the perception that it was for visitors.

In the study communities, only household latrines (WCs, KVIPs) could be classified as improved sanitation facilities according to the JMP criteria (see UNICEF & WHO 2012a), meaning that only 57 households representing 8.5% of all households in the four communities were using improved sanitation facilities. Estimating that an average of three households use one shared pit latrine, then more than 500 households, i.e. 75% of the total population were, either using public trench latrines and/or practicing open defecation in bushes. In Fodome-Kodzeto, there were no public trench latrines, which indicates that more than half (about 54%) of the households there practice open defecation. But even in the other communities, many of those who said in the survey that they used public trench latrines could be practicing open defecation, as the calculated user-facility ratio is very high i.e. more than 420 people per latrine in Matse and Ve-Deme.

### Access and use of latrine facilities

On average, users of public trench latrines had to walk for more than 5 minutes to access the facility compared to less than 5 minutes for 80% of the shared pit latrines and all open defecation sites and less than 2 minutes for household latrines. The use of communal latrines was gender-based so, other than Dzorkpe, communities had separate trench latrines for females and males. Though these latrines had no privacy (no walls, see Figure 1), members of the same sex could freely use them, regardless of age, so long as there was a free squatting space. However, the use of communal

### Table 2 | Population and latrine facilities in study communities from the enumeration study

<table>
<thead>
<tr>
<th>Location</th>
<th>Total population</th>
<th>Total number of households</th>
<th>No. of latrine facilities</th>
<th>Ventilated Improved Pits (VIPs)</th>
<th>Communal Pit latrines</th>
<th>Trench latrines</th>
<th>VIPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matse</td>
<td>2,500</td>
<td>397</td>
<td>4</td>
<td>27</td>
<td>8</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Dzorkpe</td>
<td>250</td>
<td>47</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ve-Deme</td>
<td>1,510</td>
<td>189</td>
<td>5</td>
<td>21</td>
<td>19</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fodome-Kodzeto</td>
<td>460</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

![Figure 1](https://iwaponline.com/washdev/article-pdf/3/1/26/384594/26.pdf)
facilities was characterized by long queues, especially in the mornings when demand was highest. Other than the high number of users per facility (see preceding subsection), the situation, such as that in Dzorkpe which had one trench latrine, was worsened by gender-differentiation in latrine use. FGDs revealed that if a male entered first in the latrine, only men could then use the facility and the females would wait in a queue until all men had used the facility, and vice versa. Due to long waiting times, some therefore preferred using nearby bushes for defecation, and as one participant said, ‘I prefer defecating in the bush because there is always ‘traffic’ when both sexes meet at the latrine since one sex has to finish before the next person uses the place. I cannot afford to wait, the bush is there and even closer’ (Young Female, Dzorkpe). So, while walking time to access public latrines was reasonably short, long waiting times was a limitation for actual use of the facilities.

Motivation for acquiring household latrines

Figure 2 presents reasons given by different focus groups as motivation for adoption of household latrines. The reason most frequently mentioned across different FGDs for adoption of household latrines was accessibility and convenience. Participants said that easy accessibility eliminated the long walk to the bush or public latrine. Comfort, which was closely linked with privacy, was also highly rated as a motivating factor, especially by female participants. Household latrines were perceived as comfortable, since they provided privacy. This was rated very highly by female participants, especially young women who said that in household toilets, they could ‘privately relax and do their business without interference’ unlike public latrines where one had to be ‘on watch to protect privacy and be in a hurry to finish and let others use the latrine’ (Young female in FGD, Ve-Deme). Safety and security from snake bites, thugs and rapists at night especially for female participants, was mentioned by participants in FGDs in Matse and Dzorkpe as a reason for uptake of latrines. Perhaps this was due to their close proximity to Ho, which is the regional capital of the Volta region. Parents in the four communities also feared that their children will fall into the wide dropping spaces of public trench latrines or be harmed as they walk through bushes to access latrines.

Another key motivation given during focus groups, more so in adult groups, was to avoid embarrassment from visitors. This was linked to visitors who come to attend social functions such as funerals and weddings, which are important community engagements in Ghana. In Ve-Deme this was solved by having a special latrine reserved for visitors, which was even offered to our research team to use. Observations made showed that this particular latrine (KVIP latrine) was much better maintained and cleaner than all others in the community. Embarrassment was also one of
the key factors mentioned by opinion leaders, especially traditional and political leaders, who linked a decent latrine to community development. So, improved latrines were linked to higher family or community social status, which could be an important motivating factor for uptake. Though not highly rated, females considered construction of household latrines as part of beautification of houses, which could also be associated with the ‘social status’ factor. The highest rating for this was by adult females, who had the responsibility for maintaining a neat and clean appearance of houses in the communities.

