

## The Effectiveness of the Citizen Waste Bank (BASWARA) in Managing Household Waste in the Village Gulang, Mejobo, Kudus

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### KEYWORDS

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### ABSTRACT

**Background:** Waste is a complex problem in Indonesia, with national production reaching 67.8 million tons in 2020 and 38.33% unmanaged. The negative impacts include environmental, health, and economic damage. The waste bank program increases public awareness about recycling and the economic value of waste, as well as encourages active participation. Although much research has been conducted, further exploration is still needed to understand the challenges of waste bank management. The purpose of this study is to analyze the effectiveness of the Citizen Waste Bank (BASWARA) management in increasing its impact on the environment, community, and local economy. The results of the analysis are expected to provide more comprehensive benefits for the environment and society in waste management.

**Method:** This study uses a qualitative descriptive approach. Data was collected through observations, interviews with the Secretary of BUMDes, and waste management documentation. Data sources include primary data from interviews and observations and secondary data from documentation and annual reports of BUMDes. This method provides an understanding of waste sorting and management by the community.

**Result:** The BASWARA program educates the people of Gulang Village about waste management, increasing awareness and active participation in sorting waste. The community gets a reward from the proceeds of the sale of garbage, which strengthens solidarity between residents. With good management, BASWARA contributes to environmental cleanliness and community welfare.

**Conclusion:** Based on the analysis of the effectiveness of the BASWARA program in Gulang Village, it can be concluded that there is an increase in public awareness about waste management and providing economic incentives through the savings system. The active participation of residents reduces the volume of waste in the landfill and strengthens solidarity between residents. Cooperation between local governments and communities is essential for the program's sustainability. It is hoped that BASWARA will continue positively impacting the environment and society. This study explores the effectiveness of BASWARA in managing household waste in Gulang Village, Mejobo, Kudus. Against the background of complex waste problems in Indonesia, this study aims to analyze the impact of BASWARA on community solidarity and environmental welfare. Qualitative descriptive methods are used to collect data through observation and interviews. The results show that BASWARA has succeeded in increasing public awareness and active participation in waste management and providing economic incentives through the savings system. This program contributes to environmental cleanliness and strengthens solidarity between residents.

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## **INTRODUCTION**

Waste is a complex and urgent problem experienced by Indonesia. In 2020, the Ministry of Environment and Forestry (MoEF) reported that 2020 the total national waste production reached 67.8 million tons or around 185,753 tons per day from 270 million people. Each resident produces about 0.68 kilograms of waste per day. This figure increased compared to 2018 when waste production reached 64 million tons from 267 million people [1]. The National Waste Management Information System (2) reported that there are still 14.6 million tons, or around 38.33% of waste that cannot be managed. Waste has impacted various aspects such as the environment, health and economy. Plastic waste has polluted freshwater and terrestrial habitats (3) produced toxic substances, infectious diseases (4) and high waste management financing (5) A comprehensive handling and approach are needed to tackle waste, not only centred on the government, but waste management must be a community-based social activity such as the waste bank program.

The Waste Bank is a program that seeks to increase public awareness of the importance of waste recycling so that it not only focuses on reducing waste but also provides economic value to waste. In addition, this program encourages community participation. Many studies have explored waste banks, including the role, management, and development of waste bank programs. Waste banks play a role in waste management and community economic empowerment (6–8) In its management, waste banks use many banking systems where people deposit waste, and the results are recorded in savings (9,10) Due to its significant impact, waste banks have begun to be developed in terms of management waste processing to information systems that optimize management (9,11,12) Although much research on waste banks has been carried out, exploration through case studies is still necessary to see the conditions, challenges, and even the management of each waste bank, which is different. This diversity will later provide helpful information to deal with similar problems.

Waste management in Indonesia is a serious challenge, with data showing that in 2020, around 38.33% of the total national waste production has not been adequately managed. In this context, the Citizen Waste Bank (BASWARA) program in Gulang Village emerged as an innovative solution that not only focuses on reducing the volume of waste but also increases public awareness of the importance of recycling and the economic value of waste. BASWARA stands out from other waste bank initiatives because of its approach that combines intensive education with economic incentives, encouraging active community participation in waste management. Thus, this program not only contributes to environmental cleanliness but also strengthens solidarity between citizens and positively impacts the overall welfare of the environment.

This study aims to analysed the effectiveness of managing a waste bank called the Citizen Waste Bank or BASWARA. The results of this analysis are expected to improve the effectiveness of management so that it can strengthen its impact on the environment, society and local economy.

