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Garbage Bank as an Alternative Strategy for Waste Management in Bumi Asri Housing

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ABSTRACT

Background. The paradigm shift of society regarding waste needs to be done sustainably. Education of awareness and skills of citizens for waste management by implementing the principles of reduce, reuse and recycle (3R) is important in solving waste problems through waste management from the source.

Purpose. The paradigm shift of society regarding waste needs to be done sustainably.

Method. The method used by researchers in this study is the field research method with a descriptive approach where researchers go directly to the field and see phenomena and analyze and obtain a detailed and objective picture to obtain accurate data using the Participatory Action Research (ADR) method.

Results. The results of this study explain that the waste bank teaches the community to sort waste, raises public awareness to process waste wisely in order to reduce waste transported to the landfill.

Conclusion. Waste banks can make residents create and shape the character of residents to be better. This can be seen from the character of residents who have knowledge in managing the environment to make it beautiful.

KEYWORDS

Gerbage Bank, Alternative Strategy, Bumi Asri Housing

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INTRODUCTION

Population growth and changes in consumption patterns have led to an increase in the volume, type, and characteristics of waste. However, current waste management is still not in accordance with environmentally friendly methods, thus having a negative impact on public health and the environment (Abd-Elsabour & Gamal-AbdelNaser, 2025; Ahmed et al., 2025; Dierkes et al., 2025; Warasna et al., 2025; Zumak et al., 2025). The habit of littering and low public awareness in maintaining cleanliness are the main factors in environmental pollution. In addition, limited space and ineffective waste management methods create a breeding ground for dangerous organisms, as well as a hotbed for the spread of viruses that disrupt daily activities and trigger diseases through mosquitoes and flies (Karst et al., 2025; Olajide et al., 2025; Russell et al., 2025; Xing et al., 2025). Optimal waste management requires adequate facilities and infrastructure, including appropriate waste bins, transportation, final disposal, and good waste management and processing. Several factors that can influence or hinder waste management include population density and distribution, socio-economic characteristics and the physical environment, to the attitudes, behaviors, and culture of the local community. According to Jambeck, as quoted by Purwaningrum, Indonesia is in second place after China as the country with the largest plastic waste production in the world. Waste generated from human activities consists of 60-70% organic waste and 30-40% non-organic waste. Among non-organic waste, around 14% is plastic waste, making it the second largest type of waste.

Kutabumi is one of the sub-districts in the Pasar Kemis district, Tangerang Regency. Which has an area of 27.8 KM2, with a population of 36,000 with 23 RW. In RW 18 they have actively held a waste bank to help manage waste in their environment.

This causes people who live there to choose to collect their waste at the waste bank to help protect the environment and they get money from the waste bank (Alassuli, 2025; Najia et al., 2025). However, the problem there is that the system is still messy in terms of administration and people who still use manual data entry. So that its management needs to be carried out comprehensively in order to provide benefits both economically, health, and environmental safety, and can change people's lifestyles, especially those related to waste management (Selomo, 2016:233).

Law Number 18 of 2008 concerning Waste Management emphasizes the importance of changing waste management methods from conventional methods to approaches that focus on waste reduction and handling. Waste management includes a series of activities carried out from the generation of waste to the final disposal stage (Bader et al., 2025; Doshmangir et al., 2025; McFadden et al., 2025; Mukhopadhyay et al., 2025). In general, the waste management process includes controlling the amount of waste, collection, transportation, processing, to final disposal (Sejati, 2004). To overcome the problems there, group 18 took the initiative to help calculate the administration and help socialize the community to re-sort the waste given according to the specified waste category.

Waste Categories

Plastic

Duplex, gallon, clean bottles, dirty bottles, AQUA bottles, aqua bottle caps, and gallon bottle caps.

Paper

Cement *bags, cardboard, HVS, and books.*

Metal Aluminum

Brass, copper, light steel, cans, iron, and nails.

Other Categories

Scrap, cassettes, washing machines, refrigerators, 14 inch TVs, 21 inch TVs, LCD TVs, rice cookers, gas stoves, batteries, dynamos, bicycles, glass bottles, oil, tires, used clothes and used shoes.

With this socialization, the community will be better able to manage the types of waste that exist so that it will help waste bank organizers easily submit waste data to collectors and make the income given from the waste bank to the community greater. Let's change the stigma of society towards waste that starts from waste that is disgusting, dirty and no longer useful (Mulasari, 2012). Being trash is useful and can make money by simply categorizing trash and giving it to the trash bank. Even better if you can process the trash into interesting objects such as bags made of plastic, pots made of gallons and so on. Every community activity must produce trash. Therefore, the responsibility for waste management is not only borne by the government, but also involves the entire community. Active participation of the community in waste processing and handling is very important to prevent negative impacts on the surrounding environment (Hardiatmi, 2011).

