



Implementation of Environmental Communication in Learning to Use Waste Banks in Surabaya

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Abstract: Indonesia faces significant waste management challenges, with projected waste production reaching 65.2 million tonnes by 2023. Household waste, contributing 38.4% of the total, is the largest source of waste nationwide. In Surabaya, Indonesia's fifth-highest waste-producing city, the problem is especially critical. One response to this issue is the waste bank program, enabling communities to exchange waste for economic rewards. This study was conducted with the aim of knowing how the implementation of environmental communication in Bank Sampah Manukan Mukti RW 9 in teaching how to use the waste bank to the community. For eight years, this waste bank has fostered community participation, successfully reducing waste by 300-400 kg monthly and raising awareness of household waste management. Using a descriptive qualitative method and a case study approach, data were collected through interviews, observation, and documentation, with analysis based on the Miles and Huberman framework (data reduction, presentation, and conclusion). Findings indicate that activity-based environmental communication effectively sustains community engagement and understanding in waste management. This model can serve as an example for similar initiatives across Indonesia, enhancing local waste reduction efforts through community-driven strategies.

Keywords: Environmental Communication; Waste Bank; Sustainability

Introduction

Indonesia is the 5th largest contributor of waste in the world with 65.2 million tons of waste (Annur, 2023a). Based on the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry (KLHK), it was recorded that in 2022 Indonesia's national waste generation reached 35.93 million tons with 13.47 million tons of unmanaged waste (Annur, 2023b). From the classification of existing waste sources, the proportions are 38.4% household waste; 27.7% traditional markets; 14.4% commercial centers; 6.12% commercial, industrial, and other areas; 5.4% public facilities; 4.8% offices; and 3.2% other sources. This proportion data has shown the dominance of

household waste in the national waste generation. Waste in Indonesia generally ends up in local landfills. Due to the large amount of waste produced every day, the issue of landfill waste is becoming more prevalent (Indraswari, 2023). This shows that the speed of waste processing in landfills cannot keep up with the speed of incoming waste. Cases of landfill fires, leachate flow from landfills, and waste landslides show that landfills have the potential to pollute the environment if left unchecked. The adverse effects of waste piling up in landfills include, among others, the appearance of waste piles around the landfill, becoming a breeding ground for disease vectors, aesthetic disturbances, leachate production, and methane gas production which causes a foul odor at a radius of 0-500m (Sidebang, 2022). Apart

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from causing foul odor, methane gas also contributes to the reduction of oxygen levels in the atmosphere and climate change. This is why the issue of waste management has become urgent to be considered by all regions in Indonesia, including the city of Surabaya. Surabaya is the city with the 5th highest annual waste generation in Indonesia in 2023. Surabaya's waste generation increased from of 651.04 thousand tons to 657.01 thousand tons (Kementerian Lingkungan Hidup, 2024). This data shows the urgency of the waste issue in Surabaya.

From this issue, various waste management initiatives have emerged in Surabaya, both from the government and the community, one of which is the waste bank program. The waste bank program has an interesting concept because people can exchange their waste into money and save it like a money bank. This concept was first introduced by the Indonesian government to the public in 2012 through a ministerial regulation. Quoted from the Regulation of the Minister of Environment of the Republic of Indonesia Number 13 of 2012 concerning Guidelines for the Implementation of Reduce, Reuse, and Recycle through Waste Banks, a waste bank is a concept of sorting and collecting recyclable and/or reusable waste that has economic value (Menteri Negara Lingkungan Hidup, 2012).

Bank Sampah Manukan Mukti RW 9 in Tandes Sub-district, Surabaya is an example of success in nurturing its community to finally understand the use of waste banks. While sustainability in waste banks is the biggest challenge for every waste bank in Indonesia, Bank Sampah Manukan Mukti RW 9 has successfully run for 8 years and still gets enthusiasm from its customers. The bank has won several waste bank competitions, such as the government's Merdeka Sampah competition in 2016. An interesting thing that happened in this waste bank is that the waste bank and its customers managed to save up for a holiday together in Malaysia in 2019 from the money saved in the waste bank. This is an achievement that shows the enthusiasm of the community in saving money in the waste bank. The waste bank also consistently reduces their waste generation by approximately 300-400 kg every month. Through the application of environmental communication methods, Bank Sampah Manukan Mukti RW 9 succeeded in increasing and maintaining community participation in sorting and saving waste in the waste bank. This success shows that the right communication approach can improve people's understanding and involvement in community-based waste management.

