Problems in Community-Based Waste Management

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1. Introduction

Waste cannot be separated from human life which is generated from the various activities. Waste continues to be produced by humans over the length of their life. As the population increases, the volume of waste will continue to increase. In developing countries with high population growth, such as Indonesia, the volume of waste will tend to be higher than developed countries with low population growth. As stated by Ikhsandri (2014, p. 133), population size is closely related to the increase of waste amount because the larger the population, the greater the waste produced. This

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ABSTRACT

The paradigm shift in waste management has encouraged a change in waste management to be more community-based by reusing waste through waste banks. This study aims to describe the various waste management problems faced by the Matahari Waste Bank, Madiun City. Descriptive research method with qualitative approach is used in this research. The result shows that the waste bank faces problems include a lack of human resources, limited knowledge and skills of waste bank management, inadequate waste management infrastructure, lack of support from local government, and a lack of public understanding of the importance of waste banks. Local governments need to make concrete efforts in encouraging and supporting waste management through waste banks as mandated by laws and government regulations and as a form of appreciation for the waste bank.

INTISARI

Pergeseran paradigma pengelolaan sampah telah mendorong perubahan pengelolaan sampah menjadi lebih berbasis komunitas dengan kegiatan pemanfaatan kembali sampah melalui bank sampah. Penelitian ini bertujuan untuk mendeskripsikan berbagai permasalahan pengelolaan sampah yang dihadapi oleh Bank Sampah Matahari Kota Madiun. Penelitian ini menggunakan metode penelitian deskriptif kualitatif. Hasil penelitian menunjukkan bahwa bank sampah tersebut menghadapi permasalahan yang mencakup kurangnya sumber daya manusia, keterbatasan pengetahuan dan keterampilan manajemen pengelola bank sampah, sarana prasarana pengelolaan sampah yang kurang memadai, kurangnya dukungan pemerintah daerah setempat, dan kurangnya pemahaman masyarakat akan pentingnya bank sampah. Pemerintah daerah perlu melakukan upaya konkret dalam mendorong dan mendukung pengelolaan sampah melalui bank sampah sebagaimana diamanatkan melalui undang-undang dan peraturan pemerintah juga sebagai bentuk apresiasi terhadap bank sampah.
condition becomes a special "homework" for densely populated areas.

The area with the largest volume of waste in Indonesia is Java Island, because this island is the island with the highest population density in Indonesia. According to the Indonesian Waste Statistics (2012), the amount of waste that appears throughout Indonesia reaches 38.5 million tons per year with the dominant waste being in Java, which is 21.2 million tons per year (Suryani, 2014, p. 71). Waste also experiences various types of development due to the advancement of civilization. The advancement of human life civilization has an impact on technological advances in order to facilitate life which in turn has an impact on the emergence of various types of waste. In ancient times, people produced more organic waste because they used materials produced from nature. In the modern era, people prefer plastic-based containers or wraps that are difficult to decompose by natural processes because they are considered more practical and economical. Plastic-based goods do not require special care, the price is relatively cheap, and it is easy to mix with various coloring agents, unlike traditional ones (Rahayu, 2013, p. 1). The tendency of people to use plastic-based goods makes plastic waste even more mounting. Indonesia is even ranked second in the world as a producer of plastic waste into the sea after China. Based on data from Jambeck (2015), Indonesia is ranked second in the world as a producer of plastic waste to the sea, reaching 187.2 million tons after China, which reached 262.9 million tons (Wahyuni, 2016). Waste that is difficult or even not biodegradable, which is commonly called inorganic waste, requires people’s skills to recycle it so that it can still be used through different forms and functions.

Waste handling has also changed from time to time. In the past, the community was able to manage waste independently. However, along with the increasing busyness of humans and the high demands of life, independent waste management is starting to be abandoned. They don't have enough time to do it. In the end, waste management is carried out by the government or non-governmental organizations formed by the community. Waste management by the government and non-governmental organizations also changes from time to time. In the beginning, the waste was managed by the government using the method of transportation and disposal in the final waste disposal site provided by the government. However, this method is considered ineffective and only moves the pile of garbage from one place to another. In line with this, the Government of the Republic of Indonesia has issued Law Number 18 of 2008 concerning Waste Management, and is complemented by Government Regulation Number 81 of 2012 concerning Management of Household Waste and Waste Similar to Household Waste. These Laws and Government Regulations mandate the need for a fundamental paradigm shift in waste management, from the paradigm of "collect, transport, dispose" to waste management based on reducing waste and handling waste through waste reuse activities or better known as "3R." which stands for Reduce, Reuse and Recycle (Ministry of Environment of the Republic of Indonesia, 2013). This new paradigm sees waste as a resource that has economic value and can be utilized. Then the community, supported by the Ministry of Environment of the Republic of Indonesia, began to form and develop self-help organizations to manage waste and recycle it, or commonly known as community-based waste management methods, so that it has a high economic value that is beneficial to the welfare of the community. This organization is commonly called the "waste bank".