RESEARCH METHODOLOGY

RW 18 Bumi Asri is a housing complex in Pasar Kemis, Tangerang Regency, Banten Province with a population of 15.60 people. In this research conducted by students of the Ahmad Dahlan Institute of Technology and Business (ITB AD) Regular Community Service Program, field research or field research with a descriptive approach where researchers go directly to the field and see phenomena and analyze and obtain detailed and objective descriptions to obtain accurate data using the Participatory Action Research (ADR) method. Participatory Action Research is a research method that is carried out or taken in accordance with the specifications of the rules and principles, namely involving the aspirations of community participation. The approach taken in this method is problem solving and the participation of the community or related parties, because it is considered the most relevant to community empowerment efforts (Muhtarom, 2018).

This research was conducted in Bumi Asri Housing, Kutabumi Village, Banten Province. The subjects of the study were students of the Regular KKN of the Ahmad Dahlan Institute of Technology and Business (ITB AD) Kutabumi who were combined from two batches in the odd semester of 2024. The object of the study was the solution to waste management in Bumi Asri Housing and the data sources in this study were the village head, RW head and RT head and residents in the village. The technique of collecting information or data was carried out using interview techniques and literature studies were used to obtain a theoretical basis that became a reference or basis for research. Activities (Al-Habashneh et al., 2025; Aldirawi et al., 2025; Shekar, 2025). The steps taken are as follows: a) identifying problems, especially the problem of waste being dumped in random places by making observations.

Meanwhile, the problem found from the results of observations and field research was that there was no main waste disposal site in Bumi Asri Housing. This resulted in the Bumi Asri Housing community choosing to make private waste disposal sites around their homes (Hamshari et al., 2025). In addition, there are also some people who choose to throw garbage in rivers, in gutters and on the side of the road. If this continues, it will result in environmental pollution and damage to the ecosystem in Bumi Asri Housing; b) Focus Group Discussion, holding discussions with the village government and the surrounding community to solve the problem; c) preparation stage of program actions, actions carried out by group 18 of ITBAD Kutabumi Regular KKN, namely making a permanent trash can in Bumi Asri Housing which will later become the Main Waste

Disposal Site (TPSU); d) program implementation, the implementation of the waste management program carried out by group 18 of ITBAD Kutabumi Regular KKN, namely working together with the surrounding community to build a large trash can which is expected to be a place to collect village waste so that it is not scattered in residential areas. This KKN program will be carried out for approximately 2 and a half months starting from August 28, 2024 to November 11, 2024. There are various kinds of community service activities carried out, one of which is helping to overcome the waste problem in Bumi Asri Housing. By implementing these program activities, it is hoped that the waste problem in the housing can be overcome.

RESULT AND DISCUSSION

Littering and low public awareness in maintaining cleanliness are the main causes of environmental pollution. Inadequate space and ineffective waste management methods become the main nest for harmful organisms to breed and become a place for the spread of dangerous viruses that can disrupt daily activities and cause mosquitoes and flies that can cause disease. Good and proper waste management certainly involves facilities and infrastructure and the use of legal trash bins, waste transportation, waste transportation, final disposal, management and final processing. Several factors that are considered to be able to influence and hinder the waste processing process are population distribution and population density, socio-economic and physical characteristics of the environment, attitudes, behavior and culture of the local community.

A waste bank is a concept developed by the Ministry of Environment which means it is a waste storage place that can accommodate large amounts of waste with the aim of helping to handle waste problems and making people aware of a healthy, neat and clean environment.

Waste banks teach people to sort waste, raise public awareness to process waste wisely in order to reduce waste transported to the landfill. In addition, residents who hand over waste will receive additional income for economic independence of residents that can be used for savings and loan businesses such as cooperatives, with low interest so that waste bank finances can be rotated and developed, as well as realizing environmental health. Guidance for female residents has shown the ability of female residents to mobilize their communities to play an active role in managing waste in their environment while simultaneously carrying out social control in their communities. The formation of a waste bank that is integrated with education about the 3R principle becomes basic knowledge for residents to manage waste from its source, namely household waste. Empowering residents to form knowledge and skills of residents so that they are able to sort organic and non-organic waste. The benefits of residents' ability to manage waste by applying the 3R principle and saving to a waste bank have provided direct benefits, not only economically, but also the realization of environmental health, with clean, green, comfortable, and healthy community conditions.

In implementing citizen education with the development of waste banks, intensive coordination must continue to be carried out with PKK administrators in every activity that will be carried out so that citizen empowerment is maximized.

In addition to efforts to maximize the abilities and skills of residents, efforts to monitor the development of waste prices in the market must also be carried out continuously. This is very fundamental for the sustainability of waste banks, so coordination and cooperation with collectors, both large and small collectors around Kutabumi Village, must continue to be fostered. Thus, it is important to foster partnerships with plastic waste processing factories located near Kutabumi Village. Plastic waste from waste banks, one of which is the type of black plastic bags that are not sold, will be processed at the factory. The factory becomes the main consumer partner of plastic

waste from waste banks for types of waste that are not accepted by collectors because of their low selling value.

