

## The Role of Waste Banks in Improve Family Economy during Covid-19 Pandemic

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**Abstract.** Waste management is mandated in Undang-undang Nomor 18 Tahun 2008, which changes the paradigm of waste disposal into processing based on waste reduction and management. One way of processing waste is by having a waste bank. The Waste Bank is the right campaign in waste management by buying back waste in the form of a savings system such as the banking system. One example of a waste bank is the Kunjang waste bank. This research is a qualitative descriptive study. Data obtained from surveys and observations. The location of this research is in the Kunjang Waste Bank. This research was then analyzed with an interactive model through the process of data reduction, data presentation, and verification. The results of the study explain that the majority who become customers of the waste bank are housewives. This pattern of development through waste banks not only encourages local community initiatives but also requires synergy from all levels of society, waste banks, and local governments. The collaborative and cooperative relationship between the government and the community is a form of active participation as an effort to support government programs in local economic and environmental development programs. On the other hand, government support for the community is manifested in the form of support for human resource improvement programs through mentoring, training, and socialization. This can help realize the strengthening of the family economy, and alternatives to overcome waste, social, and economic problems, especially in the era of the Covid-19 pandemic. An improved economy is born on the basis of community or local community commitment.

**Keywords:** *waste bank, family economy, community empowerment.*

### 1. INTRODUCTION

"Stay at home" policy during Covid-19 pandemic has significantly impacted waste volume on a household scale and medical waste significantly. As stated by Melly Amelia (YPBB Campaign Manager), waste reduction from commercial sector such as restaurants, shopping centers, and tourism has indeed decreased. On other hand, there is an increase in household waste due to changes in people's consumption patterns after the implementation of work from home policies and social restrictions. "Most people limit themselves to only doing activities at home. But to meet their consumption needs, they shop online with an increasing trend based on research data between 27-36 percent. Thus, waste such as disposable plastic packaging that overflows the mass," she told to an environmental news site Mongabay (Suriyani, 2020).

Waste itself is second material that is no longer used. The types of waste can be divided into 3, namely organic waste, inorganic waste, toxic and hazardous waste (B3). Organic waste (wet waste) is waste that easily rots, for example, food scraps. Inorganic

waste is waste that is difficult to decompose, for example plastic bottles, glass. Toxic and hazardous waste, for example, hospital waste, industrial process waste. Everyday, most people throw waste without separating it according to its types. There are even people who indiscriminately it to rivers and on roads. This can result in environmental damage, such as flooding.

Waste as industrial and household residue increases along with population growth. Within in urban areas are main producer of waste. It's estimated that the amount of waste in cities in Indonesia reaches 38.5 million or 200,000 tons per day every year, an increase of 2-4 percent per year. Data from Indonesia shows that the majority of waste sources are households (48%), followed by traditional markets (24%), commercial areas (19%) and public institutions. The increase in the amount of waste production every year is a problem due to limited landfill capacity and landfill difficulty (Wijayanti & Suryani, 2015).

Amount of waste is sufficient to be traded or further processed as an economic commodity, either used as raw material (recycling) or as a traded commodity, it will have economic value. Here, we can see the importance of the waste bank as a means of people's savings, improving the social economy, and empowering the community in waste management. Outerbridge (in Vidyana, 2012) suggests that in this public waste management activity, many considerations in choosing a process depend and are influenced by several factors, viz. the type of waste being managed (such as household waste and industrial waste), geographical factors (such as the environment) conditions, the location of waste management activities, skills and labor availability, in the form of skills or education owned by the population and the participation or active behavior / activeness of the population (residents as labor) in waste management activities, funds available for capital and operating costs, i.e. money, goods or services, and the main use of activities products, such as for sale or use alone, for example compost sold or used alone for fertilizer plants. In addition to these factors, experts also mention that there are other factors that are believed to affect waste management, namely institutional or social activities and existing mentoring.

Waste bank management model not only helps to clean the environment, but also has economic benefits. It also connects with local communities to receive and manage their own waste in order to reduce waste and also gain economic benefits. Pariatamby and Tanaka, (2014) say that waste bank benefits, which not only cleans the environment but also generates additional money for the community. Waste banks teach how to sort waste and raise awareness of the need to process waste wisely in order to reduce waste accumulation (Asteria and Heruman, 2015). Waste management innovations through grassroots waste banks can increase the income of the poor in the city (Winarso and Larasati, 2011). Based on this background above, researchers are interested in discussing, "The Role of Waste Banks in Improve Family Economy during Covid-19 Pandemic."

