KNOWLEDGE, PRACTICES AND ISSUES OF SOLID WASTE MANAGEMENT: A QUALITATIVE STUDY IN KULIYAPTIYA PRADESHIYA SABHA AREA

A. Pallegedara*

Department of Industrial Management, Wayamba university of Sri Lanka

INTRODUCTION

All member countries of United Nations (UN) unanimously agreed to support Sustainable Development Goals (SDGs) introduced in 2015. The SDGs comprising of 169 targets for 17 global goals have been developed to meet urgent environmental, social, and economic challenges faced by developing countries. Achieving SDGs by 2030 is a global challenge for every nation. As a lower middle-income country, Sri Lanka has to do various activities to achieve targets of SDGs. The target 5 of SDG Goal 12: "substantially reduce waste generation through prevention, reduction, recycling and reuse (3R)", aims to reduce waste and manage waste efficiently in all countries (UNDP, 2021).

Solid waste is unwanted materials mainly generated by households and business entities in the form of biodegradable materials such as vegetable, fruit peels, eggshells, etc. and non- biodegradable materials such as plastics, metals and cans, etc. According to the data of Central Environment Authority (CEA), Sri Lanka currently generates 7,500 MT of waste per day (CEA, 2018). With the continuous growth of solid waste, owing to accelerated urbanization and increased population in Sri Lanka, landfills are filling up faster than expected. Thus, understanding the knowledge, practices and issues of solid waste management in Sri Lanka is important to introduce effective waste management policies.

Previously, several studies have examined the challenges and opportunities of waste management in Sri Lanka (Basnayake and Visvanathan, 2014; Fernando, 2019; Gunarathne et al., 2019). These studies have used primary and secondary quantitative data sources to understand the challenges and opportunities of solid waste management in Sri Lanka. However, qualitative research carried out to explore the knowledge, practices and issues of solid waste management using community level data is limited in Sri Lanka. In order to introduce effective solid waste collection systems in local government areas, it is important to examine the knowledge, practices and issues faced by waste generators at micro level. Thus, this paper aims to contribute to the literature on waste management in Sri Lanka by exploring the knowledge, practices and issues of solid waste management in the Kuliyapitiya Pradeshiya Sabha area.

METHODOLOGY

Considering the exploratory nature of this study, a qualitative research design was adopted. Primary data were collected from retail merchants in the Kuliyapitiya Pradeshiya Sabha waste collection area. In addition, discussions were conducted with a local government officer and two workers responsible for waste collection in the Kuliyapitiya Pradeshiya Sabha area. Kuliyapitiya Pradeshiya Sabha only collects waste from business premises and houses located facing main roads. A convenience sample of eight retail merchants were selected for this study. They are small scale merchants who do businesses such as vegetable and fruit stalls, restaurants, communication centers and groceries. The selected sample includes Sinhalese and Muslim retail merchants. Data from in-depth interviews with selected retail merchants and field observations of their retail shops were used for the analysis. The retail merchants expressed their own views on practices and issues of waste management. We also asked some questions to test their knowledge and attitude towards waste management. The local government officer and the laborers expressed their views on waste collection. The observational field notes and recorded interview transcripts were analyzed qualitatively using

content analysis. Based on the content analysis of coded responses by retail merchants and waste collection workers, main patterns of expressed views on waste management practices and issues were identified.

RESULTS AND DISCUSSION

The outcome of the analysis is presented under the three main themes; knowledge of waste management, current practices of waste management, issues and obstacles of waste management.

1. KNOWLEDGE OF WASTE MANAGEMENT

The findings indicate that all retail merchants have some knowledge in waste management activities. Most of the merchants knew that there are two types of waste collected by the local government.

> '*Our waste are mostly biodegradable vegetable and fruit waste, and we have a very little amount of polythene and plastic*' (Owner of vegetable and fruit stall).

Six out of the eight retail merchants were aware of the importance of waste segregation at the source.

> '*I know that segregation of waste is important for local government authorities to effectively manage waste*' (Owner of small grocery)

Few merchants were aware that improper waste disposal can adversely affect human health. For example, mosquito breeding sites caused by improper dumping of waste were mentioned.

> '*If we dump yogurt cups and coconut shelves, dengue mosquitos can breed when those cups and shelves collect water in them*' (Owner of a small grocery)

2. CURRENT PRACTICES OF WASTE MANAGEMENT

Merchants carry out different types of waste management activities. For example, one small restaurant owner mentioned that he gives only polythene and plastic waste to the local government waste collators while biodegradable food waste is dumped in a small land filling site in the neighborhood.

> '*I give only polythene and plastic to waste collectors. We have a small filling site to fill. So, we use our leftover kitchen waste in the filling site*' (Owner of a small restaurant)

Another merchant mentioned that leftover vegetables and fruits were given to people engaged in animal husbandry as a source of food for their cows.

> '*Not all waste is given to local government collectors. People who do animal husbandry come and take leftover vegetables and fruits to feed their cows*' (Owner of a vegetable stall)

All merchants use separate bins or bags for biodegradable waste and polythene/plastic waste. This may be mainly because the local government authorities do not collect biodegradable waste mixed with polythene and plastic. Some merchants mentioned that they do not have any polythene or plastic waste because they sell only vegetables and fruits which produce biodegradable waste.

