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Bank sampah and waste management in urban Surabaya, Indonesia

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Abstract

This article discusses the historical management of Bank Sampah (Trash Bank). The issues addressed in this paper are: (1) What prompted the emergence of Bank Sampah in Surabaya from 2010 to 2017? (2) How was the pioneering and development process of Bank Sampah for the people of Surabaya from 2010 to 2017? (3) What impacts occurred following the establishment of Bank Sampah in Surabaya from 2010 to 2017. This study employs historical method in its approach, from heuristic stages, criticism, interpretation, to historiography. The analysis is conducted using agency or intermediary theory. The research results indicate that: (1) The background of the emergence of Bank Sampah was due to concerns about waste management in Surabaya. (2) The pioneering process of Bank Sampah began in 2010 with Bank Sampah Bina Mandiri being one of the pioneers in Surabaya. The development of Bank Sampah indicates an improvement in household waste management through the Bank Sampah program in the community. (3) The impacts include a reduction in the amount of waste piling up at homes or in the environment, making the Surabaya city area cleaner from trash. Community involvement in managing Bank Sampah is also evident from the emerging habit of collecting, sorting, and depositing waste in the trash bank. This change aims to shift community behavior from collect-transport-dispose to sort-process-transport. Additionally, the impact can be seen in how the Surabaya City Government has been somewhat aided in handling the increasing waste problem at the Benowo landfill. These facts prove that the existence of Bank Sampah has a significant impact both on the preservation of the surrounding environment and on the community in the area.

Keywords: Bank sampah, waste management, urban Surabaya

Introduction

Waste has become a serious problem in urban life, particularly in large cities. It is often considered useless and even harmful, contributing significantly to issues such as flooding by obstructing water flow and causing health problems, a concern since colonial times (Nawiyanto *et al.*, 2019: 226) ^[10]. Despite numerous efforts to address waste issues in Indonesia (Suriawiria, 1980: 4-5) ^[16], the problem seems to persist and has become a major concern for society. Effective waste management is crucial as it directly impacts the city's aesthetics and the quality of urban life.

Since the 19th century, Surabaya has faced complex environmental challenges. The city's proximity to the sea means that high tides can flood coastal homes, leading to environmental pollution. This pollution comes from solid and liquid waste, including industrial chemical residues, rusted metals, and household waste (Khusyairi, 2012: 98-99) ^[13]. During the colonial period, from the 19th century to the early 20th century, Surabaya was a dynamic city. Its economic growth and increasing urbanization, driven by industrial and trade activities (Frederick, 1989: 4) ^[5], led to a growing population and changing consumption patterns, impacting the city's environmental health.

The enactment of the Decentralization Law in 1903 paved the way for Surabaya to become a municipality (*gemeente*) on April 1, 1906, as per Staatsblad No. 149 of 1906 (Basundoro, 2009: 18) ^[1]. This led to the establishment of related departments, such as the city's sanitation department, known as *Reinigingsdienst*, to address urban issues (Ni'mah, 2016: 7) ^[11]. The formation of the sanitation department was in response to European residents' fears of the plague that hit Surabaya in 1911 (Ridho'i *et al.*, 2016: 252) ^[15], highlighting the need to improve the environment, especially waste management. Waste volume in Surabaya increased significantly from 360 cubic meters in 1914 to 238,000 cubic meters in 1930

(Dick, 2001: 172) ^[4], driven by population growth and rising consumption.

The waste problem became more critical with urbanization in the 1920s. By 1930, urban migration from East Java brought 104,442 people to Surabaya (Basundoro, 2009: 12) ^[1]. Consequently, waste management became a pressing issue, crucial for the city's livability and beauty, necessitating special attention to waste generated by households, markets, streets, and public places. Effective waste management requires innovative and eco-friendly solutions involving the government, community, private sector, industry, and other stakeholders. One effective method is the 3R principle (Reduce, Reuse, Recycle), exemplified by the Bank Sampah (Trash Bank) program (Mungkasa, 2003: 10) ^[9].

The Bank Sampah initiative began in Bantul, Yogyakarta, specifically in Dusun Bandegan, with the establishment of Bank Sampah Gemah Ripah on February 23, 2008. In Surabaya, Bank Sampah Bina Mandiri, one of the pioneers, was founded on October 11, 2010, in RT 6/9 Bratang Lapangan Ngagelrejo, Bratang Surabaya, by Anindhita Normaria, a student at the Surabaya Institute of Technology. This legal cooperative works with the Surabaya city government and the Corporate Social Responsibility (CSR) program of PT. PLN East Java Distribution.