## **2. LITERATURE REVIEW**

### *2.1 Covid-19 pandemic*

A global pandemic phenomenon due to new virus emergence that is currently infecting the world, namely Coronavirus (CoV). World Health Organization states: that the coronavirus (Cov) can infect the human respiratory tract. The virus has the scientific name Covid-19. Covid-19 can have effects that range from mild to very severe flu, equal to or even more severe than MERS-CoV and SARS-CoV (Nasution et al, 2020). The existence of this cycle has an impact on current economic developments, especially at the beginning of 2020, which has become a terrible phenomenon for all

human beings in the world. Even until 2021, the economies of several countries unrisen perfectly.

## *2.2 Waste Bank*

Waste bank consists of two words. Bank is an intermediary institution that acts as a place to store and lend money, as well as for financial transactions. Waste is defined as unwanted or unusable material that is usually disposed of by its owner (Pinheiro, 2015). Waste bank is an intermediary institution that converts waste into cash. The Waste Bank is a campaign to overcome the waste problem by buying back the money from the waste in the banking system and storing it properly (Pariatamby and Tanaka, 2014).

The waste bank system was first introduced in Thailand in 2006 as a breakthrough in "saving waste". Inorganic waste is collected and sorted into several categories to be used as savings. The amount of credit deposits can be withdrawn at any time. Public waste savings are sold to scavengers for reuse or recycling. The first waste bank in Indonesia was founded in 2008 by an entrepreneur in Bantul, Yogyakarta. During the five years of its implementation in Indonesia, around 886 waste banks have been created with 84,623 customers. Waste bank can be categorized as an effort to manage household waste, which is regulated in Government Regulation Number 81 of 2012, which requires producers to reduce, reuse, and recycle in waste management. With the involvement of the public and private sectors, the waste bank is now also one of the Innovations of Urban Management (IMP) in the waste management program. Waste bank management as stipulated in the Decree of the Environment Minister Number 13 of 2012, consisting of waste bank management in general and the scope of its work, which shows that the waste bank has participated in a waste management system with the public as the basic principle.

Waste Bank is a community-based waste management system that enables public play an active role in managing their environment. Waste management has several tools to encourage people's reliance in manage waste in their households and turn it into savings together. These instruments must be reciprocal to ensure that public receives tangible benefits and it participatory process. In the book of waste banks according to Suwerda (2012) *Bank Sampah (Kajian Teori dan Penerapan)* reveals that waste bank is a simple concept that easily applied in various fields with different characteristics. It gonna change the paradigm of waste that is considered dirty and disgusting, into something clean. This concept merges with the bank and becomes a waste bank. Many ordinary people should know, this is a clean place, and it'll promote waste from dirty clusters to clean clusters. The benefits provided by the waste bank: educating children to get used to saving, even in the form of waste, the family environment becomes clean from waste, by burning plastic waste to reduce environmental pollution, especially air pollution, making it easier for residents to manage paper, plastic, and cans/bottles waste, because the source is classified (Koeswartojo, 2007). In practice, this concept is more accepted in village than in rural area. Village is a typical densely populated urban settlement which is mostly inhabited by the middle to lower social classes.

## *2.3 Community Based Waste Management*

Communities have the power to build and manage themselves and create their own "government" based on their knowledge and values (Li, 2012). People are connected not only by geographic and administrative areas, but also by emotional connections in which individual identities are constructed through relationships of distinctive cultural meanings and values. The government role is no longer only as a planner and regulator, but also as empowerment, stimulus and facilitation. The government can give freedom to the people to find their direction by developing an attitude of autonomy and responsibility (Li, 2012).

Consider to environmental management, especially with regard to waste, Koeswartojo (2007) explains that participation is based on public awareness which not only comes from knowledge but also from “conscience”. Although it has a very large influence on the normative formation discourse in a society, knowledge, and education are not the only factors that shape environmentally friendly behavior. Conscience is an abstract concept, but it explains how consciousness arises from personal choice (free will), either due to internal factors or due to beliefs and traditions (Kollmuss and Agyeman, 2002). Personal preference as the process may take longer or longer. This effort is known as “social engineering” and is part of community strengthening. The key to strengthening the community is to build self-reliance in human resource development. The first step in building self-reliance is economic independence, the second is intellectual and professional independence. This is community development as part of the social aspect of sustainable development. In line with the opinion of Suryani (2014) that community-based waste management is an approach to waste management based on the active participation of the community. The government and other agencies only act as motivators and mediators. Douglas et al. (1994) found that environmental management requires the promotion and implementation of community-based efforts as a strategy to strengthen and improve their access to key environmental resources, particularly land, infrastructure, and services. Community-based solid waste management is so important because its carried out by public members themselves. They make decisions about their own lives. It will be more effective if it is adjusted to local needs and priorities as well as their capacity (Suryani, 2014)

