

EXPERIENCE WITH THE GULPER IMPLEMENTATION IN JINJA

Lessons from Uganda Sanitation for Health Activity
July 2023

INTRODUCTION

The USAID Uganda Sanitation for Health Activity (USHA) was a 66-month project implemented between January 2018 and July 2023 in 20 districts across Uganda aimed at achieving sustainable improvements in quality access and supply of water and sanitation services. One of USHA's goals was to enhance access to safely managed¹ Fecal Sludge Management (FSM) services by supporting FSM entrepreneurs (FSMEs) to improve their business models.

Over the course of the project, USHA supported six FSMEs in four districts across three regions of Uganda. Four of the FSMEs were Cesspool Truck Entrepreneurs (CTEs) and two were Gulper Entrepreneurs (GPEs) whose experiences have been shared in a FSME learning brief. As a facet of this work, USHA piloted the gulper technology, which uses manually operated pumps to empty pit latrines that cannot be emptied using cesspool trucks. Gulpers can be useful in contexts where latrines are in congested, hard to reach areas, with unlined pits, and for customers cannot afford cesspool emptying.

This learning brief documents USHA's experience supporting one of the GPEs and highlights the challenges encountered during implementation, documents the experience of the GPE's use of the gulper technology and offers insights and guidance to implementers intending to support FSMEs in similar contexts.

SUPPORT PROVIDED

When USHA began work with the GPE in 2019, the enterprise used a Gulper I to help meet the demand for household and institutional emptying services in the city of Jinja and the wider Eastern region. The GPE also utilized six 200-litre barrels and hired a truck to transport fecal sludge, increasing operational costs. Between March 2020 and October 2021, USHA provided technical and financial support to the GPE based on an initial assessment of the its operations. USHA aimed to help facilitate a viable FSM gulping business line. USHA's support included the following:

- A grant to co-finance the purchase of a used truck for the safe transportation of fecal sludge to a treatment plant for disposal, comprehensive car insurance, a GPS tracker, and loan fees
- Training on Standard Operating Procedures (SOPs) for safe emptying
- Training on corporate governance best practices
- Funding for marketing activities including door-to-door sales through a cadre of trained sale agents, the distribution of fliers and stickers, and support for a radio campaign
- Targeted business advisory support to help improve the GPE's profitability by reducing its operating costs and optimizing pricing

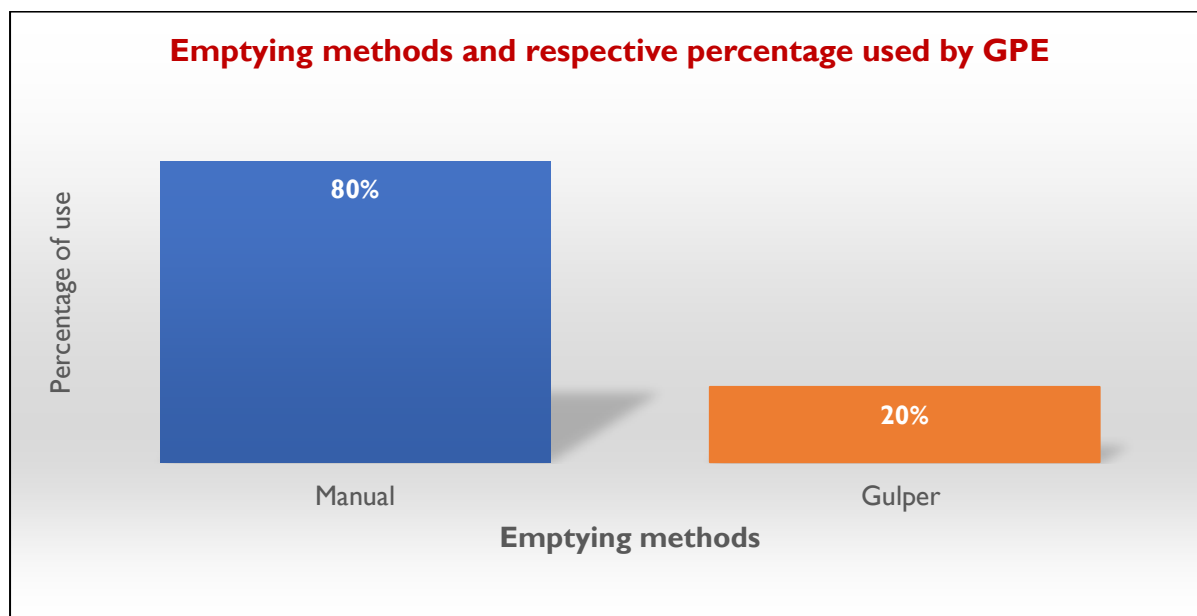
¹ Safely managed FSM services are those that effectively separate fecal sludge from human contact and ensure that fecal sludge does not re-enter the immediate environment. This means fecal sludge is contained, extracted, and transported to a designated disposal or treatment site.

With USHA’s support, the GPE significantly increased the number of customers served and increased the number of emptied barrels from 840 to 1,067 in the first year, a 27% increase, and to 1,607 in year two, a 67% increase. In the second year, the GPE increased the volume of sludge emptied from 134 thousand litres annually to 170 thousand litres in the first year (27% increase over the baseline) and 257 thousand litres in the second year (51% increase over the first year).