In this research, environmental communication will be discussed to find out the right communication strategy for Bank Sampah Manukan Mukti RW 9. Environmental communication is the use of approaches, principles, strategies and communication techniques for

the management and environmental protection. The principles of environmental communication relate to management and protection to prevent damage, such as that caused by waste (Swarnawati et al., 2023). Open in 1999 stated that environmental communication is a plan and strategy through communication processes and media products to support the effectiveness of policy making, public participation, and implementation on the environment (Wahyudin, 2017). This research on environmental communication applied by Bank Sampah Manukan Mukti RW 9 was conducted because the phenomenon that occurs has a novelty where communication is focused on activities and events. In other studies such as Environmental Communication of Waste Management at the Waste Bank in South Tangerang by Shahreza, Sarwoprasodjo, Arifin, and Hapsari (2020), Environmental Communication Strategy in the Minim Waste Campaign by Swarnawati, Yuningsih, Purnamasari, and Nurhayat (2023), Environmental Communication of the Wijaya Kusuma Waste Bank Community in Increasing the Spirit of Environmental Care by Maulidya, Fauziah, and Nurhaliza (2021), Environmental Communication in Waste Banks in Bandung City and Bandung Regency: A Comparative Study by Annazilly and Dirgantara (2024), Implementation of Environmental Communication at Bank Sampah Mandiri Berkah 13 in Educating Residents by Agustin, Wulandari, Novianita, & Muhariani (2024) none of which discuss environmental communication strategies with a focus on activities and events.

From the description that has been mentioned, this study was conducted with the aim of knowing how the implementation of environmental communication in Bank Sampah Manukan Mukti RW 9 in teaching how to use the waste bank to the community. Hopefully, the results of this study can enrich the study of environmental communication so that in the future it can be a reference for other waste banks.

Method

This research uses descriptive qualitative methods. The qualitative method itself is a technique that invites interpretation and a natural approach to the subject to understand a phenomenon as it should be in society (Hasan et al., 2023). This technique uses an inductive mindset, which bases a social phenomenon on objective observation (Harahap, 2020). Meanwhile, descriptive studies have the aim of collecting data and information about a phenomenon so that it can then be described to intervene the studied object (Hermawan, 2019). With the methods mentioned, this research uses a case study approach where the study is focused on one subject as a case.

The subject of this research is Bank Sampah Manukan Mukti RW 9, which is located in Tandés District, Surabaya City. The research data collection technique is a field study through interviews, observation, and documentation (Iryana & Kawasati, 2019). Through interviews, researchers can interact closely with respondents to obtain in-depth information. Observation was carried out to see the process of community involvement in waste banks that actually occurred in the community. Documentation is done to complement and support the information that has been collected.

To ensure the validity of the data, triangulation will be carried out in the data collection process. Data triangulation is a collection technique that combines various types of data from several sources (Sugiyono, 2019). There are several triangulation models, but this research will use the source triangulation model. This model is a way of verifying information obtained from various sources, such as interviews and documents (Zamili, 2015).

The data that has been collected will be processed and analyzed to get answers to the problem formulation using the Miles and Huberman method. This Miles & Huberman analysis method is a flow consisting of three parts of activities, namely data reduction, data presentation, and conclusion drawing/verification (Moleong, 2018). Data reduction is an analytical process to classify, direct, sharpen, and eliminate data to facilitate the process of drawing research conclusions. Data presentation is the process of displaying information in the form of descriptions, relationships between categories, narrative text, etc. The final stage of drawing conclusions is the stage of understanding the research results in depth and taking meaning from these results.

Result and Discussion

Waste banks have a role in reducing the amount of waste that is not managed to the final processing site (Syafudin et al., 2019). Waste banks also contribute to the level of public awareness of household waste management. Recorded from the results of Wardhani and Harto's research (2018), waste banks in the city of Surabaya were able to reduce 7.2% of the total volume of waste in East Java. This data shows that the waste bank program is a good way to reduce waste generation in Indonesia, including Surabaya.

Although it has proven to be a good solution to reduce waste generation, not all communities can accept the program easily and enthusiastically participate in the program. In some communities, the response is rejection because they feel that sorting and collecting waste is a hassle. Others accepted the program, but lost their

enthusiasm along the way. This becomes a new problem in the community, which raises the question of how to increase and maintain community enthusiasm for the waste bank program.

