Sub-theme: Financing and Investment Mechanisms

Topic: 5.1 Public-private partnerships for financing the water and sanitation sector

Abstract Title: Evaluation of business models for fecal sludge emptying and transport in informal settlements of Kampala, Uganda

Florence Laker, Programme Officer, International Water Association
Shirish Singh, Senior Lecturer/ Sanitation Researcher, IHE Delft Institute for Water Education

Summary

This study developed an evaluation framework, which was tested in informal settlements in Kampala for sustainable business models of faecal sludge emptying and transport. The framework adopted six service criteria: Financial, Institutional, Environmental, Technological, Social and Scalability; these were further defined by fifteen service sub-criteria. The criteria were tested separately on eight business models—for mechanized (cesspool) and semi-mechanized (gulper) technologies. The key output of the framework revealed that: scheduled desludging and call center models for cesspool technology, and mobile transfer stations, scheduled desludging, and call center models for gulper technology, have high potential for service improvement in informal settlements.

Introduction

On-site sanitation systems (OSS) serve more than 2.7 billion people globally. Approximately 80% of urban residents in Sub-Saharan Africa and over 90% in Kampala city rely on OSS, the majority of whom are in informal low-income settlements. Indicator 6.2.1 (a) of the Sustainable Development Goals underscores the importance of “safely managed sanitation services”, i.e., Faecal Sludge Management (FSM) for OSS, focusing on the entire sanitation service chain, entailing containment; emptying and transport; treatment; disposal/re-use.

Typically, FSM services are the mandate of the government but in recent times the private sector has taken an increased role in FSM service provision. Public-private partnership is necessary to ensure the provision of quality and affordable FSM services to all. However, Faecal Sludge (FS) emptying and transport service provision is dominated by private operators who are informal and unregulated. In addition, high housing density, lack of access to containments, and lack of capacity to pay for emptying services hinder coverage and effective and quality provision of emptying services, particularly in informal settlements that host more than half of the urban population in Sub-Saharan Africa and Kampala city. There are two main types of FS emptying and transport technologies in Kampala: (i) mechanized (cesspool) and semi-mechanized (gulper). Various business models have been developed to address challenges and meet demands for FS emptying and transport and these include: transfer stations, franchise, non-profit, call center, incentivized, licensing and scheduled desludging. Apart from the advantages of various models, including application in an informal settlement, little is known about evaluation and the optimized selection of models. Therefore, there is a need for evaluating potential business models that could result in decreased expenditure for households while remaining profitable to the private sector. This will ensure inclusivity, and affordability and accelerate the sanitation service, particularly in informal settlements in the city. The main objective of this study was to develop an evaluation framework for assessing business models of FS emptying and transport that can potentially be applied in informal settlements.
Methods

The framework was contextually developed, taking into consideration service delivery challenges in informal settlements of Kampala city. To develop service criteria for assessing business models, anonymized primary data was collected from community respondents (landlords and tenants), cesspool and gulper entrepreneurs, and key informants ranging from diverse stakeholders, so as to structure and contextualize the framework. Primary data collection methods used were: four focus group discussions (FGDs), six in-depth interviews (IDIs), ten key informant interviews (KIIs) and observations. Secondary data collection involved the desk review of the City Service Delivery Assessment (CSDA) tool and user guide for the City-Wide Inclusive Sanitation and Financial, Institutional, Environmental, Technological and Social (FIETS) sustainability approach. The framework adopted six service criteria: Financial, Institutional, Environmental, Technological, Social and Scalability; these were further defined by fifteen service sub-criteria. The service sub-criteria for FIETS included: business profitability; emptying costs/fees; subsidy; cost recovery, public private partnership; legislation/regulation; functionality of service chain; environmental protection; public health safety; adaptability to local context; responsiveness; mixed technology adoption; equity/inclusion; social inclusion. The criteria were tested separately on eight business models—for mechanized (cesspool) and semi-mechanized (gulper) technologies. The study used a traffic light reporting system to score the service criteria and business models. The color codes (red, orange and green) help to visualize the scores for the service criteria and the corresponding (overall) score of the business models. The service criteria were scored and weighted, and the overall score for business models were determined. Business models with high scores (high potential for service improvement) were considered appropriate and sustainable for informal settlements.

Results

Findings from primary data collected from community respondents in informal settlements, cesspool and gulper entrepreneurs and key informants revealed service delivery gaps/challenges that were used to contextualize and define the evaluation framework. The study categorized service gaps as demand and supply challenges, where demand challenges represent client perspectives and supply challenges represent service provider perspectives. This study revealed four business models that are operational in Kampala city: (i) discreet collection and treatment* (main model in operation); (ii) mobile transfer station; (iii) call center; and (iv) licencing models. Scoring and weighting of the eight business models revealed against 15 sub-criteria revealed . The key output of the framework (business model scorecard) revealed that two models (scheduled desludging and call center) for cesspool technology and three models (mobile transfer stations, scheduled desludging and call center) for gulper technology have high potential for service improvement in informal settlements.

Discussions

Business models that scored high have high potential for service improvement. It is imperative to note that business models scored differently for each criterion and sub-criterion, for both the cesspool and gulper, which could be explained by the difference in the mode of service between the cesspool and gulper. Each business model has its strengths/pros and weaknesses/cons for a particular criterion, as evident from different scores attained by each business model for the six service criteria. Scheduled desludging and mobile transfer stations can effectively optimize emptying services and subsequently reduce emptying charges, whereas the call center is critical for bridging service delivery.
Conclusions

The applicability and effectiveness of a business model may vary from context to context. Development of the framework (service criteria and sub-criteria) could be tailored to address context-specific service delivery challenges. The evaluation framework, therefore, provides a holistic and sustainable approach for assessing business models for a given context. Testing of the framework revealed that there is no one-size-fits-all business model for faecal sludge emptying and transport. Integration of the mobile transfer station, call center and scheduled desludging models for cesspool and gulper would be most appropriate in ensuring inclusiveness, affordability, profitability, and, ultimately, sustainable service delivery in Kampala city.

References


