

WASTE BANK MANAGEMENT DURING THE COVID-19 PANDEMIC AT BOGOR RAYA PERMAI HOUSING

Fenny Raharyanti¹, Widhi Ariyo Bimo², Nora Azmia³

^{1*} Program Studi Kesehatan Masyarakat, Fakultas Ilmu Kesehatan, Universitas Ibn Khaldun

^{2,3} Program Studi Keuangan dan Perbankan, Fakultas Ekonomi dan Bisnis, Universitas Ibn Khaldun

^{1*} fenny@uika-bogor.ac.id, ² widhi@uika-bogor.ac.id, ³ nora.azmia@uika-bogor.ac.id

Abstract

Household waste, not only removes it from the view of its inhabitants, but if it is managed better, it will bring benefits. Starting with general sorting based on organic and inorganic types, then it is necessary to practice separating inorganic waste by paying attention to its composition, whether paper, plastic, cans, styrofoam or other types. The waste bank is one solution in the management of inorganic waste. Community Service Activities from the Faculty of Health Sciences and the Faculty of Economics and Business, Ibn Khaldun University, Bogor, provided support to the Baitussalaam Bogor Raya Permai Waste Bank, Curug Village, West Bogor City in November 2021 in the form of socializing the implementation of Waste Bank activities during the COVID pandemic. The method is picking up or visiting people who have difficulty accessing the segregated waste collection site. Human activities will continue to produce waste even during a pandemic, while health protocols must still be observed. In addition, the support of the students in data collection and weighing is very important in the success of this activity. The results of this activity become a learning platform for the importance of sorting household waste which can be converted into rupiah based on weight so that the community can feel the economic and environmental health benefits.

Keywords: Bank, Economy, Pandemic, Health, Waste.

INTRODUCTION

The waste bank is a collective dry waste management system (cooperation) with the principle of recycling that has economic value that involves the community playing an active role in these activities, the community as customers have savings from this activity. The waste bank will sort, accommodate and sell it to collectors or stalls so that people can benefit economically from saving waste.

Garbage Bank is one of the solutions for handling waste in a 3R way, namely, Reduce Reuse and Recycling goods that are considered unusable. If each region already has a waste bank, it is hoped that the problem of waste will be more controlled, it requires cooperation and synergy from all levels of society, bureaucrats as well as officials from the RT, RW, and Regional Government to the Central Government.

Indonesia is one of the largest plastic waste-producing countries in the world, there are approximately 64 million tons of plastic waste per year. This is a huge potential to become a disaster or vice versa, an idea is born to manage it in such a way that it can be valuable. If you

look at other countries that have implemented good waste management, you will also feel the comfort of healthy living and the attraction of foreign tourists to visit and enjoy Indonesia's natural beauty will also increase. It is enough to focus on handling waste, then at any point, it will have the potential to become a pleasant tourist spot. During this pandemic period, people are simple in choosing alternative relaxation, especially in fresh air areas, such as waterfalls, forests, and even grassy fields, which is already a recreation compared to having to visit malls, various game platforms, and other places that have the potential to cause crowds. Why do people choose outdoor activities that are close to nature? Because the assumption of a fresh and clean atmosphere, and enjoying the beauty of nature is the main reason. However, both visitors and residents must have an awareness of maintaining natural authenticity. In other words, good waste management is a shared responsibility to make the nation's image proud. On the one hand, the management or the government facilitates the provision of disposal and 3R techniques, on the other hand, the public is aware to treat waste in the proper place.

Bogor City is one of the cities in the JABODETABEK area in West Java Province with an area of 118.50 km² located 60 km from the capital city of Jakarta. The increasing population growth, accompanied by increasing people's income, a beautiful, strategic atmosphere, not far from the capital, access and many transportation options make several areas in the city of Bogor the most popular choice today as a place to live, one of which is the Bogor Raya Permai Housing.

The number of housing in the city of Bogor creates problems, one of which is waste management, especially inorganic waste, especially plastic which must be resolved by various related parties, ranging from households, RT, RW, housing managers, and environmental services. Waste management is a system related to many parties so that the solution to these problems is carried out comprehensively and must also involve many parties.

