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## **The Existence of Mandiri Lestari Waste Bank Management in Supporting Sustainable Development of Mapanget District, Manado City**

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**Abstract.** waste that is not managed properly will have an impact on the environment and also on public health. waste management is a systematic, comprehensive and sustainable activity that includes reducing and handling waste. the aims of this research are 1) to find out, describe and analyze waste management at the mandiri lestari waste bank; 2) to find out and describe waste bank management in supporting sustainable development in mapanget district, manado city. this research uses qualitative methods with data collection techniques in the form of observation, interviews and documentation. the research results show that 1) mandiri lestari waste bank management is not optimal, this can be seen from inadequate management, facilities and governance that are not in accordance with existing regulations; 2) the management of the mandiri lestari waste bank is not yet supported by all groups, including the community, government and waste bank managers. good waste bank management will improve the economy and development for the communities involved and can improve the quality of life with a clean environment.

**Keywords.** Waste Management, Waste Bank, Sustainable Development, Environment

### **A. Introduction**

Waste is the remains of daily human activities and/or natural processes in solid form (Subekti & Apriyanti, 2020) [1]. Population growth and changes in people's consumption patterns have resulted in increasing volumes, types and characteristics of increasingly diverse waste (Hayat & Zayadi, 2018) [2]. Waste has become a national and even world problem, so its management needs to be carried out in a comprehensive and integrated manner from upstream to downstream so that it provides economic benefits, is healthy for the community and safe for the environment, and can change community behavior (Law Number 18 of 2008 concerning Waste Management ) [3].

Waste that is not managed properly will have an impact on the environment and also on public health (Widjaja & Gunawan, 2022) [4]. Flood disasters are one of the impacts of rubbish

that is thrown carelessly in places, especially in water channels and rivers, so that if the water channels are blocked, during prolonged rain the water will overflow and inundate the surrounding area and flooding will occur (Silalahi, 2017) [5]. Poor waste management, apart from causing disease, also causes pollution to water, land and air. For this reason, good waste management is needed.

Waste Management is a systematic, comprehensive and sustainable activity that includes reducing and handling waste. Waste Reduction is an activity to limit waste generation, recycle waste and/or reuse waste. Waste Management is sorting, collecting, transporting processing in the form of changing the characteristics, composition and quantity of waste, as well as final processing of waste in the form of returning waste and/or residue from previous processing to environmental media safely (Rangkuti & Susilawati, 2022) [6].

Based on data from the Manado City Environmental Service, Manado City's waste generation in 2022 with a population of 485,119 people is 242.5 tons of waste per day or 88,534.22 tons per year. Existing data also shows that the amount of waste reduction is 5,058.20 tons of waste/year or 5.71% of the total waste generation in Manado City.

For waste handling, it is 68,437.50 tons of waste/year or 77.30% of the total waste generation in Manado City. Manado City Regional Policy and Strategy (Jakstrada) for Management of Household Waste and Similar Types of Household Waste as regulated in Manado Mayor Regulation No. 24 of 2019 is one of the references for implementing development in the environmental sector, especially in Waste Management in Manado City. This regulation regulates the role of government & society in waste management. In Jakstrada, the target is for 2025 as mandated by the National Strategic Policy that waste management has been handled completely with reference to reducing waste by 30% and waste handling by 70%. The target for 2022 is to reduce waste by 26% and waste handling by 73%. It can be seen from the data above that the waste reduction target in Manado City is still quite far from the target and the results for waste handling are already good.

One of the main keys in waste management is sorting waste from its source, namely from households/community. Public awareness in sorting waste is still very small. It can be seen from the results of motorbike transportation that there is still a lot of mixed waste in homes. So the volume of waste that goes to the Final Disposal Site (TPA) with waste trucks is also quite large and mixed. The volume of uncontrolled or managed waste that is thrown into the landfill will cause the landfill's capacity to fill quickly. This will cause new problems when a new landfill is needed to accommodate uncontrolled waste.

A paradigm shift in waste management starting with the process of sorting waste from its source must be a concern for all parties. When the culture of sorting waste is not yet a major concern or is still difficult to implement, building a Waste Bank is one solution. The construction of this waste bank is the initial momentum in building collective awareness in the community to start sorting, recycling and utilizing waste. This is important, because waste has sales value and environmentally sound waste management can become a culture for the community (Saputro et al., 2016) [7].