Health-related benefits such as ‘reducing spread of diseases’ and ‘cleaner and hygienic’ were not highly rated. In contrast, one opinion leader preferred communal KVIPs to household KVIPs because she perceived that household latrines would rather facilitate spreading of diseases through flies. Such perceptions by opinion leaders may need to be changed first as they may hinder uptake of household latrines. Notwithstanding, household latrines were generally perceived as more hygienic than public latrines. The hygiene of public trench latrines was of a specific concern to females who associated them with the risk of infections such as *vaginal candidiasis* (white vaginal discharge, locally referred to as ‘white’). Women in focus groups attributed the infection to the gas and heat emitted from public trench latrines.

**Barriers to adoption of household latrines**

**Poor sanitation promotion approaches**

Sanitation promotion in the communities was poor. Opinion leaders said that those promoting sanitation did not spend enough time educating the community and the promotion plan was technology and health focused. Communities were only exposed to two to three latrine technologies offering them no flexibility, limiting their preference to only one technology i.e. KVIPs, which was promoted as the best option. Adoption motivation messages were based on health benefits which are usually hard for rural people to visualize. The ineffectiveness of sanitation promotion approaches could be summarized by two contributions

‘…we did not understand what they were talking about…. even there were no pictures or drawings of the types of latrine options offered by the project, so how did they expect us to understand?’ (Male FGD participant, Ve-Deme).

‘….Illiteracy in community is very high and translation of the message into the local language during the awareness campaign forums (durbar) is usually very poor’ (Opinion leader, Matse).

**Financial limitations**

All respondents complained that they had very few income generation opportunities hence the general inability to afford the household latrines that were being promoted in the communities. A two-seater KVIP household latrine (one seat each for males and females), which was strongly promoted for instance, was estimated by respondents and latrine artisans to cost 600 GHc (US$ 400 in 2011), which is slightly lower that the official government figures of GHc 725 (CSWA & TREND 2008). About 60–70% of this amount was attributed to cost of materials, while the rest was money paid to artisans for workmanship. There was a particular complaint about the high costs (US$ 167–200) charged by latrine artisans, bearing in mind that artisans were trained free by external agencies. It was however observed that many of the trained artisans had moved to the more lucrative jobs of building houses and not latrines. This may have reduced competitiveness and resulted in the high costs charged.

**Biophysical barriers**

During the survey, it was observed that some areas within the communities were very stony and therefore unfavorable for constructing household pit latrines like KVIPs. In some parts of the study communities, the soils easily caved into the pits during the rainy season, as observed with the public trench latrine at Fodome-Kodzeto. These factors demotivated individual households from building their own latrines. Land limitation, closeness of houses, and fear of bad odor from the latrines were some of the additional challenges mentioned as militating against household latrine construction in the study communities.
DISCUSSION

Lack of access to safe sanitation and extensive practice of open defecation in the study communities should be a major concern of many stakeholders in the sanitation sector in Ghana. This study shows that only 8.5% of all households in the four communities were using improved sanitation facilities based on the JMP criteria and about 75% of the households either used public trench latrines or practiced open defecation. This (8.5%) is comparable to the national average improved rural coverage of 8% (UNICEF & WHO 2012b). It is therefore imperative to trigger sanitation uptake in the communities and innovativeness is needed to achieve this.

Effective sanitation promotion approaches

Effective approaches are needed in sanitation promotion. For these poor rural settings, approaches that encourage change of social norms and sanitation practices could be more effective. Peal et al. (2010) describes a wide array of approaches that can be adapted for use in the study communities. In particular, the community led total sanitation approach (CLTS) could be effective in reducing the rampant open defecation practices reported in the study communities. Indeed, CLTS has now been recommended as the approach to be used in sanitation promotion in Ghana and is increasingly being adopted by various actors in the sector (MLGRD 2010; Dodowa Consensus 2011). In the CLTS approach, a range of technological options, as highlighted in the official sanitation ladder developed for Ghana (CSWA & TREND 2008), are provided which allows households to choose the most suitable and affordable technologies. It is expected that increased awareness of CLTS and other related approaches will trigger behavior change and adoption of sound sanitation practices.