The Bank Sampah program is part of Surabaya's Green and Clean initiative, involving community engagement in waste management through competitions in neighborhoods. The program aims to establish an effective, efficient, and integrated waste management system. Bank Sampah Surabaya, a non-governmental organization, processes household, office, and educational institution waste, turning inorganic waste like plastic, paper, and metal into crafts or selling it as raw materials. The goal is to change community mindsets and promote environmental sustainability.

This study aims to highlight the establishment process and impact of Bank Sampah on the community and environment in a historical context. The main issues addressed are: (1) What prompted the emergence of Bank Sampah in Surabaya from 2010 to 2017? (2) How was the pioneering and development process of Bank Sampah in Surabaya from 2010 to 2017? (3) What impacts occurred following the establishment of Bank Sampah in Surabaya from 2010 to 2017? The objectives are: (1) To identify the background of the emergence of Bank Sampah in Surabaya from 2010 to 2017. (2) To explain the pioneering and development process of Bank Sampah in Surabaya from 2010 to 2017. (3) To describe the impacts following the establishment of Bank Sampah in Surabaya from 2010 to 2017.

Materials and Methods

The research method used here is the historical method. It comprises five major stages: topic selection, source collection (heuristics), verification, interpretation, and historiography (Sasmita and Nawiyanto, 2012) ^[14]. Historical sources are divided into two types based on their nature: primary sources and secondary sources. A primary source is the testimony of a direct eyewitness or someone who experienced the event with their senses. Primary sources can also be considered as information that exists contemporaneously with the historical event. The excavation of unwritten primary sources in this paper includes newspapers and direct interviews with historical actors.

To find and collect historical sources relevant to this research, the author needs documents from the Surabaya City Planning Agency, the Surabaya City Government Sanitation and Landscaping Department, the Surabaya City Environmental Agency, the East Java Provincial Library and Archives Agency, and the Surabaya Regional Library. In this research, secondary sources include books, theses, articles, and journals. The materials obtained from the History Department Library, the Faculty of Humanities, the University of Jember Library, the State University of Surabaya Library, the Airlangga University Library, and the Medayu Agung Surabaya Library.

This research also utilizes oral history information. According to Kuntowijoyo, oral history has many uses. It can be used both as a method and as a source of history. As a method, it involves interviewing historical witnesses; as a source, it refers to the results of interviews conducted by others, in the form of tapes or transcriptions. Considering that this study covers a contemporary historical period, the historical sources used will be enriched with information gathered through oral history methods, which significantly contribute to the development of historical writing (Kuntowijoyo, 2003: 26-29) ^[7].

General Overview

Administratively, in 1966, the municipality of Surabaya was divided into four regions: East Surabaya, North Surabaya, South Surabaya, and Perak. By the 1970s, it was further divided into 16 subdistricts within these four regions, with the boundaries being the Madura Strait to the north and east, Sidoarjo Regency to the south, and Gresik Regency to the west. Topographically, most of Surabaya's area (25,915 hectares) is lowland, with elevations ranging from 3 to 6 meters above sea level and slopes of less than 3%. The western (12.77%) and southern (6.52%) parts of the city feature gentle hills with elevations of 25 to 50 meters above sea level and slopes of 5-15% (Pratama, 2011: 17) ^[12].

The lowland soil in Surabaya comprises three types of sedimentary soils: river silt deposits along the coast, marine silt deposits along the coast, and quaternary deposits, a mix of sand, volcanic material, clay, and vegetation, predominantly found in the southern areas near Mojokerto and Jombang. This soil makes these areas fertile and suitable for agriculture and plantations (Lamijo, 2002: 29) ^[8]. During the Dutch colonial period, these areas, along with other parts of East Java, served as hinterlands producing sugar. The emergence of sugar factories in East Java's interior also spurred the growth of supporting industries, particularly machinery, which stimulated industrialization in Surabaya.

Geographically, Surabaya is ideally suited for an international port compared to Tuban and Gresik. First, Surabaya is located at the mouth of the Kali Mas River, a tributary of the Brantas River. Second, Surabaya's port is protected by Madura Island. Third, the Brantas River's flow, continued by the Kali Mas River, carries silt that acts as a barrier against high tides, protecting the coastline. These factors made Surabaya a magnet for residents (Hermawan, 2009: 25) ^[6].

This geographical advantage attracted more migrants to Surabaya, who settled in the city, expecting a better quality of life than in rural areas. This assumption led to a growing population and the construction of new buildings. The population of Surabaya increased steadily from the 19th to

the early 20th century, surpassing Batavia in size and creating serious urban housing problems (Colombijn *et al.*, 2005: 538) [2].