### *2.5 Family Economic Development*

In his book, Basith (2012) entitled *Ekonomi Kemasyarakatan Visi & Strategi Pemberdayaan Sektor Ekonomi Lemah* explains that family economic empowerment is the embodiment of increasing the dignity of the community layer to escape the trap of poverty and underdevelopment. In family economic development, it's a process where families as members of the local community can exchange ideas and reflect on the future of their area. We can define it as a participatory process that promotes and facilitates partnerships between local actors and enables the joint design and implementation of strategies, mainly based on the competitive use of local resources, with the ultimate goal of creating decent work and sustainable economic activity (Canzanelli and Giordano, 2001). These activities enable local governments, the private sector, the non-profit sector, and local communities to work together to improve the local economy. It aims to increase competitiveness and thereby promote inclusive and sustainable growth. The aims of family economy development is to its economic capacity to improve the economic future and quality of life. It's a process by which public sector partners, businesses, and civil organizations work collectively to create preferable conditions for economic growth and job creation (Swinburn et al., 2006). This step is part of increasing the ability and increasing economic independence of the family. Overall, it requires active and creative participation.

## **3. RESEARCH METHODS/METHODOLOGY**

This research is a qualitative descriptive study. The approach used is a qualitative approach and describes the waste bank as a waste management model to improve the community's economy, especially families. The survey consisted of in-depth interviews, while the observation method included direct observation of the research subject. The location of this research is in Kunjang Waste Bank. Samples will be taken at the Kunjang Waste Bank. Researchers took samples at the Kunjang Waste Bank because of the proximity of the location to the research site, besides that this place is currently a waste bank that was initiated. Direct interviews with respondents (waste bank managers and customers) about the research phenomenon under study.

#### **4. RESULTS AND DISCUSSION**

A major waste problem continues cause of several problems such as floods, dirty environment and has an impact on public health. A good life arises when there are conditions that are in harmony with the environment, but many people fail to realize the importance of harmony with nature and the environment. The behavior that occurs in the community is burying or burning waste. It's not viable in harmony with nature.

Waste management is developed with the creation of final storage bins, where this model can be used by several people. Sort waste for resale to producers (eg plastic producers). The waste management model has drawbacks, including disposal in confined spaces, disposal costs, and environmental impacts. In Indonesia, waste management is mandated in Law No. 18 of 2008, which changes the paradigm of waste disposal into processing based on waste reduction and management. The 3R (Reduce, Reuse, Recycle) model is an alternative to solving the waste problem. Waste management has a complex and lengthy process that is seen not only as a technical problem but also as a management paradigm. The solution is not limited to end-of-pipe systems, but on management systems such as waste reduction from the source, waste segregation to recycling processes. Therefore, an effective environmental management system is needed, which is discussed in this paper by involving the community as community-based environmental management (Wijayanti & Suryani, 2015).

Public participation must be assumed that community in its smallest environment already has awareness and knowledge about waste management. Human and social resources are important issues in waste management to support the community as a responsible resource and a key player in waste management. Waste banks teach how to sort waste and raise awareness of the need to process waste wisely in order to reduce waste accumulation (Asteria and Heruman, 2015). Waste innovation with waste banks has developed into an innovation program to increase the income of the urban poor (Winarso and Larasati, 2011). Purba et al. (2014) stated that the development of this waste bank would also support local governments in enabling municipalities to handle waste wisely and reduce the transport of waste to landfills.

Waste Bank is the right campaign in waste management by buying back waste in the savings system form such as the banking system (Pariatamby and Tanaka, 2014). Waste banks work like banks allowing communities, sub-districts, and districts to store their waste or withdraw money from the value of the waste they provide for the facility (Friedberg and Hilderbrand, 2017). Waste Banks began to develop in various cities in Indonesia such as Bantul (2008), Malang (2010), Surabaya (2010), Gresik (2012), Cilacap (2012), West (2012) and developed in almost every city and government in Indonesia. That's a good performance, especially in dealing with the waste problem.