The Bogor City Government noted that there were 500 tons of waste per day, the lift experienced a decrease of around 100 tons of waste per day in the city of Bogor during the COVID-19 pandemic and the implementation of Large-Scale Social Restrictions (PSBB) which previously had a volume of 600 tons per day in Bogor City. This is due to reduced activity in shopping centers and restaurants. Although there is a decrease in the volume of waste, there are still problems in its management.

Data from the Bogor City Environmental Service, the dominant waste is household waste (organic) in the form of food scraps, vegetables, and plants as much as 60%, plastic waste (inorganic) as much as 14% in the form of bottles, glasses, straws, plastic bags, rubber, metal, glass, and other debris. [7]

Inorganic waste requires special handling with the 3R method, namely, Reduce (reduce) Reuse (reuse) Recycle (recycle) the waste, but so far people have not used it much.

During the COVID-19 pandemic, most activities are carried out at home, it doesn't mean we ignore environmental hygiene issues, in fact, with more time to stay at home, we can pay more attention to the surrounding conditions, which may be in the pre-pandemic period we didn't care about the existence of people around us. effective items used at home. Currently, many people are decluttering, which is sorting back items that are unfortunately discarded, but are not used, especially shortly ^[1]. As a result, some are donated to those in need, sold to scavengers, and thrown in the trash. Waste deposited by customers is waste that has been separated into categories of paper, glass, metal, and plastic, each category of waste

has a different price, by sorting waste will create a new culture in the community, if people do the sorting from the start, there is a huge potential to be used as economic goods. The economic value of inorganic waste as an example of the lack of plastic bottles of mineral water is Rp. 2,000 per kg while clean plastic water bottles are worth Rp. 3,000 per kg

In general, inorganic waste will end up in landfills.^[2] Waste production will continue to increase as long as human life activities run. If one household in a day produces a minimum of 1 kg of waste per day and is multiplied by at least 50 houses in one neighborhood (RT), then multiplied by the number of neighborhood units in one neighborhood, for example, 5 RT, that's enough. 250 kg of waste per day. Meanwhile, the ability to degrade or decompose inorganic waste varies depending on the type, some even up to 500 years such as styrofoam. Ordinary plastic bags take ten to 12 years to decompose. Plastic bottles take much longer. Because the polymer is more complex and thicker, plastic bottles can take 20 years to disintegrate.^{[3], [6]}

If the public is aware of the dangers of hoarding inorganic waste that is difficult to decompose, of course, they will be more careful in the selection or treatment of these materials. For example, a food vendor initially uses styrofoam packaging to wrap his food, then he thinks again to switch to other materials, even though styrofoam is much more practical and cheaper than food-grade packaging.^[4]

The waste bank is not only a very valuable tool in reducing waste and increasing residents' economic activity but also a learning platform for students and students in terms of environmental management and preservation, fostering a sense of love and responsibility for cleanliness, as well as for experts as a development project. science and technology in waste management, including supporting the creative economy to utilize or produce marketable products with raw materials from segregated waste. Also supported by the spiritual spirit in terms of religion which obliges the ummah to do good and maintain cleanliness as part of the faith, then the spirit of cooperation to realize the Waste Bank is even more instrumental in its existence will become a necessity in the future.^[5] Even so, the socialization of this program has not been spread evenly even in one housing area, as has been carried out in a preliminary study on a survey of social and economic factor analysis in the Bogor Raya Permai neighborhood, Bogor City. From the results of random sampling with the distribution of online questionnaires, it was recorded that 37 residents were willing to fill it out. The average amount of waste produced by residents every day is 1-3 kg as much as 65.9% of the largest expenditure in the form of food (50%). The largest type of waste produced is organic waste, which is 68.2%, but that does not mean we ignore inorganic waste management. Even if organic waste is not managed properly, it will disturb the environment as well. Regarding the reasons why residents do not become customers of the Waste Bank, as many as 66% know about the existence of the waste bank, but not all of them become customers of the waste bank, with reasons including not having time to sort out (53%), far from the collection point (5.9%), put together with other waste (17.6%), the waste is taken care of by the household assistant (11.8%), the waste produced is not much so that it is directly transported by the garbage truck (5.9 %) and lack of socialization (5.9%). Some suggestions that came from residents' aspirations include continuing socialization, opening a drive-through system, being active again after the pandemic with health protocols, making garden waste, and hoping that this

housing will become a healthy environment and can help the local people's economy. There are even residents who directly deposit it to Basiba Bogor personally.