When Surabaya was designated a gemeente (municipality) in 1906, people flocked there for job opportunities. Europeans in Surabaya freely acquired land, building large houses, offices, and shops, often competing to purchase land in central areas, suburbs, or near intersections. The remaining land was used by indigenous and Chinese residents for housing and businesses. The dense population led to widespread littering. In 1942, the Dutch handed over control to the Japanese. After Indonesia's independence, further changes occurred. Basundoro noted that in 1953, Surabaya lacked housing for 125,000 people. The available land of 82,800,000 square meters was already allocated for rice fields, cemeteries, waste disposal sites, educational facilities, and parks (Basundoro, 2009: 353) [1].

Economic activities, primarily in industry and service production, have led to an increasing population in Surabaya. Migrants arrived in Surabaya seeking better economic opportunities, drawn by higher wages and information from villagers in the city about easier job prospects. However, many ended up worse off, often becoming unemployed. In densely populated areas, vacant land is typically used for housing, commercial needs, and recreation, leaving no space for sanitary landfills. The limited space and increasing waste volume necessitate special attention from government authorities to ensure the city remains a comfortable place to live.

Early Development and Progress

Efforts by the government to address waste issues have been outlined in Law No. 18 of 2008 on Waste Management (UUPS). This law states that waste management is the responsibility of the government, society, and businesses, who as waste producers must also contribute to creating a clean and healthy environment. This policy indicates that there must be synergy between the government, businesses, and the community to tackle waste problems in Surabaya (UURI No. 18, 2008). Based on this law, waste management programs are needed to transform waste into useful and marketable products rather than merely accumulating in landfills. The issue of waste, comprising both organic and non-organic materials, has led the government and community to continuously seek solutions. The innovation of Waste Banks emerged as a response to Surabaya's waste problem.

A Waste Bank is a term for a community organization focused on environmental awareness with the aim of reducing waste volume, recycling waste, and providing additional income for the local community. The Waste Bank operates by collecting as much inorganic and organic waste as possible from the surrounding environment, then sorting and weighing it. The sorted waste can be exchanged for money, which can either be taken immediately or saved with the Waste Bank staff.

The Bina Mandiri Waste Bank was established in 2010 by an ITS student named Anindhita Normaria, whose house was near a TPS (Temporary Waste Disposal Site) in Bratang. She understood the chaotic waste management in her area, where uncollected waste would overflow into the streets. With her friends, she conceived the idea of a Waste Bank to turn waste into something beneficial.

The goal of Bina Mandiri Waste Bank was not just profit but also social engagement, involving the community in making crafts from recycled waste and creating job opportunities. Initially, convincing people to sort their waste was challenging, so Anindhita went door-to-door, borrowing a TPS cart to collect dry waste. Starting in her neighborhood, the initiative spread through local RTs (neighborhood units) and RWs (community units), eventually gaining broader participation (Interview Retno, 2019). The inception of Bina Mandiri Waste Bank wasn't solely supported by PT. PLN but began with a local initiative to create a cleaner environment. PLN later collaborated with the Waste Bank as part of its CSR (Corporate Social Responsibility) program, supporting waste management activities. Over time, PLN helped by providing facilities like waste trucks, scales, press machines, and other equipment. By 2017, the partnership led to establishing the Surabaya Central Waste Bank.

In 2012, the Surabaya Central Waste Bank partnered with PLN, which became a CSR partner until 2017, providing necessary facilities. The Central Waste Bank supported several unit Waste Banks, offering resources like digital scales, sorting books, craft books, savings books, and signage. About 200 unit Waste Banks were affiliated with the Central Waste Bank, which facilitated regular waste collection (Diah, 2016: 30) [3]. Surabaya's Waste Banks set prices per kilogram for various types of waste. The waste management involves sorting and recycling processes, where non-organic waste is crafted into items like bags and sandals, while organic waste is turned into compost or biogas, not recorded in savings books.

Waste Bank activities primarily revolve around waste saving, where waste is collected, sorted, and exchanged for savings. They operate Monday to Saturday from 8 AM to 4 PM, and even accept waste on Sundays. Besides savings, they offer training on waste management and crafting from recycled materials. One notable program is the "medical treatment with waste" initiative started in 2017, in collaboration with clinics, providing healthcare services in exchange for waste. This program aims to engage the community in waste management while addressing health issues. Waste Banks also serve educational purposes, such as the library program at the Bintang Mangrove Waste Bank, established in 2014 to enhance community knowledge and attract more participants. Initial socialization efforts included meetings, social gatherings, and health posts, educating the community on proper waste management.