Figure 1 The Paradigm Shift in Waste Management

Source: Analysis result, 2020

Broadly speaking, the waste bank is a community-based waste management method. This community-based waste management is carried out by the community members themselves. Thus the people in these communities can make decisions related to their own lives so that they become more effective when they are adjusted to local needs as well as their priorities and capacities (Sutandyo-Buchholz, 2005 in Suryani, 2014, p. 73). Furthermore, the community as waste producers can play a direct role in reducing waste generation.

Waste banks have been established in various regions in Indonesia since 2008. The Ministry of Environment of the Republic of Indonesia has also developed waste banks in various provinces in Indonesia. Until 2013, the number of waste banks in all regions of Indonesia had reached 1,443 waste banks, a significant increase in the number from the previous year, namely 884 waste banks (Suryani, 2014, p. 74). The number of waste banks which is increases rapidly is not without problems that must be faced and sought for solutions. Many waste banks in this country have difficulty operating their activities optimally, even to “apparent death”. Thus, waste remains an unsolved problem in this country, especially in urban areas with high population density.

One of the communities based waste management through a waste bank in East Java Province is located in Winongo Village, Madiun City, namely Matahari Waste Bank. Madiun City as the capital of the former Madiun
Residency which includes Madiun Regency, Madiun City, Ponorogo Regency, Magetan Regency, Ngawi Regency and Pacitan Regency has long been a shopping destination for people from the surrounding regencies and cities. This has the potential to increase the volume of waste in Madiun City. In 2017, Madiun City produced a waste generation of 87,800 kg/day (East Java Province Environment Agency, 2017). The Matahari Waste Bank was established in 2010 and was inaugurated through the Decree of the Village Head of the Winongo Village Number 400-401.402.5 / 06/2012 regarding the Matahari Waste Bank in 2012. Various awards have been won by the Matahari Waste Bank both at the regional and central levels, including being included in the Top 99 National Public Service Innovations in the field of waste banks, winning 2nd place in the clean and healthy behavior competition at the East Java Province level, and 1st place in the Effort to Increase Prosperous Family Income at the level of East Java Province. However, with a number of achievements, this waste bank also faces problems in waste management.

2. Theory

2.1 Paradigm Shift in Waste Management

Waste management was initially only carried out conventionally, namely collection, transportation and final disposal at the final collection site. Through this kind of waste management, it caused new problems, namely limited land which has an impact on excess waste capacity. The waste management paradigm in Indonesia has changed since the enactment of Law Number 18 of 2008 concerning Solid Waste Management and Government Regulation Number 81 of 2012 concerning Management of Household Waste and Household-like Waste which mandates that there is a need for a change in the fundamental paradigm of previous waste management, namely, collect-transport-dispose of waste management to another method which focuses on reducing waste and handling waste (Ministry of Environment, 2012).

Waste reduction and waste handling activities are of course carried out by all levels of society by limiting waste generation, recycling and reuse of waste and as the 3 Rs, namely Recycle, Reuse and Reduce. The 3 R activities through the Waste Bank are regulated in 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 the Waste Bank. In its implementation, waste management through 3 R, especially through the Waste Bank can be guided by 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 (Ministry of Environment, 2012).

2.2 Community-Based Waste Management

Kastaman (2004) in Koesrimardiyati (2011) defines community-based waste management as a waste management approach based on active community participation. Community-Based Waste Management can be used as a means for people to save, improve socio-economics and empower people in waste management (Suryani, 2014). The actors involved in community-based waste management include various institutions such as ministries and local governments as well as private companies. However, the main actor in community-based waste management is the community and uses a model with the 3R approach, namely Reduce, Reuse and Recycle, which opens new insights that waste was initially considered useless becomes something that can be added value.

2.3 Waste Bank

Ministry of Environment of the Republic of Indonesia through 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 the Waste Bank defines a waste bank as a place for sorting and collecting waste that can be recycled and / or reused which has economic value. Another definition put forward by Aryenti (2011) defines a waste bank as a place for saving waste that has been sorted according to the type of waste.

The main objective of establishing a Waste Bank is to help handle waste processing in Indonesia. The next goal is to make people aware of a healthy, neat, and clean environment. The Waste Bank was also established to convert waste into something more useful in society, for example for crafts and fertilizers which have economic value (Suryani, 2014, p. 75).

