Waste Bank in Indonesia: Problem and Opportunities

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Abstract. Waste is an international issue. Waste management is another issue that has not been adequately addressed. According to information from the Indonesian Ministry of Environment and Forestry, 67.8 million tons of garbage were created in Indonesia in 2020. The development of a garbage machine dispenser is the goal of this project. Using a smartphone app, you may access this autonomous garbage can. When people scan barcodes using their mobile applications, it can bring in money. Everyone who scans the barcode will receive credit on their e-wallet because each garbage can dispenser has a scanner. An organized review of the literature combined with descriptive and qualitative data constitutes this research strategy. The analysis's findings indicate that this automated garbage can was documented in the literature. Implemented services and technologies.

Keywords: Waste Bank · Trash · Environment · Technology

1 Introduction

Beyond economical, social, or environmental objectives, the idea of social entrepreneurship has emerged as a new global paradigm. Rather of focusing on generating profits for external shareholders, a social business uses commercial strategies to maximize improvements in both human and environmental well-being. Any activity carried out in the public interest and planned with an entrepreneurial approach is considered a social enterprise, according to the Organization for Economic Cooperation (OECD). Social firms prioritize achieving certain economic and social objectives over maximizing profit. Additionally, SMEs have the ability to develop novel solutions to the issue of social exclusion [1]. SEs are considered successful because they can solve economic disparities and social/environmental problems. SEs also can help to empower marginalized communities by providing affordable access to education, supporting healthcare, and the environment, and helping previously neglected people become useful members. It is important to develop theconcept of SE in Indonesia as a nation that has many social

problems. Many people still live in poverty, and if waste is not properly disposed of, it will eventually lead to health problems, lack of clean water, and other problems that hinder SE's chances of expansion in Indonesia [2].

Waste management is also a problem that has not been handled properly. The rapid changes in urbanization, economic development, and industrialization have increased the volume of waste. Based on data from the Indonesia Ministry of Environment and Forestry, Indonesia produced 67.8 million tons of waste in 2020. Numerous nations have been concentrating on the problem of waste management for many years. The obstacles that developing nations confront when it comes to waste management include things like improper disposal, long-term planning strategies, waste management, urban population increase, incorrect use of technology and equipment, and ignorance of fundamental concepts [3]. Regarding waste management, open dumping and incineration of waste are becoming common practices in Indonesian communities. More than 90% of districts/cities inIndonesia implements these practices. The amount of waste in Indonesia reached 67,8 million tons in 2020 [4]. Data from SIPSPN in 2021 there are 28.6 million ton waste piles. The high amount of waste heap is not balanced with good waste processing. SIPSN shows only 48.87% or about 14 million tons of waste is handled and 35.67% or about 10,2 million tons of waste is left unmanageable.

One alternative solution is to involve communities in reducing waste by effectively establishing waste banks. Households, as producers of waste, can demand payment in exchange for waste placed at contaminated sites. Based on data from the Ministry of Environment and Forestry (KLHK) until 2021, there are 11,556 units of waste banks in Indonesia spread across 363 districts and cities throughout Indonesia. With a total of 419,204 customers, the monthly turnover is approximately IDR 2.8 billion until July 2021. In addition, this waste bank can reduce waste by as much as 2.7% of the total national waste generation [5]. According to the data, there is a great opportunity for social enterprises to develop a new version of the waste bank. With innovation and the use of technology, waste banks can be innovated into an integrated system that is able to solve social problems, especially waste problems. One of the solutions is a device with an ATM-like shape that can manage waste into digital money. This innovation has proven to be a solution to the waste problem. In some countries such as Germany, this technology has already been adopted to manage waste problems. In this study, we want to know what theoretical concepts are relevant to analyze the new waste management in Indonesia, how the regulation can affect waste management, and the opportunity for social enterprises to develop waste banks niche in Indonesia.

Even though several studies have examined waste bank management and its effects on the economy and the environment, there has been little research into the contribution of alternative fuels to the circular economy and sustainable development goals. This study aims to provide recommendations for social enterprises in waste treatment from the perspective of the circular economy and SDGs.