Appropriate sanitation promotion messages

It is important to understand community-specific factors that influence enhance the success of sanitation interventions. These factors should be used to formulate sanitation promotion messages. For a long time, sanitation promotion messages in Ghana have seemed to focus on health benefits. However, people adopt latrines because of social status, privacy, comfort and convenience rather than purely for health benefits (WHO & UNICEF 2000). Though some health and disease-related explanations and benefits were mentioned in this study, benefits from latrines were more strongly related to personal security, privacy, social status and convenience. Convenience, which was ranked highest, i.e. 0.82 on a scale of 0–1 in this study, was also identified as a major well-being driving factor for household latrine adoption in Benin and in Kenya with a score of 7.6 on a scale of 0–10 (Jenkins & Curtis 2005; Schouten & Mathenge 2010). Perceived safety concerns have been reported for women using shared sanitation facilities in poor neighborhoods of South Africa (Drangert 2004) and children using open defecation sites in India (Avvannavar & Mani 2008) but the magnitude could be much less in Ghana. So for Ghana, social drivers such as convenience and embarrassment from visitors during social gatherings could be the two most important adoption driving factors.

Appropriate sanitation technologies

This study shows that there is very limited knowledge by households of latrine technologies. Their knowledge was limited to the two to three technologies used in the communities. Studies done in Ghana, Benin, Kenya and Guinea show that considering user preferences for latrine technologies is important to avoid failure of sanitation interventions (McConville 2003; Schouten & Mathenge 2010; Jenkins & Scott 2007). But this can be reasonably done when communities have knowledge of a wide array of latrine technologies, which was not the case in the study communities. Nevertheless, water-based sanitation technologies, for now, are not viable options as there is no piped water in the communities. Alternatives that can be explored include dry sanitation technologies like Fossa alterna and arborloo and other technologies that use less water like aqua privies (Tilley et al. 2008). In addition, the study indicates a need to design latrines bearing in mind the specific needs of children in order to encourage them to use latrines. Appropriate latrine designs should be accompanied by training of latrine artisans on the preferred technologies.
There is also a need to reduce capital costs as the costs reported for latrine technologies, for example the US$ 400 for the preferred household KVIPs, are high and out of reach of many households. Flexible designs that allow locally available building materials could be explored. For example, local grass thatch, abundantly available in study communities, can be used for roofing with walls made of mud instead of concrete. Community members were ready to contribute labor, which will reduce labor costs. Increased latrine demand will incentivize latrine artisans and make construction more competitive.

**Financing sanitation**

Innovative financing schemes could be explored which could accelerate latrine uptake in rural communities. While the traditional approach of using subsidies has shown mixed results in many countries, microcredit financing, especially in this case where demand exists and capital costs are unaffordable, could succeed (Cairncross 2004; Jenkins & Sugden 2006; Evans et al. 2009, 2010). Ghana has many micro-finance institutions in rural areas but none have sanitation-oriented products. However, in the study area, one nongovernmental organization (NGO), Afram Plains Development Organization (APDO), offers credit to households, an initiative which should be encouraged. The other often overseen factor is the existing latrine economy in most communities in Ghana where access to some public latrines has a user fee (about US$ 0.07). Assuming one visit per day, a user-fees payback time for a US$ 400 KVIP latrine would be 15.6 man years. Thus, for a family with six persons this amount will require a payback time of 2.6 years, which is far below the expected life time of a latrine (about 10 years, emptied after every 2–3 years). Hence, self financing, in the long-term could be a sound investment.

Another approach could be integrated financing where household latrines are just components of the other financing schemes. For example, the household latrine coverage in this study was highest at the Matse community because latrines were included in the low-cost housing package given by the NGO, Habitat for Humanity. In Gambia, where the Flies and Eye project was carried out in trachoma-endemic villages, similar assistance was successfully given to participants in the project villages to build household latrines to reduce trachoma (Simms et al. 2005).

**CONCLUSION**

This study shows low improved sanitation coverage (8.5%) and extensive open defection in the communities, which was practiced by as many as 54% of households in one community. Despite previous sanitation promotion programs, sanitation uptake is still low. The study shows that sanitation promotion approaches previously used were technology-focused while sanitation messages were health-centered, making them ineffective. A number of key motivating factors for uptake of household latrines have been identified which could be a basis to formulate an effective promotion approach. Accessibility, privacy, gendered preferences, avoiding embarrassment especially during ceremonies like funerals, and safety should be considered as potentially important factors for latrine uptake in rural communities of Ghana. The preferred latrine technology in the study communities was the household KVIP but with its cost being prohibitive for many rural households, a number of cost-reduction options have been presented in this paper including exploring other cheaper technological options, the use of low-cost construction materials and provision of labor contributions by households. Financing models like micro-credit financing, which has been successful in accelerating uptake of rural sanitation in other countries such as India and Bangladesh, can also be explored and adapted for use in Ghana. We recommend using approaches such as CLTS which encourage change of social norms and sanitation practices while giving households a range of technological options; an approach widely proven to be effective in reducing open defecation. In summary, while the current sanitation status in the study communities is poor, many opportunities still exist to accelerate sanitation uptake in rural households in Ghana.

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