The way the Garbage Bank works is generally almost the same as other banks, there are customers, bookkeeping and management. If in a commercial bank the customer is depositing money, but in a Waste Bank that is deposited is waste that has economic value. The working mechanism of a waste bank is also described in article 5 of the Regulation of the Ministry of Environment of the Republic of Indonesia Number 13 of 2012 concerning Guidelines for the Implementation of Reduce, Reuse and Recycle through a Waste Bank, which consists of:

a) Sorting the waste;
b) Delivery of waste to the waste bank;
c) Weighing the waste;
d) Recording;
e) The proceeds from the sales of waste that are
submitted are entered in the savings book
f) profit sharing of the sales of waste between the saver and the implementer.

2.4 General Problems of Waste Management through A Waste Bank

Waste management through a waste bank does produce several benefits from environmental, social, educational, empowerment and economic aspects. However, in waste management through a waste bank, of course, there are still some problems that can occur in waste management through a waste bank. Problems that commonly occur in waste management through waste banks include (Rubiyannor, 2014, p. 48):

a) The lack of understanding of society makes it difficult for waste banks to develop. Based on these problems, of course, socialization is important. This is because in waste management through waste banks, community participation is the main key in the development of waste banks.

b) It really depends on the activeness of the management in managing the waste bank. The waste bank is a social-based organization, so the board, especially the initiator of the waste bank, must play a direct role in managing waste through the waste bank. This is because managers who have more knowledge must be able to carry out their duties and obligations in managing waste through a waste bank.

c) The resale price of used goods is too low, which has an impact on waste bank profits and customer income.

3. Research Method

This research is classified into a descriptive type of research with a qualitative approach, where descriptive research can be defined as a study that intends to conduct examinations and measurements of certain symptoms (Fathoni, 2006, p. 97). This research focuses on problems faced in waste management through the Matahari Waste Bank which includes limited human resources, limited knowledge and management skills, limited infrastructure, lack of support from the local government and surrounding community. Data collection was carried out by interviewing Mrs. Siyam Sumartini as the inspirator of the Waste Bank and several managers and members of the Matahari Garbage Bank, observing and documenting the activities of the Matahari Waste Bank. Data analysis was performed using qualitative data analysis developed by Yin (2011) with stages including database compiling, assembling, reassembling, data interpretation, and conclusion.

4. Results and Discussion

As other waste banks, Matahari Waste Bank also faces various problems during carrying out waste management through the waste bank. Based on the data obtained during the research process, the Matahari Waste Bank in Madiun City faced various problems which can be seen in more detail in the explanation below.

4.1 Limitations of Human Resources

Limited human resources in terms of quality and quantity are the main obstacles in managing the Matahari Waste Bank. The founder of Matahari Waste Bank never received training on waste bank management or waste management. So that in managing a waste bank and recycling waste, the founder of the waste bank does it only by using the knowledge she has. The Madiun City Waste Bank is also experiencing problems in terms of a lack of human resources. In managing the waste and waste bank, the founder of the waste bank is only assisted by her family, so the process of collecting, sorting, recycling, and marketing recycling is carried out by the founder of the waste bank assisted by her brothers, husbands, children and nephews. When there is a demand for goods produced from recycled waste in large quantities, the founder of a waste bank will involve surrounding community, especially housewives who do not have jobs, so that these women get income from wages for recycling waste.

4.2 Limited Knowledge and Skills of Management

The Matahari Waste Bank in Madiun City is run with the limited knowledge and management skills of its founders. The founder of the waste bank stated that she is a technology illiterate so that he has limited access to waste management knowledge. She also never received training from the local government. The waste management that she runs comes from her idea and belief that waste which is considered worthless can actually bring money. The founder of the waste bank looked at the garbage collectors who only by sorting and selling the waste could bring material benefits, but she thought that if the waste was processed it would have added value when it was sold. So that the founder of the waste bank makes various useful items from trash such as bags from used soft drink packaging, flower decorations from used plastic spoons, and others. A higher selling value of recycled waste will benefit all members of the waste bank.

4.3 Inadequate Facilities and Infrastructure

Matahari Waste Bank Madiun City carries out waste management with inadequate infrastructure. There is no support from the local government in the form of provision of adequate infrastructure or financial assistance. The waste collection and sorting process is carried out next to the waste bank founder's house, while the recycling process is carried out at the waste bank founder house. The process of sorting and recycling waste is done manually by involving family members of
the waste bank founders. The waste bank also does not have a special office and showcase cupboard to show the creations of recycled waste.

4.4 Lack of Public Understanding of the Importance of Waste Banks

Lack of public understanding of the importance of waste banks is a problem in running a waste bank. The community does not understand the benefits and objectives of establishing a waste bank so that people are less open and even tend to underestimate the existence of a waste bank. The founders of the waste bank disseminate information to the public about the importance of community-based waste management which can provide benefits to the surrounding community in the form of direct materials and employment for the waste recycling process. Through these socialization activities, the community understands more about the importance of a waste bank and is more open to the existence of a waste bank in their environment.