2 Methods

2.1 Sampling Design

The population is a set of subjects, including individuals, institutions, groups, countries and others. The population can be described as the targeted community or group of people involved or selected by the researcher interested in the study. The researcher used the purposive sample strategy to choose areas of this study. Purposive sampling is the systematic selection of samples based on the research demands, for example, the community behavior that leaves garbage anywhere that may cause disease. It denotes that the researcher delivers accurate knowledge about a specific occurrence rather than making statistical assumptions or when the population is small and specialized. This strategy enables the researcher to collect relevant and valuable information by showing generosity to the community and beautifying the area.

2.2 Data Collection Method

The researcher applied an SLR approach to meet this study's research objective. Moreover, this study also gathers data from published publications and unpublished academic materials such as journals, conference proceedings, etc. It can describe as secondary data that is readily available, not initially collected by the researcher and can be used by anyone besides researchers. The researcher used secondary data in a literature review containing published or unpublished sources [6]. The information for the literature view was obtained from a variety of periodicals and relates to social entrepreneurship on environmental challenges for society, from the knowledge and acceptance perspectives of a particular community.

2.3 Article Selection

Search and selecting articles are carried out in several parts; each stage will choose so that only the selected report will be used as a statement to achieve a good project idea [7] (Fig. 1).

After obtaining the articles, it adjusted the article's title and the criteria for disbursement, which only related to social enterprise for the country's clean environment in the future. In order to keep the surroundings clean, instead of trash bins, we need some innovative ideas or changes with the automated trash dispenser to save the environment healthy and clean. This project idea also benefits us with the opportunity to earn money. The criteria are continued with the selection of scientific journals using the SLR approach. The process goes through three stages: literature search, eligible article selection, and data extraction. From here, articles are very selective and converge on a few articles. The selection of the articles is essential because these journals specifically discuss the importance of the environment in community areas toward a clean, green, and resilient world for all [8]
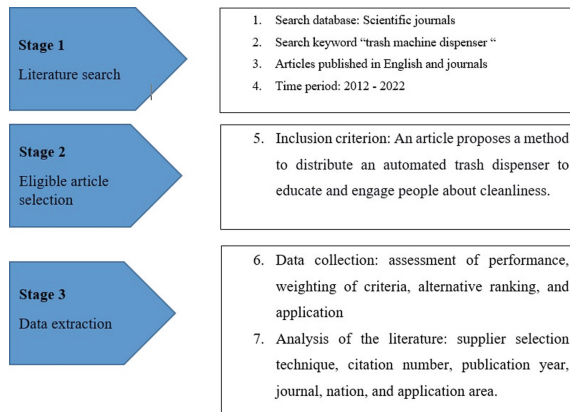
Stage 1
Literature search

1. Search database: Scientific journals
2. Search keyword "trash machine dispenser "
3. Articles published in English and journals
4. Time period: 2012 - 2022

Stage 2
Eligible article selection

5. Inclusion criterion: An article proposes a method to distribute an automated trash dispenser to educate and engage people about cleanliness.

Stage 3
Data extraction

6. Data collection: assessment of performance, weighting of criteria, alternative ranking, and application
7. Analysis of the literature: supplier selection technique, citation number, publication year, journal, nation, and application area.

Fig. 1. The Stage of searching and selecting articles [7]

3   Results and Discussion

Many academics have talked for a long time about the controversy surrounding garbage management. Waste management is often examined through two primary sources. The first stream consists of those who view waste management as mostly being carried out by program implementers. The party in this dispute holds an academic stance that emphasizes the effectiveness of governmental institutions. However, some are more likely to view waste management as being beyond the first party's tradition. In other words, they approach waste management from a perspective distinct from that of governmental institutions. This essay examines waste management by keeping government entities at a distance from it from an academic perspective on the second party.

Academic discussions have traditionally been dominated by researchers who have focused on waste management by pointing out errors in governmental institutions [9]. Particularly developed are views like these in emerging nations like Indonesia. The debate is on whether or not the government's waste management program is inefficient. The government's incapacity is to blame for this. The garbage mounds and local protests serve as visual indicators of the government's failure to address the trash issue. As a result, the public's opinion of how well the government is doing is relatively low. The general population wonders if the government can handle the current waste issue. These phenomena are perpetuated by [10], through a field study that took place in Bangladesh and comprised of observations from 2000 to 2009. The findings of [10] describe the complexities of waste management for developing nations, such as those that affect Indonesia. The important contribution made by [10] is a picture of limited trash management in underdeveloped nations that causes strong reactions from residents who, at their demand, force waste management to alter substantially. Following a protest, it was assessed by the government from the very beginning to the very conclusion. This issue has not yet been addressed in Indonesia in the same way that it was in Bangladesh.

