

ASSESSING THE MARKET FOR SAFE FECAL WASTE EMPTYING SERVICES in low-income areas of Kisumu, Kenya

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OVERVIEW

- In Kisumu, Kenya, the majority of households rely on pit latrines, though the servicing of these latrines is largely unsafe.
- This brief assesses the market potential to expand safe fecal waste emptying services to low-income areas in Kisumu.
- Price is the largest barrier for this population to access safe emptying services, which are more than double the cost of existing practices.

RATIONALE

In rapidly expanding cities in developing countries, local governments often struggle to provide improved water and sanitation services to all urban residents. Residents of urban informal settlements in developing countries generally do not have access to formal, regulated sanitation services such as centralized sewerage networks. Pit latrines are commonly the main form of sanitation available to households, yet most residents do not have a safe option to remove and dispose of fecal sludge when pits fill up.

This lack of adequate services provides a business opportunity to provide safely managed sanitation services to customers in low-income areas. However, the potential for profit-making opportunities will ultimately drive private sector involvement. In partnership with government stakeholders, the Aquaya Institute and Water and Sanitation for the Urban Poor (WSUP) are exploring opportunities to incentivize the private sector to provide safe emptying services to low-income residents in Kisumu, Kenya.

METHODS

This project assessed the market of fecal waste emptying services and evaluated barriers for licensed operators to service and expand in low-income areas in Kisumu, Kenya. Specifically, this work included (i) a literature review, (ii) stakeholder interviews, (iii) mapping and transect walks (iv) pit emptying observations, (v) focus group discussions and (vi) business model analyses of emptying groups.

KEY FINDINGS

1) Pit emptying in Kisumu is primarily done by informal manual pit emptiers, who dump the waste in convenient locations or bury it onsite. Two other emptying service providers, formal manual emptiers and vacuum truck operators (VTOs), also operate in Kisumu, but their operations in low-income areas are limited (Table 1).

2) Price is the largest barrier for households in low-income areas to access safe emptying services, with safe options costing at least 200% that of the informal manual emptiers (Table 1). The inability of low-income customers to afford the higher cost of formal emptying services, compounded with the price gap between the formal and informal market, stagnates demand and therefore limits business opportunities for safer services.

TABLE 1:
FECAL SLUDGE EMPTYING GROUPS SERVICING LOW-INCOME AREAS IN KISUMU

Emptying group	Description	Average price ^a
Informal manual emptiers	- The primary form of pit emptying in low-income areas is provided by informal manual emptiers, who dump waste into drains or bury onsite. - They work without proper equipment, training or oversight, typically operating at night. - Weak regulation and enforcement enables informal emptiers to operate without licenses.	1,000 – 3,000 KES (10 – 30 USD)
Formal manual emptiers	- There are three formal manual emptying groups operating in Kisumu: Gasia Poa, Vukasasa and BlueStars. - These groups were set up through two NGO projects, through which emptiers were provided proper training, equipment, and vaccinations. - Due to high prices, formal emptiers have limited activity (5-10 toilets emptied per group per month). - Formal manual emptiers operate during the day because it is safer, even though households would prefer emptying to be performed at night.	9,000 KES ^b (90 USD)
Vacuum truck operators (VTOs)	- There are eight vacuum truck operators (VTOs) in Kisumu (two operated by KIWASCO, six private) that primarily service high- and middle-income areas. - VTO services are not typically marketed to low-income consumers because (i) there is sufficient demand from high- and middle-income areas, and (ii) they perceive that low-income households are not willing to pay for their services. - Toilet accessibility is not a major service barrier: housing density is relatively low and road infrastructure is established. - VTOs are unable to handle solid waste, which is often found in pit latrines.	6,000 KES (60 USD) per trip (≤8,000L) ^c

a. Price is for a standard two door pit latrine. Prices vary based on factors such as location, volume of solid waste and perceived ability to pay. Exchange rate 100 KES = 1 USD.

b. Includes the cost of transporting waste to the treatment lagoon for safe disposal.

c. Price is per trip to the lagoon for safe disposal. A typical vacuum exhauster truck can hold ~8,000 L of sludge.



3) Transporting fecal sludge to the treatment sites is the highest operational cost for safe emptying services, composing 35%-50% of total costs. These costs are passed directly to the consumer and, combined with licensing fees and other expenses, result in substantially higher costs compared to informal manual emptying.

4) Accessibility is not a major barrier for VTOs to service low-income areas. Despite often

being a perceived challenge, VTOs are able to service low-income areas in Kisumu due to a relatively low housing density and an established road infrastructure.

5) Safe fecal sludge treatment options do exist in Kisumu. There is a lagoon that receives fecal sludge from the VTOs and formal pit emptiers, and a conventional system for sewerage. Both are in operation and managed by KIWASCO, the local water utility.

NEXT STEPS

Future interventions need to address the price barrier between formal (safe) and informal (unsafe) fecal sludge emptying. The Aquaya Institute is currently conducting a randomized, real-money demand trial in Kisumu to quantify the gap between existing prices and consumer willingness-to-pay for safe pit emptying services. A Sanitation Working Committee (comprised of representatives from the National, County and City Public Health Department, KIWASCO, the Greater Lakes University of Kisumu, WSUP Kisumu, and the Aquaya Institute) is exploring intervention models to subsidize and manage safe emptying in targeted low-income areas of Kisumu. Additionally, Kisumu County is in the process of rolling out two key policy documents: the Kisumu Environmental Sanitation and Hygiene Policy and the Standard Operating Procedures for the Improved Fecal Sludge Management Services. Results of these activities will inform future recommendations to improve safe pit emptying in the low-income areas in Kisumu, Kenya.