In the period before the COVID-19 pandemic, this Garbage Bank in the Bogor Raya Permai neighborhood, which is located in the backyard of the Baitussalaam Mosque, collaborated with Basiba Bogor City in the collection. During the COVID-19 pandemic, these activities have been suspended indefinitely. On the other hand, residents who have become customers of the waste bank experience a buildup in their homes, resulting in a new problem, namely being cramped because the proper inorganic waste, which is usually handed over to the waste bank, is delayed. Although this activity will be active again, not all residents are aware of the existence of this waste management method, which means that there is a need for more promotive and educative socialization to residents as well as providing solutions by way of officers who come to residents to facilitate the collection of segregated waste.

Partner Problems

As long as humans are actively using consumptive goods, the production of waste cannot be delayed. For residents who are accustomed to immediately throwing all types of waste in one place and transported by the cleaning service, then the problem has been solved. But ideally, it is not like that, because some types of inorganic waste are difficult to decompose. If residents are moved to sort it from the start, it can be handed over to collectors who can reuse, recycle and reduce the existence of the waste. Waste Bank activities in collaboration with Basiba Bogor City are temporarily disabled until this pandemic period is considered safe, while the amount of waste will continue to grow every day.

Not all residents have participated as Waste Bank customers, therefore socialization and education on the existence of Waste Banks need to be echoed again, and together build the habit of sorting waste. The potential in this housing estate is very good if you look at the educational background and work status that is quite good, namely the majority of diplomas and above, namely 22.7% diploma, 56.8% undergraduate degree, 11.4% master's degree, 4.5% doctoral degree; and work as educators as much as 25%, only this activity does require commitment, consistency, and sustainability. The economic benefits of this housing are not significant, but this learning is very important, especially for students who are invited to participate because by inviting them to participate in sorting, collecting, and depositing, they are weighed and recorded, and ultimately converted to rupiah values, this is an activity to look forward to, because the students feel the efforts of their own, and feel the results are also something to be proud of.

METHOD

The problem-solving methods offered are as follows:

- a. Conduct socialization and education regarding the importance of sorting inorganic waste by type. In this case, the materials that need to be prepared and delivered are:
 - Definition of Garbage
 - Garbage Type Recognition
 - Impact of Waste Management
 - Behavior Change Theory
 - Garbage Revolution into Blessing

- Economic Potential of Inorganic Waste Management
 - Potential Formation of Waste Bank Cooperative
- b. Carry out waste sorting movements, by providing their unused containers at home for initial placement. In this case, the community is invited to start new habits from home, sorting waste by type and placing it in separate containers or bags.
 - c. Carry out a movement to pick up the ball for sorting waste that has been carried out by residents
For people who have been registered as Waste Bank customers, they will be facilitated to be taken to their respective homes or collected at one point in a small cluster with a schedule determined by the team, which is once every two weeks every month.
 - d. Weigh, and record the results of garbage collection
Weighing is carried out accurately on a digital hanging scale, then the weight is recorded and will be converted into rupiah values based on the type
 - e. Handing over to collectors
This action is an alternative for the team, whether it will be handed over in whole or in part to Basiba or managed by students for waste engineering
 - f. Disbursement of funds
Disbursement of funds is carried out according to the schedule

Activity Implementation

Type of Activity

This activity is a Community Service in collaboration with Baitussalaam Garbage Bank partners, Bogor Raya Permai Housing, Bogor, conducting household waste sorting activities that can be recycled for various useful things.

Activity Location

This activity is located at the Bogor Raya Permai Housing, Curug Village, West Bogor.

Activity time

This activity takes place on November 23, 2021.

Activity Stage

1. Consolidation between universities and partners in finalizing the implementation of activities with various agreements on activities carried out along with descriptions of their duties
2. Make an activity flyer and distribute it one month before the implementation of the activity, so that the community prepares their household waste
3. Collecting data on people who are interested in picking up the ball in the collection of segregated waste
4. Weighing and recording of sorted waste on the day of the activity, also sorting and sorting back for people who deposit but have not separated waste by type.
5. Students participate in the practice of taking, weighing, and recording sorted waste

RESULTS AND DISCUSSION

Results

The following is an activity flyer to inform you that Garbage Bank activities during the COVID-19 pandemic are re-opening:



Figure 1. Baitussalaam Waste Bank Activity Flyer

This flyer was distributed through the Bogor Raya Permai Residential WhatsApp group. This flyer is very helpful in conveying information regarding the re-activation of Waste Bank activities which before the pandemic period had been running routinely.