The amount of waste produced in one nation may be significantly less than in others. However, the government does not manage low waste generation adequately. As a result, little amounts of trash gradually build up and cause an issue that has a wide range of

effects. Conversely, developed nations do not necessarily mean they do not generate a significant quantity of trash. The research demonstrates that rich countries generate twice as much garbage as underdeveloped nations. Simply said, developed country waste issues do not have the same severity as those in poor country waste issues. Due to the fact that waste management in industrialized nations uses appropriate technologies. Waste products can be decreased as a consequence. Waste treatment is ongoing in the meanwhile.

The future and direction of waste management will be largely determined by how effectively regulations are implemented. The assistance provided by waste management regulation is responsible for industrialized nations' success in resolving the waste issue. This regulation's existence is crucial because it offers a framework for legal action to address the waste issue. The waste regulation is also a collection of papers that will help with rubbish treatment in the future. The government has made rules on garbage in the context of Indonesia. The rules in place today do not, however, offer a foundation for waste management in the future. There is no long-term plan available. Even if there is, it is now still.

Other academics, however, view the waste issue as a sign of positive news regarding growth and a steady economic progress [11]. The developed world is where this viewpoint is particularly developed. In general, academics think of the waste mountain as a snowball effect of rising public consumption. The rising level of public consumption suggests that people's economic circumstances are also improving. Therefore, indirectly, steady economic conditions are also present when waste output is high. For instance, Davies popularized this viewpoint with his research "Clean and Green? An examination of New Zealand's waste management governance. Davies looked at the conflict between rising economic activity and waste production [12].

Research by Ezeah and Roberts in Nigeria discovered commonalities with Davies' results in addition to those in New Zealand. Environmental observers' criticism of the amount of rubbish that clogged Nigeria's major cities, according to Ezeah and Roberts, should not be overreacted to. Ezeah and Roberts acknowledged the importance of Nigeria's trash issue. However, there is another aspect of the growing amount of garbage that must be considered. In agreement with Davies, Ezeah and Roberts contend that the rise in local economic activity is to blame for the garbage buildup [13]. As a result, consumption levels also have a cascading effect. From this vantage point, Ezeah and Roberts' scholarly viewpoint is more focused on enhancing the ability of the government.

It is clear from the two primary points of view that the new waste management is supported by two important justifications. First off, a country's increased waste is a direct effect of economic expansion and is growing better. The domino effect's influence on human consumption has also improved. As a result, more public consumption might result in more garbage being generated than previously. Second, there is the claim that a nation's level of waste production is not necessarily inversely related to its rate of economic expansion. According to this group, a nation's rubbish mounds might result from the local government's ability or inability to create effective waste management plans.

Discussion The Indonesian government has undertaken a number of measures to limit garbage production. Reducing trash distribution with the garbage bank program is one of

the several solutions used by businesses recently. The government promotes community involvement in trash management through the rubbish bank. The problem with trash in Indonesia, particularly in the major cities, is said to be the result of negligence on the part of the populace. With the garbage bank initiative, it is intended that the community can increase awareness of waste because there is no trash disposal system in place.

Encouragement of people's desire to care about garbage distribution doesn't end there. The government's initiative for a waste bank offers tangible benefits. The community deposits a set quantity of trash into a garbage bank, just like a bank, and is subsequently granted money based on the rubbish's estimated nominal worth. Depending on the waste kind, the cost varies. The pricing range for each risk in bandrol for plastic waste kinds is 500 rupiahs (0.04 US $) per kilogram, but the price range for waste types like paper and cardboard is 300 to 400 rupiahs per kilogram.

4   Conclusion

The use of technology for the environment is a must at the time. It proves that innovations are needed for a better environment in the future. For now, more diseases that we need to prevent or avoid. That's why we need innovation to reduce direct contact with many people. For example; the trash from people who are in quarantine. Developing nations are not always at fault for poor waste management. The ability and support of local governments are key factors in waste management in a nation. The community was made aware of this endeavor. The government promotes community involvement in trash management through the rubbish bank. The people's negligence is the root cause of Indonesia's trash problem, which is particularly severe in large cities. Therefore, it is intended that the community would become more cognizant of trash through the garbage bank initiative.

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