## **METHOD**

This type of research uses a qualitative descriptive approach to understand waste management by BASWARA in Gulang Village. Data collection techniques include observation, interviews with the Secretary of BUMDes, and documentation of waste management activities. Primary data is obtained from interviews and direct observations, while secondary data comes from documentation and annual reports of BUMDes. This approach was chosen because it captured important social nuances in community interactions related to waste management, compared to quantitative methodologies that are less in-depth. The interview was conducted with open-ended questions to explore experiences and views on the effectiveness of BASWARA and the challenges faced. Direct observation provides rich data on the community's waste-sorting practices. Secondary data supports analysis with a broader context through literature studies. This explanation clarifies the methods used and improves the reliability of the research results.

## **RESULTS**

The BASWARA program provides detailed education to the people of Gulang Village about the importance of waste management. The community is taught how to sort waste into organic and non-organic categories through socialisation and training. This education covers the technical aspects of sorting and explains the economic benefits that can be obtained from waste management. The community becomes more prepared to participate in this program with a better understanding. One of the main impacts of the BASWARA program is increasing public awareness of the waste problem. Previously, many residents tended to throw garbage carelessly without sorting it. However, after

participating in this program, they began to realize the importance of maintaining environmental cleanliness and the positive impact of sorting waste. This awareness is reflected in their daily behaviour, where people are now more active in managing waste in their respective environments. This program encourages active community participation in waste management. The community feels motivated to collect and deposit waste into the waste bank because there is a reward from the proceeds of waste sales. The community not only plays a role as a collector but also as a customer who has an account at BASWARA to find out the balance of the proceeds from the sale of their waste. The support from the village government in providing facilities and sorting places further strengthens this participation to create a sense of togetherness and solidarity between residents in maintaining the cleanliness of the environment.

The increase in community participation now includes more than 50% of residents in Gulang Village who have joined the BASWARA program, a type of waste obtained such as used cooking oil, plastic bottles, and paper with an income of hundreds of thousands of rupiah per month for several residents active in waste management in this program.

The waste management process carried out by the BASWARA program has three stages: input, process, and output. At this input stage, the BASWARA program is carried out preliminarily to determine the conditions of waste management activities to be used the types of waste that the community has sorted in the form of cooking oil waste and non-organic waste. At this stage, BASWARA will carry out the following waste management process: the collection of waste by BUMDes officers who have been taken from the community. Waste sorting based on types of waste consists of used cooking oil, PET bottles, cardboard, and plastic, while PET bottle-type waste will be chopped first before being sold to collectors. Output is carried out to determine the success rate of an activity that has been carried out. After the process stage in waste management, the waste that has been sorted and shredded will be ready to be sold to large collectors. Then, the sale proceeds will go into the cash income of BUMDes and the community.

**Table 1.** Stages of the flow of waste management activities

Steps	Description
Input	- The waste that has been sorted by the community (used cooking oil and non-organic waste)
Process	- Waste collection is carried out by BUMDes officers - Waste sorting is based on the type of waste (used cooking oil, PET bottles, cardboard, and plastic) - The process of shredding PET bottles
Output	- Waste ready for sale - Income (village fund/BUMDes and the community)

The community management process in the BASWARA program involves several essential steps. After BUMDes officers collect waste from villagers, the collection results are weighed, and the price is determined based on the type of waste. Organic waste of used cooking oil and non-organic types such as paper, plastic, and PET bottles are recycled and sold to large collectors. The sale proceeds are then put into BASWARA savings for each resident who participates in collecting it. Residents who want to save will be given a savings book, which will be their record in BASWARA. These savings records allow residents to view their balances and monitor the progress of economic incentives obtained from waste management. Meanwhile, residents who do not want to save will receive cash directly from the sale of waste. This process ensures the distribution of economic incentives to the community participating in the BASWARA program so that everyone gets what they deserve.

The BASWARA program contributes significantly to environmental welfare in Gulang Village. By reducing the amount of waste thrown into the landfill, the quality of the village environment will be improved. People are now more aware of the importance of maintaining the environment's cleanliness and health. Waste management activities positively impact the BASWARA program, which can help reduce air pollution and create environmental sustainability in cleaner villages. In addition, the waste recycling process also helps save natural resources to maintain

cleanliness and preserve nature. Therefore, the BASWARA program has shown great potential in improving the quality of the environment in Gulang Village.