The negative response to the waste bank program from the community can be caused by a lack of knowledge about waste management (Amalia, 2020). Ignorance about waste banks has a negative influence on people's intention to join waste banks along with several other factors (Astuti et al., 2023). Therefore, effective learning in the use of waste banks is needed to increase public awareness and understanding of the principles, workings, and long-term benefits of waste banks.

This research describes the environmental communication strategy implemented by Bank Sampah Manukan Mukti RW 9 to the concept of 10 steps of environmental communication. There are 10 steps divided into four stages of environmental communication strategy defined by Wahyudin (2017). First stage is the assessment stage. It consists of situation analysis and problem identification, analyzing the parties involved, and objective communication to increase knowledge and influence consumer behavior. The next stage is planning. It consists of development of a communication strategy based on previously obtained data, motivate and mobilize the community, and conduct media selection. The third stage is production. It consists of preparing the message and media production and pretest. The last stage is action and reflection. It consists of dissemination of information through media and its application; and carrying out monitoring and evaluation and documentation.

These are the environmental communication steps that has been done at Bank Sampah Manukan Mukti RW 9.

Stage 1: Assessment

1. Situation analysis and problem identification

In this initial phase, it is necessary to find stakeholders who will have an influence on the implementation of the waste bank. These stakeholders need to be mapped as well as their relationships so that the right pattern can be formed to carry out environmental communication (Widiyanti et al., 2024). The head of the waste bank said that the situation analysis was carried out by conducting observations and direct communication in the community. Direct communication was carried out with the aim of finding out the community's interest in this waste bank program. The community was approached through community gatherings, such as PKK gatherings. The provision of waste bank activities in RW 9 was not solely based on the waste problem in the neighborhood but was based on the need to gather residents to build harmony in the community there.

Nevertheless, the indicator of waste disposal in the neighborhood is still a concern and has shown a decline since the establishment of the waste bank. For customers, they started participating in the waste bank because they saw the problem of littering in the neighborhood, so the waste bank activities were expected to promote cleanliness in their area. In addition, togetherness and fun are added value factors in their situation in participating in the waste bank. However, internally, there is a problem of embarrassment because they are considered to be picking up garbage like scavengers. The expert said that the biggest challenge in the waste bank concept is how to change people's thinking about waste management and sorting, which has a dirty and trivial connotation.

2. *Analysis of the parties involved*

The analysis of the parties involved was carried out by the waste bank management. The parties involved in the Manukan Mukti RW 9 Waste Bank include the local community, the Surabaya Parent Waste Bank, environmental cadres, and the PKK. Before the waste bank was opened, the management started by building residents' interest in the waste bank. At the same time, the management of environmental cadres was formed, building cooperation with the Surabaya Main Waste Bank as a place to deposit their waste. The PKK became the channel of information about waste bank activities that was closest and in direct contact with the community. Over time in the course of the waste bank, the government and companies became involved as providers of non-material facilities and motivational drivers for the waste bank, such as through competitions.

3. *Objective communication to increase knowledge and influence consumer behavior*

In order to educate and shape customer behavior, the waste bank management only conducted one socialization event at the beginning of the opening of the waste bank. For the first six months, the community was educated and guided on how to segregate waste at each monthly waste collection meeting. Afterwards, the community is encouraged to be independent and is no longer assisted in sorting waste. Customers are only given information in the form of an appeal to save money and socialization is carried out when participating in competitions.

Stage 2: Planning

1. *Communication strategy development based on previously obtained data*

When the waste bank first entered the competition and won the nomination, the community became motivated and proud of the achievement. The invitation

to the city hall was a source of pride for the community. The community's enthusiasm for the competition was used by the management to continue to arouse the enthusiasm of saving customers by participating in and holding various competitions. Customers are excited when there is a competition and start preparing for the competition in advance. For experts, the community should ideally be instilled with the spirit value of the waste bank and offered different programs according to the interests of the people in the area. Manukan Mukti Waste Bank had developed a strategy to save and borrow money from customers. This strategy turned out to be my own attraction for PKK members to become customers because only customers can borrow. This strategy also attracts customers who have savings because they will benefit from interest on their borrowed savings.