4.5 Condescension from the Community

At the beginning of the establishment of the Matahari Garbage Bank, the surrounding community underestimated the existence of the waste bank. The public thought that the waste bank was being run for the personal interests of its founders and managers. In overcoming this, the founder of the waste bank tries to provide an understanding to the public of the importance and benefits of the waste bank. As time went on, after the Matahari Waste Bank was able to show its achievements, the community slowly began to open and support the existence and management of waste through the Madiun City Matahari Waste Bank. Surrounding community are also willing to become members of the Matahari Waste Bank and get involved in the recycling process if there is a demand for large quantities of recycled waste products.

4.6 Lack of Local Government Support

Matahari Waste Bank received less support from the local government from its inception until several years later. Support is only provided in the form of a permit to establish a waste bank, but there is no other form of support such as training, funding, or provision of adequate infrastructure. Infrastructure assistance in the form of laptops, printers, tables and chairs, sewing machines, carts, and compressors was obtained from the Java Ecoregion Management Head Office under the Ministry of Environment of the Republic of Indonesia, which is in Yogyakarta after the Matahari Waste Bank achieved various awards.

The problems faced by the Matahari Waste Bank in Madiun City are the same as the problems faced by waste banks in general, namely the lack of understanding of the community and also very much depending on the activeness of the management in managing the waste bank. However, Matahari Waste Bank is also experiencing other, more complex problems, namely limited human resources, lack of knowledge and skills in waste management and waste bank management, and lack of support from the local government. The Matahari Waste Bank does not experience any problems related to the resale price of used goods which is too low because the founders and management of Matahari Waste Bank are able to recycle used goods into more useful and unique items so that they have a high selling value. For product marketing, Matahari Waste Bank is very active in participating in various exhibitions and is marketed online which is handled by the nephew of the founder of the Matahari Waste Bank.

The problem related to the lack of public understanding of waste banks which results in an attitude of underestimating the existence of waste banks, of course, is not the responsibility of the waste bank itself to provide socialization and understanding to the community. The government must also be present to disseminate information to the community through citizen meetings as well as print and electronic media. Local governments must also aid with waste management infrastructure and marketing of waste recycling products. And more importantly, local governments must provide training related to waste bank management and waste management according to the latest waste management paradigm to improve the quality of human resources for managing waste and waste banks. The quality of good human resources in waste bank management will have an impact on their ability to face various challenges in waste management. In addition, waste bank managers will also be more creative and innovative in managing waste and producing recycled waste products. This is important because the types of waste produced by the community are increasingly diverse and are increasingly difficult to decompose naturally by nature because of the plastic content in them.

Waste bank can indeed be interpreted as a community-based waste management effort which requires an active role of the community, even though the management is often carried out independently by the community. However, this does not mean that local governments as part of the central government can be passive. In Law Number 18 Year 2008 Article 6 concerning Waste Management, it is stated that the Government and Regional Government have the duty to ensure the implementation of good and environmentally sound waste management which includes:

a) Developing and increasing public awareness in waste management;
b) Carry out research, development of waste reduction and handling technology;
c) Facilitating, developing and implementing efforts to reduce, handle and utilize waste;

d) Carry out waste management and facilitate the provision of infrastructure and facilities for waste management;

e) Encourage and facilitate the development of benefits from waste processing;

f) Facilitating the application of local specific technology that develops in the local community to reduce and handle waste; and

g) To coordinate between government agencies, the community, and the business world so that there is an integrated waste management.

Local governments must synergize with waste banks to solve and even overcome the problems faced by waste banks. This is done not only to comply with existing laws and regulations, but also as a form of appreciation to the waste bank for having taken part in solving the problem of urban waste, and carry out efforts to mitigate the negative impacts of waste through waste processing that is environmentally friendly and even increase the selling value of waste which also has an impact on increasing the income of the surrounding community.

5. Conclusion

Matahari Waste Bank Madiun City faces various problems in waste management through waste banks. The problems faced by waste banks are complex because they include the quality and quantity of human resources for managing waste banks, waste bank management using inadequate knowledge and skills of management, lack of public understanding of waste banks which results in an attitude of underestimating the existence and activities of waste banks by community, lack of infrastructure and support from the local government. However, this waste bank does not experience problems in terms of marketing recycled waste products.

The need for support from the local government in accordance with the mandated laws and government regulations in overcoming various problems faced by the waste bank. Local governments must be present and play a role in waste management through waste banks in accordance with their main duties and functions. The support from the local government is a form of appreciation for the waste bank which has carried out efforts to mitigate the negative impact of waste through environmentally friendly waste processing and even increase the selling value of waste which also has an impact on increasing the income of the surrounding community.

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