Meanwhile, positive social impacts arise from increasing solidarity between residents in maintaining environmental cleanliness. Overall, this program creates a clean and healthy environment and strengthens the sense of community togetherness. Thus, the BASWARA program has improved the quality of the environment by reducing waste in landfills, increasing public awareness, and strengthening community solidarity, thereby creating a clean, healthy, and shared environment.

Summary data is now based on the volume of waste in reducing waste disposed of in landfills by 30%. With an increase in solidarity between residents in waste management, it will be able to maintain environmental cleanliness.

## **DISCUSSION**

### **Community Participation in Waste Management**

The community in Gulang Village plays an active role in Baswara activities due to the strengthening of education strategies for the community related to the Baswara program. Understanding the potential of waste has changed the community's mindset, from previously considering waste as a burden to resources with economic value. This is in line with research that emphasizes that community involvement in environmental management dramatically influences the success of environmental programs (13). In addition, it shows that active participation in sorting and recycling waste can improve the effectiveness of overall waste management (14). The awareness and active participation of the community are not only in line with the results of previous research but also show great potential in creating a cleaner and healthier environment through sustainable waste management.

### **BASWARA Waste Bank Management**

BASWARA waste bank management is carried out through the input, process, and output stages. The community collects and sorts cooking oil and non-organic waste at the input stage. Furthermore, BUMDes officers collect and process the waste to be sold to large collectors. The sale proceeds are then put into the cash of BUMDes and community revenue. This process facilitates the management of organic and non-organic waste sales and provides economic incentives for residents. Waste separation at the source is essential to reduce pollution and increase the economic value of managed waste (15). Community involvement in waste management reduces the volume of waste thrown into landfills and can strengthen residents' ownership and social responsibility (16) (17). A straightforward approach in BASWARA management not only provides economic benefits to the community but also contributes to the success of the waste management program in Gulang Village.

### **BASWARA's Contribution to Environmental Welfare**

The BASWARA program shows the results of improving environmental quality, characterized by a decrease in the amount of unmanaged waste, which impacts reducing environmental pollution and potential health problems. This happens because the community is increasingly aware of the importance of sorting and recycling waste through education and economic incentives, increasing solidarity between residents in maintaining environmental cleanliness. This behaviour change is reflected in good communication between residents, who provide information and motivate each other to protect the village environment. Active community participation in waste management can improve the overall quality of the environment (18). In addition, it emphasizes that solidarity between citizens can strengthen an individual's sense of responsibility for the environment (19) (20). BASWARA's contribution is to creating a cleaner and healthier environment and strengthening social ties in the Gulang Village community, creating a positive and harmonious atmosphere for all residents.

This discussion effectively links the impact of the BASWARA program with environmental and social benefits. This program raises public awareness of the importance of waste management and creates economic incentives that encourage active participation. These findings align with the results of similar programs in other regions that show that community involvement significantly influences environmental management's success. However, potential challenges in extending the BASWARA model to other regions with different socioeconomic contexts must be

considered. For example, in urban areas with high population densities or in more traditional rural areas, different approaches may be needed to ensure the successful implementation of the program.

### **Recommendations for Future Research**

As a further step, it is recommended that education and socialization in the community about the importance of good waste management continue to increase. Cooperation between local governments, BASWARA managers, and the community is urgently needed to maintain the sustainability of this program. Additional recommendations include specific training to improve community capacity to sort and recycle waste and funding needs to expand waste management infrastructure. In addition, future research fields should consider studying the long-term impact on local environmental health so that the BASWARA program can continue to have a broader positive impact on the environment and the people of Gulang Village.

### **CONCLUSION**

Based on the analysis of the effectiveness of the BASWARA program in Gulang Village, it can be concluded that the program has had a significant positive impact on household waste management. Using a qualitative descriptive approach, it is evident that BASWARA successfully raised public awareness regarding the importance of waste segregation and provided economic incentives through the waste savings system. Active community participation did not only reduce the volume of waste sent to landfills but also strengthened solidarity among residents in maintaining environmental cleanliness. Now, the community better understands the economic value of waste, which was previously viewed as a burden. To sustain and expand the success of BASWARA, specialized training for the community on waste sorting and recycling techniques is recommended along with financial support to enhance waste management infrastructure. Future research should focus on assessing the long-term effects of the program on local environmental health to ensure that BASWARA continues to benefit both the community and the environment in Gulang Village.

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