Figure 1. Fashion Show Recycle Competition

2. *Motivating and mobilizing the community*

To mobilize the community, the waste bank management applied various strategies to the community. The initial strategy is of course to provide education. Education is proven to have a significant impact on behavior change towards environmental maintenance (Maria et al., 2024). To strengthen the first strategy, the board used the tactic of threatening to make it administratively difficult for people who did not participate in the waste bank. In addition, the board used the tactic of announcing customers who had saved in the waste bank and announcing the highest savers to motivate the community. An interesting strategy that encourages people to save is the joint vacation program from waste savings. Bank Sampah Manukan Mukti had implemented a vacation program to Kuala Lumpur, Malaysia from the savings of each customer. This strategy became a real and motivating goal for customers and made the waste bank proud. This strategy is an appropriate elaboration of the behavior of their customers who have a sense of ownership, love

community, and are proud of their collective achievements. Holidays are a form of innovation that is relevant to the community there to continue to motivate community enthusiasm as stated by the expert.



Figure 2. Manukan Mukti Waste Bank Holiday in Malaysia

3. Conducting media selection

The media chosen by Bank Sampah Manukan Mukti RW 9 to disseminate information is the WhatsApp group, which is already familiar to the community. Outside of digital media, the waste bank also uses PKK meetings as a forum to share information about the waste bank.

Stage 3: Production

1. Preparing the message

In conveying messages, waste bank administrators always focus on how customers can realize the benefits of waste banks that come back to them. This message packaging strategy is good for fostering internal motivation within each customer.

2. Media production and pretest

The waste bank does not produce posters or special designs to present information about the waste bank. There is only a brochure for the price of waste that is distributed to customers. A few times, they used brochures provided by the government to distribute to customers. According to the expert, a media production strategy is actually a necessary thing for campaign support. The general test can be done by assessing how much impact the media has in the community.

Stage 4: Action and reflection

1. Dissemination of information through media and its application

The waste bank uses WhatsApp and Instagram social media for publication and promotion of its activities. In addition, the waste bank also disseminates information through dasawisma PKK, which is closer to the community. WhatsApp is mainly used to send information about waste bank activities, while Instagram is focused on documenting waste bank

activities so that they can be more easily accessed at any time by external parties, such as the government.

2. Implementing monitoring and evaluation along with documentation

Monitoring the progress of the waste bank is seen from the waste uptake and attendance of participants. Evaluation is then conducted regularly, including to find out the cause of a customer's withdrawal. Evaluation is also collected from the community through face-to-face PKK meetings. From the evaluation, a follow-up will be designed to overcome the problems experienced and to maintain community interest.

The research shows that Bank Sampah Manukan Mukti RW 9 applies the entire concept of the ten steps of environmental communication, except for the media production step. Nevertheless, the waste bank has been able to maintain the sustainability of the waste bank and the enthusiasm of their customers for 8 years. In addition to the aforementioned steps, it is important to ensure that waste bank operations do not interfere with residents' activities, do not harm residents economically, are consistent, and are not incidental to keep customers loyal to save.

Conclusion

From the objective of knowing the implementation strategy of environmental communication in learning the use of waste bank conducted by Bank Sampah Manukan Mukti RW 9 in Surabaya, this research found an interesting pattern of approaches and strategies used by this waste bank that contributes to their long-term sustainability. This waste bank does not use a theoretical educational approach to its customers, such as teaching about the importance of caring for the environment, but rather, they use a practical approach to encourage the use of waste banks and bring about changes in behavior and perceptions towards waste. After the customers understand how to use the waste bank, the Manukan Mukti RW 9 Waste Bank tries to maintain the enthusiasm of the community to save by understanding the characteristics of the community, which has a sense of ownership, likes association, and is proud of joint achievements so that the right strategy is to participate in an activity to make them proud together, such as a competition.

The results of this study show the importance of understanding the characteristics of the local community and what invites their interest to maintain the sustainability of the waste bank. These results can serve as a reference for other waste bank managers to develop their own. However, this study still has limitations, namely still examining one waste bank that has high success. In the future, it can be continued by

also exploring communication problems or barriers in other waste banks to find the most effective solutions for waste bank development.

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Author Contributions

Conceptualization, Gozali and Teguh; methodology, Gozali and Teguh; software, Gozali and Teguh.; validation, Gozali and Teguh.; formal analysis, Gozali and Teguh.; investigation, Gozali.; resources, Gozali and Teguh.; data curation, Gozali.; writing – original draft preparation, Gozali.; writing – review and editing, Teguh.; visualization, Gozali.; supervision, Teguh; project administration, Teguh.; funding acquisition, Teguh. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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