

A Comparative Analysis of Septage Management in Five Cities in the Philippines

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1 INTRODUCTION

In 2013, the Philippines implemented a national strategy for sewage and septage management that requires local government units (LGUs) to establish septage management systems. To guide these LGUs in deciding the appropriate septage management system for them, it is of great significance to assess and understand the strengths and weaknesses of existing systems. The objectives of the study are the following: (1) to assess and compare existing septage management systems in the municipality of Baliwag, Bulacan and the cities of Calamba, Muntinlupa, Pasig, and San Fernando; (2) to determine the configuration of factors leading to the success or failure of the systems; and (3) to propose interventions for improving the septage management systems. This research also contributes to the improvement of tools in assessing septage management in cities in developing countries.

2 METHODS

The Fecal Waste Diagram and the Service Delivery Assessment (SDA) scorecard described by Peal *et al.* (2014) were modified in this study to increase their assessment efficiency. The Fecal Waste Flow Diagram was used to visualize the overall flow of fecal wastes in the study areas, categorizing them into safely managed and unsafely managed. Fecal waste containment mechanisms were specified into septic tanks, open and closed pits, pail system, and others according to available information unlike in Peal's layout, in which all the containment mechanisms were aggregated into a single "on-site facility" unit. The SDA scorecard was used to understand the reasons why septage management is working well or is neglected in the study areas through a set of questions categorized in three pillars: enabling environment, development of services, and sustainability of service. Score descriptions were developed for each question to standardize the scoring procedure. These sets of information were acquired through a review of specific reports from sanitation offices/service providers and interviews with the heads of city office departments involved in septage management.

3 RESULTS AND DISCUSSION

Comparing the fecal waste flow diagrams, it can be generalized that San Fernando is the most successful in preventing pollution of its environment. It is followed by Baliwag, Muntinlupa, and Pasig. In Calamba, all of the fecal waste is disposed of to the environment (Table 1).

Comparing the scorecard ratings, it can be generalized that Pasig has the most efficient septage management service, followed by San Fernando, Baliwag, Muntinlupa, and Calamba. Patterns of scores in the enabling pillar suggest that for a successful septage management system, a city should have sound policy development, planning, and financial commitment. In the developing pillar, more successful cities like Pasig and San Fernando focused on system capacity, quality, and monitoring while in the sustaining pillar they focused more on expansion of service coverage and monitoring of system standards.

Table 1 Summary of safely/unsafely managed fecal wastes in the study areas

Study Areas	Safely (%)	Unsafely (%)
Baliwag	97.30	2.70
Calamba	0	100
Muntinlupa	90.30	9.70
Pasig	64.50	35.50
San Fernando	99.65	0.35

Among the five areas, San Fernando can be considered to have the most efficient system as it had the highest percentage of safely managed fecal waste and high scorecard ratings. It might have been an advantage that the whole system is being managed by the city itself - from implementing rules for septic tank plans, to the collection, treatment, and disposal of septage.

4 CONCLUSIONS

This study proved that the two tools were effective in comparing septage management in cities. The fecal waste flow diagrams were effective in elucidating the overall flow of fecal waste; however, the precision of these diagrams would still depend on the available data from the city. The scorecards were also able to point out strengths and weaknesses of the current septage management service delivery in each stage of the service chain. The score descriptions for the scorecard should be continually improved for more uniform assessments. More case studies could be done to explore the use of other indicators.

References

Peal, A., Evans, B., Blackett, I., Hawkins, P., & Heymans, C. (2014). Fecal sludge management (FSM): Analytical tools for assessing FSM in cities. *J. of Wat., San. and Hyg. for Dev.*, 4 (3): 371-383.