Waste Banks are a criterion in the Green and Clean competition, adhering to government guidelines but incorporating community creativity for effective management. The Pitoe Waste Bank, for example, became a model for its excellent administration and management. Waste Banks encourage community participation in environmental management, reducing scavenger activity and handling various types of waste, including household and plastic waste, valued by the Waste Banks (Interview Lisna, 2019). The number of Waste Banks in Surabaya has steadily increased, reflecting growing environmental awareness. In 2010, there were only 15 Waste Banks; by 2012, the number had risen to 135, and by 2013, it had reached 180. From 2010 to 2017, the number grew from 15 to 290, demonstrating significant improvements in household waste management through the Waste Bank program.

Impact on the Community of Surabaya

The establishment of Waste Banks in Surabaya, which began in 2010, has brought significant development and widespread impact on the local community and environment. Waste Banks in Surabaya serve as a waste management system that balances environmental concerns with community livelihoods. The positive impacts of Waste Banks in Surabaya are evident in economic, social, and environmental aspects, all contributing to community well-being. Furthermore, waste management through the Waste Bank concept fosters community awareness and proper waste management practices.

Waste Banks have a substantial economic impact because their activities provide tangible benefits in terms of job opportunities and financial rewards for participants. The programs at Waste Banks have had a positive effect on the economic conditions of the community. Waste Banks transform otherwise unusable waste into sellable items, generating income. This economic potential draws people to participate in Waste Bank activities, such as sorting and collecting waste. Participants can earn money from selling their waste, providing a supplementary income that helps meet daily household needs.

In addition to increasing income, Waste Banks create job opportunities by requiring staff for their operations. Income from working at Waste Banks includes basic salaries, meal allowances, bonuses, and incentives. Office staff receive monthly salaries similar to regular employees. Average monthly wages for office positions such as directors, public relations officers, tellers, and treasurers range from IDR 1,500,000 to IDR 2,000,000, with an additional meal allowance of around IDR 20,000 (Interview Lisna 2019). The growth of Waste Banks in Surabaya offers many job opportunities for local residents, as the system relies on local labor. Waste Banks also promote entrepreneurship by enabling businesses to repurpose waste into products like wallets, bags, and mats.

Waste Banks also serve social purposes beyond economic benefits. The activities organized by Waste Banks foster closer interactions among community members, resulting in organic solidarity where people depend on each other, including Waste Bank administrators, members, and the broader community. This solidarity strengthens relationships within neighborhoods and across Surabaya's administrative units.

Waste Banks contribute to a cleaner and tidier environment by encouraging community participation in collecting unused items. Before the establishment of Waste Banks, waste collection in Surabaya was handled by sanitation workers twice a week, leading to issues with waste accumulation, especially in densely populated areas, causing unpleasant odors and health risks.

The community recognizes that Waste Banks reduce household and environmental waste accumulation, making Surabaya cleaner. Community involvement in Waste Banks has led to new habits of collecting, sorting, and saving waste. This change aims to shift behaviors from "collect-transport-dispose" to "sort-process-transport." Additionally, the Surabaya city government benefits from reduced waste at the Benowo landfill, which helps address the growing waste problem. These outcomes demonstrate that Waste Banks have a significant positive impact on both environmental sustainability and community well-being in the region.

Conclusions

Bank Sampah Bina Mandiri is one of the pioneering Waste Banks in Surabaya. This Waste Bank was established on the initiative of Anindhita Normaria, a student at the Surabaya Institute of Technology, under the auspices of the Cita Bina Insani Foundation. The community was enthusiastic about creating a lush environment for mutual comfort, recognizing that a clean environment directly benefits everyone. Initially, it was challenging to encourage local residents to collect waste because they viewed waste as useless trash that only made their neighborhoods dirtier and smellier. However, as the Waste Bank gained popularity and provided financial benefits to its members, these negative perceptions changed. The successful management of the Waste Bank inspired local residents to save and participate in its programs while maintaining environmental cleanliness. Efforts to popularize the Waste Bank included door-to-door outreach and media engagement.

The Waste Bank program has had a significant impact. Since its inception, residents have been more inclined to collect and deposit their waste at the Waste Bank. The number of Waste Banks in Surabaya has grown annually, reflecting the increasing environmental awareness among the community. This significant increase demonstrates improvements in household waste management through the Waste Bank program. Waste Banks focus not only on the environment but also on community health, especially for their members. The medical treatment with waste program aims to provide healthcare services to members and promote community participation in waste management. Waste Banks around Surabaya has educated the community on proper waste management through outreach activities initially conducted during neighborhood meetings, social gatherings, religious studies, and health posts.

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