The Waste Bank Program is a strategy for implementing 3R (Reduce, Reuse, Recycle) in waste management, especially waste reduction at the community level, by equalizing waste with money or valuable items that can be saved. People are educated to respect waste according to type and value so that they are willing to sort waste (Kristina, 2014) [8]. The Waste Bank changes the community's perspective that waste contains people's economic potential, namely job opportunities and additional income from savings in the waste bank. Apart from that, the development of a clean and green environment will be realized in order to create a healthy

society. The purpose of establishing the waste bank itself is 1). to solve the waste problem which until now has not been resolved properly, 2). familiarize residents not to throw rubbish carelessly, 3). motivate residents to sort waste so that the environment is clean, 4). maximizing the use of used goods by instilling an understanding in the community that used goods can be useful, and 5). reducing the amount of used goods that are wasted (Suryani, 2014) [9].

In Manado City Jakstrada, the target is to establish waste bank units in the community by 2022, namely 37 units and by 2023 the target is 40 units. But from the existing reality, data on the number of Waste Banks in 2022 from the Manado City Environmental Service is only 8 active Waste Bank units from 16 waste units in the previous year. So the realization of the establishment of a waste bank unit is still far from the expected target.

To preserve the environment in Manado City and to implement the provisions of Manado City Regional Regulation No. 1 of 2021 concerning Waste Management, which is related to waste reduction activities in Manado City, one form of implementing the waste reduction program is through the involvement of the government and the community. For this reason, the Manado City government, through the Manado Mayor's Circular Letter No: 100.3.4/0.11/DLH/106/2023 concerning waste reduction in Manado City, gives an appeal, among other things, to carry out waste reduction activities by playing an active role in establishing and optimizing the role of waste banks.

Mandiri Lestari Waste Bank is a form of government policy to support sustainable development. From the research results, it was found that various problems related to the management of the Mandiri Lestari Waste Bank, such as, The number of customers has decreased since 2016, initially there were 500 customers, decreasing until the latest data in September 2023 was only 59 customers. Apart from that, it was found that there were inadequate facilities in the management of the Mandiri Lestari Waste Bank, such as a lack of transport vehicles, damaged supporting equipment and the absence of a waste reception plant. It was also found that in Mandiri Lestari's institutional structure, only one person plays an active role in managing waste, as well as a lack of public awareness regarding the use of the Waste Bank to improve the economy and care for the environment.

Based on the problems above, the author wants to research the existence of Mandiri Lestari Waste Bank Management in Supporting Sustainable Development in Mapanget District, Manado City. Sustainable development is a development process that can improve the level of the economy, preserve the environment and social conditions for the benefit of present and future generations. This research on the Mandiri Lestari Waste Bank, Mapanget District, Manado City, is a Waste Bank that is classified as consistent and active.

## **B. Method**

The approach in this research is qualitative research, which is research that emphasizes process analysis of inductive thinking processes related to the dynamics of relationships between observed phenomena, and always uses scientific logic. What is meant by process analysis is a number of activities such as parsing, distinguishing, selecting something from an inductive process, namely drawing a general conclusion from various individual cases, all of which are related to the dynamics of the relationship between the observed phenomena or events (Moleong in Mandagi, 2023 ) [10].

The main focus of this research is the Management of the Mandiri Lestari Waste Bank in supporting sustainable development, namely 1) Waste management at the Mandiri Lestari waste bank; 2) Waste management that supports sustainable development in Mapanget District, Manado City.

The data analysis technique used is the Miles & Huberman approach model in Mandagi & Kairupan (2021), namely data collection, data reduction, data presentation, and drawing conclusions [11]. Then, to ensure the validity of the data, researchers used 4 main criteria presented by Lincoln and Guba in Moleong (2013), namely credibility, dependability, transferability, and comfirmability [11].

### **C. Result and discussion**

#### **1. Waste Management at Mandiri Lestari Waste Bank**

Waste Bank Management is in accordance with Minister of Environment and Forestry Regulation No. 14 of 2021 is carried out by reducing waste and handling waste. Waste processing is an activity to change the characteristics, composition and/or amount of waste. This activity is carried out to reduce the amount of waste that is transported to the final waste processing site, so that only the remaining residue from waste processing is transported. The following are the results of interviews with informants regarding how the Mandiri Lestari Waste Bank is managed in Mapanget District.