Some of the stages of the activity can be seen in the pictures below:



Figure 2. One of the customers who deliver sorted waste

Even though the organizers open a pick-up service for sorted waste collection, most of the customers prefer to deliver it themselves. This is due to the relatively close accessibility between residents' houses and the collection location. There is only one resident who uses this ball pick-up facility because there is no transportation and there is quite a lot of sorted waste, as well as family conditions that do not allow him to leave the house.

Below is the process of weighing waste from customers:



Figure 3. Weighing Process

This weighing is based on the total amount of waste brought by the customer. If the customer has submitted it in the categorization of types of waste, then the weighing can be

detailed. However, if the customer brings it still in a mixed condition, then the overall weight of the garbage is weighed, and then the partner will separate it by type, as shown below:



Figure 4. Waste sorting by type

By segregating waste based on this type, it will be easier to calculate and also reuse it. In addition, it is also ensured that the condition of waste is still clean.

The next step is to record manually and input data into the Excel program:



Figure 5. Recording of Collected Garbage

This stage is very important because later it will be converted into nominal. This recording is recorded in a savings book like a bank customer. The more customers collect waste, the more value that can be exchanged into rupiah.

After the specified time limit, i.e. residents are given the opportunity for 3 hours to deposit it to collectors, then the sorted waste is ready to be brought to the Bogor City Environmental Service through Basiba, namely the Apparatus-Based Main Garbage Bank.



Figure 6. Transportation of Segregated Waste by the Basiba Team

Basiba not only transports segregated waste from only one waste bank. The Basiba transportation schedule has been previously agreed upon by the branch waste bank, so this activity requires a high commitment between customers, partners, and Basiba, to avoid scheduling errors resulting in the accumulation of sorted waste at the collector's place. The success of this program was realized thanks to good cooperation between residents and the organizers of the waste bank.



Figure 7. Baitussalaam Waste Bank Success Team

Baitussalaam Waste Bank has been running for the last three years. During the pandemic, activities are temporarily suspended.

Discussion

Changes in behavior affect waste sorting activities, starting with the desire and getting used to managing household waste by knowing the types. The principle of this behavior change is the presence of factors: 1). predisposition, which includes knowledge, attitudes, beliefs, values, and perceptions, regarding the motivation of a person or group to act; 2). Enabling, which includes the various skills and resources necessary to perform a particular behavior; 3). Reinforcing, i.e. whether the action is supported or not. [9]. This predisposing factor can be fulfilled through socialization and education activities regarding waste, types of waste, and negative impacts if not managed properly, providing a real picture of cases that have occurred, such as showing videos or photos of the condition of landfills, so that the achievement is that the community will move to do to improve old habits into new habits, although it takes time and process. Enabling factors can be met through training in sorting waste, then practiced in daily life. The reinforcing factor can be met from the core of the implementation of this activity, namely the method of picking up sorted balls of waste, which can then be distributed either handed over to Basiba or waste engineering by the community and students.

The use of these used goods is one of the developments in creating economic principles, including efficient use of resources, and the creation of a creative economy, with one of them engineering waste into forms such as souvenirs, decorative lights, recycled books, and many more that can be promoted and traded or can be sold. be used as the next finding in the waste to be rupiah program which is a blessing.

In further developments, the existence of this waste bank can initiate the formation of a waste bank cooperative, which is to market various products made from 3R materials.

CONCLUSIONS AND SUGGESTIONS

The implementation of the Baitussalaam Garbage Bank during the COVID-19 Pandemic is still limited, although the organizers facilitate a ball pick-up system. The results of this activity become a learning platform for the importance of sorting household waste which can be converted into rupiah based on weight so that the community can feel the economic and environmental health benefits.

Thank-you note

Our gratitude goes to the team that drives the Baitussalaam Garbage Bank for Raya Permai Housing Bogor, the Head of the Faculty of Health Sciences and the Faculty of Economics and Business, Ibn Khaldun University, Bogor, and in particular to the Institute for Research and Community Service, Ibn Khaldun University, Bogor.

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