> '*We only have vegetable and fruit leftovers as waste. So, we just put them into the dust bin to be collected by the local government waste truck*' (Owner of a vegetable stall)

In contrast, a respondent who runs a communication center mentioned that they generate a small amount polythene and paper waste.

> '*We have only a small amount of polythene waste and the rest is paper waste. We sell mainly mobile phone cards and internet cards. So, they generate a small amount of polythene and paper waste. We just burn them without giving them to the local government waste collectors*' (Owner of communication center)

3. ISSUES AND PROBLEMS OF WASTE MANAGEMENT

Most merchants mentioned that they are satisfied with the service provided by the local government. According to them, the local government waste collection truck and tractor regularly visit and collect biodegradable waste and plastic/polythene waste.

However, one merchant mentioned that sometimes the waste collection tractor is filled with waste when the tractor reaches his business point.

> '*Sometimes when the tractor comes to collect waste, it is already filled. So, we cannot load our waste anymore. We have to wait till the collector truck comes on another day*' (Owner of small grocery)

When we discussed this problem with local government waste collection workers and the officer, they mentioned that it is true that sometimes the tractor or the truck is filled with waste because they conduct waste collection under limited resources.

> '*Sometimes especially on the weekly market days, the waste truck is filled with waste. Thus, we cannot collect all the waste on that day. We have only allocated one truck or tractor for one route, so we don't have additional waste collection trucks or tractors*' (Officer of the local government)

One major problem that waste collectors face is some people dump their waste in roadsides. It could be witnessed that waste is dumped at roadsides especially in the paddy fields. Waste collectors mentioned that it is a time-consuming task to collect unsegregated waste from paddy fields.

> '*Some people intentionally bring waste from their houses, especially those who are driving dump waste in the paddy fields along roadsides. We have to collect all the waste, separate and put into the waste tractor or truck. This is a cumbersome task for us because we have to do all these tasks*' (Worker of the local government)

The major issues found in this study such as the lack of equipment and logistics, limited work force and poor waste disposal behavior of some people have been reported previously in Sri Lanka and other developing countries (Fernando, 2019; Lissah et al., 2021; Moruff, 2012; Vidanaarachchi et al., 2006). However, this study has some limitations in generalising results to a wider population. Outcomes of this study are based on the data collected from the small convenience sample of retail merchants, the authorised officer and workers regarding waste management in Kuliyapitiya Pradeshiya Sabha area. Thus, future studies could explore the knowledge, practices and issues in waste management in other local government areas in Sri Lanka.

CONCLUSIONS/RECOMMENDATIONS

This paper presented a case study of knowledge, practices and issues in a selected local government area in Sri Lanka. Based on the qualitative analysis of primary data collected from the convenience sample of waste generating retail merchants, this study found that most retail merchants have a basic knowledge of waste management and they practice waste

segregation in their business premises. Many issues still exist in waste collection due to the lack of resources such as equipment, vehicles and workers. Open dumping practiced by some individuals adversely affects the waste collection efforts of local government workers.

For more effective and efficient solid waste management, this study presents the following recommendations at local government and community level. Local governments should enforce rules and regulations against the people who are responsible for open dumping in roadsides. Technological equipment such as cameras could be used to monitor open dumping in roadsides. Information campaigns should be conducted at community level to educate the residents about the importance of proper waste management. Since local governments conduct waste collection with limited resources and capacity, central government should provide financial support to purchase additional equipment and to increase human resources for waste collection.

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REFERENCES

Basnayake, B. F. A., & Visvanathan, C. (2014). Solid waste management in Sri Lanka. In *Municipal solid waste management in Asia and the Pacific Islands* (pp. 299-316). Springer, Singapore.

Central Environmental Authority (CEA). (2018). National Solid Waste Management Program in Sri Lanka. Retrieved from https://www.unescap.org/sites/default/files/6_CEA.pdf

Fernando, R. L. S. (2019). Solid waste management of local governments in the Western Province of Sri Lanka: An implementation analysis. *Waste Management*, 84, 194-203.

Gunarathne, A. D. N., Tennakoon, T. P. Y. C., & Weragoda, J. R. (2019). Challenges and opportunities for the recycling industry in developing countries: the case of Sri Lanka. *Journal of Material Cycles and Waste Management*, 21(1), 181-190.

Lissah, S. Y., Ayanore, M. A., Krugu, J. K., Aberese-Ako, M., & Ruiter, R. A. (2021). Managing urban solid waste in Ghana: Perspectives and experiences of municipal waste company managers and supervisors in an urban municipality. *PloS one*, 16(3), e0248392.

Moruff, M. (2012). Cultural understanding of space and waste disposal habit among the urban populace in Ibadan Metropolis, South Western Nigeria. *Journal of Sustainable Development in Africa*, 14(4), 82-95.

United Nations Development Programme (UNDP). (2021). Sustainable Development Goals (SDGs). Retrieved from https://www.undp.org/sustainable-development-goals

Vidanaarachchi, C. K., Yuen, S. T., & Pilapitiya, S. (2006). Municipal solid waste management in the Southern Province of Sri Lanka: Problems, issues and challenges. *Waste Management*, 26(8), 920-930.