##### **Waste management**

Based on the research results, several findings were obtained regarding the management of the Mandiri Lestari waste bank, namely that the Mandiri Lestari waste bank has been around since 2016, although it is still on a small scale, in 2019 there was a development where there was a partnership with PT. Pegadaian, which increased waste bank activity, however this only lasted for a short time because there was a decrease in waste bank customers from initially 400 to now only 100 customers. Not all people are customers of the Mandiri Lestari waste bank. There are people who are reluctant to sort their rubbish to take it to the waste bank and choose to throw the rubbish in the nearest rubbish bin. Apart from that, the buying price for waste banks is cheaper compared to collectors, causing customers or the public to prefer to sell at other places/collectors. There are very few people who can reuse household waste.

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Waste reduction is carried out by reusing waste, as intended in article 4 paragraph (2) of Minister of Environment and Forestry Regulation No. 14 of 2021 is carried out by reusing all or part of the waste according to the same function or a different function, without going through a processing process first. Waste reuse is carried out on types of waste that can be used again, such as plastic, paper, metal and glass waste. Waste handling is carried out by sorting waste, collecting waste and managing waste.

Waste collection activities are carried out to move waste from its source, in this case the household, to the collection point at the Waste Bank. Waste collection can be done in 2 (two) ways, namely the waste producer (household) transporting the waste it produces to the waste bank facility provided by the waste bank manager, or the waste bank manager transporting waste from the waste source (household) to the waste bank facility. . Waste collection can be done using transport equipment designed to transport waste. The thing that needs to be considered in the waste collection process is that the waste must be ensured that it remains confined in its container until it reaches the Waste Bank facility.

Waste collection will be easy if the waste has been separated from its source, thereby facilitating the further management process at the Waste Bank. For this reason, the Waste Bank

manager can make rules or agreements with each head of household within the waste management area, to sort the waste at the source, before collecting it at the Waste Bank.

Waste Bank Managers can determine the appropriate form of Waste Management activities in accordance with the capacity and capabilities of the Waste Bank, which provides economic benefits while still paying attention to environmental protection. The process of collecting waste from customers is carried out by picking up waste from customers or there are customers who bring their own waste directly to the Waste Bank. After arriving at the Waste Bank, the waste is sorted and grouped based on type, such as waste containing B3 and/or waste, waste that is easily decomposed by natural processes to that which can be reused, waste that can be recycled, other waste. The Waste Bank has prepared a hole for organic waste but there is still not enough waste, customers prefer to carry waste that can be exchanged for money, such as plastic waste, boxes, buckets, books/paper, gallon lids, and cans.

### **Facilities**

In principle, waste bank facilities adapt to the scope of waste management activities to be carried out. The number of types and volumes of waste managed must be adjusted to the area of land required for sorting, collection and/or processing. Based on this, in establishing a Waste Bank, it must at least fulfill the requirements for Waste Bank facilities which consist of the construction of a Waste Bank and supporting facilities for the Waste Bank. The facility requirements are differentiated based on the type of waste bank, namely main waste bank (BSI) and unit waste bank (BSU).

The results of the research show several findings related to existing facilities, it was found that there are still waste banks that do not have adequate facilities, such as there are still places or buildings with tarpaulin roofs because the government itself does not have a budget for this, the non-existent reception factory causes low prices selling in Manado. There were also several deficiencies in waste transport vehicles/transportation, damaged shredding machines for composting. Inadequate milling machines are also a major obstacle to implementing the Waste Bank.

To support good management, of course adequate facilities are needed, therefore it is very important to have waste bank management facilities available. As stated in management theory, there are management elements that support management or management itself, such as machines. In company activities, machines are very necessary. The use of machines will bring convenience or produce greater profits and create work efficiency.

### **Waste bank management**

Governance is an activity carried out in a structured and systematic manner in compiling, planning, analyzing and determining plans in order to achieve the set goals. Waste Bank Management is differentiated based on the type of Waste Bank, namely Main Waste Bank (BSI) and Unit Waste Bank (BSU). Basically, the management of Waste Banks, both BSI and BSU, needs to fulfill the following elements: 1) institutional structure, 2) service coverage, 3) Customers and, 4) Standard Operating Procedures (SOP).

Based on the research results, several things were found related to the governance of the Mandiri Lestari Waste Bank, namely that the structure already exists but not all members play an active role and carry out their duties and functions well, as evidenced by the fact that only one person plays an active role as manager, collector, weigher and waste sorter. This means that only one person covers all the tasks, the area covered by the Mandiri District is very wide so that people do not easily take their waste to the Mandiri Lestari Waste Bank, this is due to

the lack of information regarding this matter which is caused by a lack of socialization. Due to this, there has also been a decline in customers. The recording system is not well organized as seen from whether there is waste that is recorded or not. It was also found that there was a lack of supervision from the government regarding the benefits of the Waste Bank, as well as a lack of encouragement to the public to take their waste to the Mandiri Lestari Waste Bank. Apart from that, the government is less supportive in providing facilities and infrastructure for managing Waste Banks.

