Chapter 6
Community–Based Waste Management Model in Optimizing Waste Reduction:
Waste Bank Practices in Indonesia

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ABSTRACT

The concept of collect-transport-and-dump of waste in Indonesia has changed into reduce, reuse, and recycle (3R) since it causes environmental consequences that the Government of Indonesia (GoI) has banned including the open dumping practices since 2013. GoI targets 30% waste reduction by 2030, and some policies are introduced to achieve the target including promoting waste bank. Waste bank is an implementation of 3R involving community. The number of waste banks are increasing since waste banks offer many benefits. Currently, there are 7600 waste banks nationwide. Through waste banks, the community learns to sort the waste. It also raises public awareness about waste issues and the importance of 3R. It becomes an innovation program at the grassroots level to increase income and support the local governments to improve the performance of waste management. In this chapter, some cases presenting waste bank implementation and their related aspects, such as waste bank performance, public acceptance, and participation, as well as determinants of public participation, are discussed.

INTRODUCTION

Landfill is one of the cheapest and commonly used as final destination to dispose the waste In developing countries (Idrus, et.al., 2008). Therefore, it is the most preferred waste treatment in Indonesia that almost 69% waste ends up in the landfill, whereas 7% is for treatment and recycling purposes. About 24% of waste is unmanaged, causing illegal dumping, marine/river littering, and open burning (Ministry of Environment and Forestry, 2020). Many landfills in Indonesia are still open dumpsites. Open dump site causes environmental consequences such as pollution of surface water, surrounding soil, and groundwater due to the leachate (Gworek et al., 2016), high methane ($CH4$) emission contributing 1-2% of the total global greenhouse gas (GHG) emissions (Bogner et al., 2011; DEFRA, 2009), and several health risks due to hazardous pollutants leaks from landfill and penetration of leachates into the soil (Palmiotto et al., 2014, DEFRA, 2009).

In developing countries, SWM is one of the most crucial issues faced by the local authorities and characterized by inefficient organization, financial limitation and complexity (Burntley, 2007). Furthermore, the waste management processes are more straightforward, with a notable contribution from the informal sector (Ezeah et al., 2013).

In addition, open dumpsite is considered and acceptable method and part of the waste disposal process due to lack of infrastructure, financial resources, and management planning (Srivastava et al., 2015). Because of its adverse environmental effects, the Government of Indonesia (GoI) has banned open dumping practices in landfill through the enactment of Waste Law No. 8/2008. It mandates the local governments to close open dumping sites and operate the only environmentally friendly landfill, either controlled or sanitary. Currently, there are totally 388 landfills in Indonesia and 5.9% of them are equipped with biogas collection system and the landfill biogas is distributed to nearest villages for cooking. However, disposing of waste in landfills creates another problem that requires significant space demand.

Growing population leads to the increasing trend of municipal waste quantity. Thus finding the available place for expanding the landfill poses an additional challenge to consider, such as urban planning (Mallick, 2021), the possibility of groundwater pollution (Abdullah et al., 2018), soil pollution (Li et al., 2007), and agriculture (Thapa & Murayama, 2008). In 2011, GoI changed the old paradigm of waste management from the end-pipe-solution, which comprises waste collecting-transporting-disposing of, to the new one, waste minimization by source-reduction. There are various measures, approaches, and strategies to promote waste minimization, such as charging fees for waste disposal on each disposal facility to reduce the total waste generation potentially, "three Rs" principle of waste (reduction, reuse, recycling), as well as the zero-waste approach to motivates sustainable consumption and production (Yu et al., 2021). GoI has been promoting the new concept by introducing waste separation and reduction in the community through the enactment of Government Regulation No. 81 of 2012, defining the importance of domestic waste reduction through reduction, reuse, and recycling (3R). The regulation is essential since the GoI targets to achieve 20% waste reduction by 2019. This target was updated in 2017 to be 30% waste reduction by 2025.

Promoting the 3R can be effective within the community scale since the community has essential roles in waste reduction by controlling waste in their environment, maintaining and improving the implementation of 3R (Abdullahi et al., 2016). They can implement sanitary behavior by maintaining the cleanliness of households and surroundings, then storing the waste in a designated container/bin (Malik et al., 2015), or taking resource recovery actions by managing the solid waste services (Sekito et al., 2013). Still, in many cases, the level of community participation in waste separation and recycling activity is low for

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