CHALLENGES ENCOUNTERED

While the GPE’s operational performance improved with USHA’s support, limitations with the gulper technology required the operators to manually empty the latrines. Between April and September 2022, approximately 26 out of 31, or 84 percent, of the jobs were completed manually. While USHA promoted safe and hygienic emptying using either mechanised using a cesspool truck or semi-mechanised using a gulper, the prevalence of manual emptying was concerning as it increased health risks to the customer and GPE staff.

In many cases, the GPE resorted to manual emptying because latrines were unlined and contained both thick sludge and a high concentration of solid waste as shown in the graph below. While adding water in these cases can help reduce the density of the sludge to facilitate removal, this also increases the cost to customers by increasing the volume of sludge abstracted from the latrine. Gulper technology is not suited for pits like these with measurable solid waste. Pumps can be blocked and then require repair. Additionally, gulper technology is limited by the depth it can reach and the volume of sludge it can empty. Typically, a gulper can remove up to just five barrels of sludge. Further, guplers can be quite heavy and difficult to operate. They may not always fit or be useable with types of latrines and latrine structures including those with low roofs.



The graph illustrates the GPE’s estimation of emptying methods used between March 2020 and December 2022 and the respective proportion of each based on the customer context (i.e., pits requiring manual emptying vs those where a gulper could be used).

The GPE found that since gulper technology is not applicable in many customer contexts, cost recovery associated with gulper use was challenging. Additionally, GPEs advertising the use of guplers face competition from manual emptiers who charged customers much less. The GPE cited that manual emptiers can charge a customer as low as UGX 100,000 (US\$ 27) to empty an entire pit compared with a GEP’s charge of UGX 30,000 (US\$8) per 200 litre barrel. This made the minimum

cost of emptying an entire pit (i.e. 10 barrels) UGX 300,000 (US\$80), approximately three times that charged by manual emptiers. As enforcement of local laws remain inadequate, manual emptying is prevalent. Manual emptiers do not incur dumping or transportation costs (to the dumping site) and there is currently no suitable dumping place provided by National Water and Sewerage Corporation (NWSC) for faecal sludge emptied by GPEs.

The GPE in Jinja highlighted in this brief was, at times, not permitted to dump at the municipal wastewater treatment plant. Jinja does not have a separate fecal sludge treatment facility and thus the GPE had no alternative site to safely dispose of the thick sludge. This was a bottleneck which continues to impact their ability to sustainably provide services to a sizable customer base in the Jinja Municipality and surrounding areas. To resolve this issue, USHA partnered with the NWSC – Jinja Branch and the Ministry of Water and Environment (MWE) to design a small drying bed connected to the Jinja Wastewater treatment plant for the safe disposal of thick gulper sludge at the facility. Funding of the construction was beyond the scope of the USHA project. The designs were given to the MWE and NWSC-Jinja Branch to be used for fund mobilisation and to guide future modification of the treatment plant.

FINDINGS AND RECOMMENDATIONS

When working towards promoting safely managed FSM services (i.e., mechanized, and semi-mechanized), it is important to recognize the reality of GPE operating environments. USHA’s experience with the highlighted GPE illustrates the need to consider both the opportunities and limitations of using gulper technology within the local market.

USHA’s GPE experience illustrates the need to refine the gulper technology in order to effectively to GPEs’ operating environments. Until these improvements are made, USHA suggests GPEs be trained and encouraged to follow safe manual emptying² practices

Below is a summary of findings and recommendations for future implementers:

Findings	Recommendations
<p>While the gulper provides a solution in some instances, the technology was not suitable for the majority (over 80%) of the pits in the Activity’s local context, presenting measurable challenges to the success of GPEs</p>	<p>Further iterations of the gulper technology are required to enable GPEs to address the practical realities of customer pits including thick sludge, large rubbish volumes, common structural characteristics of pits, and manual nature of the technology.</p> <p>Possible technology improvements cited by the GPE include:</p> <ul style="list-style-type: none"> - Motorising the technology - Adjusting the gulper size so it can fit into standard drop holes <p>In the interim, implementers should ensure that all FSMEs are trained to adhere to SOPs that guide safe manual emptying.</p>

² Safe manual emptying is the practice of removing fecal sludge from pits that due to their nature cannot be emptied through mechanised or semi-mechanised means or technologies. Safe manual emptying therefore entails emptying pits using manual methods while ensuring safety of the emptiers during the process by among others availing emptiers with protective personal equipment (PPE), having them follow standard operating procedures (SOPs) and ensuring that operators do not enter the pit

<p>Given the regulatory challenges faced by authorities, GPEs face significant competition from manual emptiers which undermines their businesses</p>	<p>Suggestions include:</p> <ul style="list-style-type: none"> - Licensing all FSMEs - Offering continuous training only to licensed FSMEs to work in a safe manner - Stronger enforcement to ensure emptying is done safely - Promotion of only licensed FSMEs by authorities
<p>No suitable dumping facilities for GPEs in Jinja</p>	<p>There is the need for investment in the technical designs, land, and construction of standard disposal beds suitable for fecal sludge including rubbish and thick sludge encountered by GPEs.</p>

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