Regarding the operational procedures of the Mandiri Lestari Waste Bank, there are procedures that are not in accordance with applicable regulations. Such as records that are not managed well, there is waste that comes in but is not recorded. This is also because the officer who manages it is only one person who also carries out all management activities. In the institutional structure of the Mandiri Lestari Waste Bank, the District head as supervisor is supposed to carry out supervision, but in reality it is not optimal. Like Field Honor Workers (THL), who are transporters, sometimes do not carry out their duties as they should, are not given strict sanctions or punishment, they sometimes choose to sell to collectors who have a higher purchase value compared to Waste Banks.

Referring to research from Nisa and Saputro (2021) entitled "Utilization of Waste Banks as an Effort to Increase Community Income in Kebonmanis Cilacap Subdistrict," the existence of a waste bank in Kebonmanis Subdistrict, Cilacap Regency has been proven to increase the income of the surrounding community. Efforts to improve the waste bank in Kebonmanis Village, Cilacap Regency are by helping meet the needs of its members [13].

Apart from that, based on the results of research by Yuliana and Wijayanti (2019) entitled "Community Participation in the Waste Bank Program" regarding factors related to community participation in the waste bank program in West Ungaran District, it is known that there is a significant relationship between knowledge, attitudes and waste sorting behavior, availability of waste sorting facilities, and the benefits of waste banks with community participation. Meanwhile, the variables of education level, employment and land availability are not significantly related to community participation in the waste bank program.

## **2. Waste Bank Management in Supporting Sustainable Development**

Waste Bank management in supporting sustainable development is certainly beneficial for the social environment of the community, such as mapping potential and education. Create a potential master plan in your own work area, such as the family area or District where the Waste Bank is established. Creating periodic programs such as seminars on managing waste, both organic and inorganic, as well as facilitating facilities and infrastructure for these activities (Satori et al., 2020) [15].

Based on the findings, it was found that the management of the Waste Bank in supporting development has not been supported by all groups, both from the community, the government and the management of the Mandiri Lestari Waste Bank. This can be seen from the lack of use of waste from the community, there is still rubbish scattered in the environment around the community. which makes the environment unclean and tidy. Only a small number of people use waste to improve their family's economy in the form of recycling and selling waste at waste banks. It was found that this was only done by people with a lower middle economy, while people with an upper middle economy didn't seem to care.

The existence of a Waste Bank really helps improve the quality of public health. It is hoped that the waste bank can reduce waste that is still scattered in inappropriate places, one of which is cans which are often used as living places for disease-carrying mosquitoes. One of the

social benefits of having a waste bank is that it is able to involve the community by absorbing labor (Suardi et al., 2018) [16].

The Waste Bank programs have had an economic impact on the communities involved in them, namely increasing income because this is one of the goals of the waste bank. The savings results obtained by members are not all the same, depending on the results of the member's work at the waste bank, the more waste deposited, the more money they earn and the more waste is recycled into craft items, the more money goes into savings.

If we look at previous research conducted by Ruchan and Istanti (2020) with the title "Trash Processing through Waste Banks to Increase Community Economic Value," waste which is an environmental problem, if managed well, will have great benefits for the community. If waste is developed, it can become a potential business that has economic value and increases income for the community [17].

Apart from that, based on the results of research conducted by Linda (2016) entitled "Creative Economy Empowerment Through Plastic Waste Recycling", plastic waste recycling activities at the Berlian Waste Bank have provided many benefits for the community. The benefits felt by the community are apart from social benefits as well as economic benefits. The environment around the housing becomes much tidier and cleaner, rubbish scattered around the house can be processed into craft items, this activity also provides knowledge and knowledge for the community about how to process waste properly and also improves the economy of its members [18].

#### **D. Conclusion**

Based on the results of the research and discussion presented above, this research can be concluded that Mandiri Lestari waste bank management is not optimal, this is seen from the

a) Management that has not met the reduction, namely reuse and handling of waste, namely sorting, collection and processing of waste; b) Inadequate facilities; c) Mandiri Lestari waste bank management is not in accordance with existing regulations.

The management of the Mandiri Lestari waste bank in supporting sustainable development in Mapanget District, Manado City has not been supported by all groups, including the community, government and waste bank managers. Good waste bank management will improve the economy and development for the communities involved and can improve the quality of life with a clean environment.

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