Education for residents can change residents' habits in managing waste. The presence of waste banks is one alternative in overcoming the problem of waste in urban areas which is currently still experiencing complex problems in its implementation, because it is not yet integrated and is still local.

According to the Regulation of the Ministry of Environment 13/2012 concerning Guidelines for Reduce, Reuse, and Recycle Through Waste Banks, the definition of a waste bank is a place to sort and collect waste that can be recycled and/or reused that has economic value. Waste banks are innovative community activities that teach people to sort their waste and make them aware of wise waste management. This will contribute to reducing the volume of waste. The main principle of developing waste banks involves and empowers the community (Akutsu et al., 2025; Cepni et al., 2025). The volume of waste that can be processed at the Bumi Asri Housing waste bank varies in each waste bank. The waste is sorted according to the type of waste, which consists of plastic waste, paper waste, metal waste and glass waste. The development of waste banks as a solution to the waste problem begins with community concern for environmental degradation.

According to Damanhuri and Padmi (2010) the factor that influences the size of the inorganic waste component is the frequency of collection. The more often an inorganic waste component is collected, the greater the inorganic waste component produced, because inorganic waste tends to be difficult to degrade and does not rot like organic waste.

According to Juliandono (2013) several obstacles in the implementation that are factors in the less successful waste bank program in contributing to waste management include;

Low role of customers in sorting waste at the source

Lack of waste bank managers to utilize the economic value of waste deposited as raw materials for entrepreneurship

Low price competitiveness of waste banks with waste collectors

Transportation constraints in waste management at waste banks.

The waste bank in Bumi Asri Housing has a target in its efforts to manage waste with 3R, namely (1) processing inorganic waste into craft items, (2) the results of waste sorting by customers and managers can be distributed to recycling factories through collectors, (3) the results of waste sales to factories can be used by customers and operational activities by the waste bank.

Figure 1.
Opening of Mutual Cooperation in Carrying Out a Waste Bank

Figure 2.
Mutual Cooperation Process in Making a Waste Bank

The waste bank processing mechanism is as follows Waste bank managers conduct outreach to educate the public about the types of waste that can be deposited into waste banks. This first stage is important so that the public understands the types of waste, especially waste that can be recycled.The public begins to collect and sort waste based on its type. Organic waste can be disposed of directly or processed into compost independently. Meanwhile, inorganic waste in the form of plastic, paper, metal, and glass must also be separated to facilitate the processing process. Each type of waste must be neatly packaged before being deposited into the waste bank.The waste bank managers will weigh and record the amount of waste brought by the public. Every person who has become a waste bank customer will be given a savings book as proof of the accumulation of waste that has been collected. Savings balances that have reached a certain nominal can be disbursed according to the needs of each customer.Waste that has been deposited will be regrouped based on its type before being distributed to those in need. Usually, the waste bank cooperates with Micro, Small and Medium Enterprises (MSMEs) engaged in recycling or corporate companies that process waste into packaging or other types of products. In addition to support from the

Government, the role of waste bank managers is also very significant in efforts to develop waste banks in a better direction.

This is realized by the increasing number of activities in the waste bank program, including training activities for recycling inorganic waste, especially plastic, into crafts, and the provision of educational socialization about waste management which is held routinely in the waste bank environment. These activities are open to the public with the aim of increasing public awareness in environmental management efforts, especially household waste management.

The waste bank program, seen from the aspect of environmental cleanliness in the settlement, shows a positive impact. Waste management with the waste bank program is one alternative to solve the waste problem and participate in preserving the environment so that it will provide a positive contribution to the environment (Al-Huqail et al., 2025; Kityo et al., 2025; Kobald et al., 2025; Namuunaa et al., 2025). This is in line with Muntazah (2015), in a study at the Mangrove Surabaya waste bank which explained that the waste bank program has provided a program that is beneficial to the community, including making people care about the environment, especially in terms of waste management. After the waste bank, the community feels a cleaner and more comfortable environment. This is because there are no more piles of garbage around their homes. Before there was a waste bank, the waste generated from household activities was only piled up and collected in a temporary landfill and waited to be collected by waste management officers. This situation often causes an unpleasant odor in their residential environment. In addition, before there was a waste bank, to destroy waste, some residents burned waste which caused air pollution.

CONCLUSION

The presence of waste banks has encouraged capacity building for residents by striving to create independence and self-reliance for residents through the formation of awareness, knowledge, and abilities that encourage participation in managing the environment in their communities.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - Review and Editing.
Author 2: Conceptualization; Data curation.
Author 3: In-vestigation.
Author 4: Data curation; Investigation.
Author 5: Formal analysis; Methodology.
Author 6: Writing - original draft.
Author 7: Supervision; Validation.
Author 6: Other contribution; Resources.
Author 8: Visuali-zation.
Author 9: Writing - original draft.

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