Waste management model through waste bank management has a purpose and is divided into five aspects: (1) Environmental aspects help in reducing the amount of waste in the Kunjang area, (2) Social aspects that arise from a sense of concern and ability to work together to form a waste bank unit in each area. hamlets to make the environment clean and cool, (3) Environmental education aspects in the community and members of the waste bank, knowing the dangers of unprocessed waste and the benefits of disposing of waste directly from the source (home) of family (father/mother and child) members reaching internal local government level, (5) Family economic aspect, which consists of saving waste, which is appreciated by the waste bank cooperative, and borrowing money and paying it with waste. In detail, there are several types of plastic waste in the group, such as paper waste and glass bottle waste. The purchase price at the waste bank adjusts to the market, which can fluctuate depending on the market, and the price with money deposited in the waste bank has a higher value.

Waste banks have several community and environment benefit, such as making the environment cleaner, making people aware of the importance of cleanliness and turning waste into economic goods. The benefit of having a waste bank for the community is that it can increase people's income because they get a reward in the form of money that is collected in their account when they exchange their waste. People can always withdraw money from their savings when their savings have accumulated a lot. The rewards for savers are not only in the form of money. But there are also staples such as sugar, soap, and rice. With this pattern, apart from being disciplined in handling waste, residents also get additional income from the waste they collect. It seems that such a thought was adopted by the recommendation of Environment Ministry.

Waste bank implementation as referred to in Environment Minister Regulation of the Republic of Indonesia Number 13 of 2012 concerning Guidelines for the Implementation of Reduce, Reuse and Recycle by Waste Bank is as follows. (a) Working hours. The working hours of the waste bank completely depend on the agreement between the waste bank manager and the city government as savers. The number of working days of the waste bank in a week also depends, it can be 2 days, 3 days, 5 days or 7 days depending on the availability of time for the waste bank manager who usually has the main task. Kunjang waste bank, for example, operates every day. But during the current pandemic it's only for 2 days a week. (b) Withdrawal of savings credit. Anyone can store trash in the waste bank; any stored waste is weighed and paid for at market prices. Money can be withdrawn directly by savers or recorded in an account book made by the bank. To facilitate the management system, the ledgers of each RT or RW can be distinguished by color. The waste bank has collaborated with authorized collectors and agreed. So that the waste is immediately transported to the nearest landfill after being collected, weighed and recorded. That way, there is no waste that accumulates at the waste bank location. Waste banks can be a source of raw materials for home industries around the bank location. Therefore, waste management carried out by people who are also bank customers. In this way, the community can get a double benefit from the waste bank system, such as savings and profits from selling products made from recycled materials.

In Kunjang waste bank itself, the majority of the waste bank customers are housewives. Starting from the desire for a clean environment around them. Their perception of the waste bank is very positive. Compared to collection of used waste for flea, which is limited to certain items such as paper, plastic, cans, but unaccept other waste, unlike a waste bank where almost all of the waste has economic value. From an economic point of view, they earn an average of IDR 100,000 - IDR 250,000 from the waste they collect. With the waste bank community, they no longer see waste as a problem, but as a device to make money. Especially during Covid-19 pandemic where daily needs are also increasing. Communities benefit from the existence of this waste bank and not only get additional income, they are also more enthusiastic about cleaning the environment so that it has an impact on the environment. This is in line with the view of Soedjatmoko (2016) that with the self-confidence and degree of emancipation of Indonesian women, Indonesian women want them not only to be a burden to their husbands, but also to become fighters who have the same skills and rights as their husbands. Based on the above, it can be said that the role of mothers is very large in the movement of the family economy. Indonesian women want them not only to be a burden to their husbands, but also to become fighters who have the same skills and rights as their husbands. Based on the above, it can be said that the role of mothers is very large in the movement of the family economy. Indonesian women want them not only to be a burden to their husbands, but also to become fighters who have the same skills and rights as their husbands. Based on the above, it can be said that women's role in family economy thereby increases.

Currently, waste is no longer a dispose and harmful object, but something that has economic value for others and expect better services, and hope that waste prices will continue to rise or follow market prices so that the enthusiasm of the local

community can continue to collect waste and the environment can maintain or even improve sanitation fastly. Waste bank socialization must continue to encourage more citizens to participate in waste collection and to generate income from the waste bank. Additional income is very important for housewives, especially to support the family economy, because most of local population earn mediocre and only enough to meet their daily needs. Over time, public awareness of environmental protection is increasing. They realize that a cleaner environment also improves family health and reduces the risk of flooding and other environmental damage.

In Kunjang waste bank has an impact on the community and its customers. Through the proposed management model, which allows interaction between customers and customers with waste bank managers in the management of reciprocal relationships and community empowerment. The impact for the community and members is additional income from waste and a cleaner environment (see Figure 1). The community economic strengthening program has increased people's income. Although it has not yet fully lifted them out of poverty, the surrounding community continues to participate in this program, which has a good impact on themselves and the environment around them.

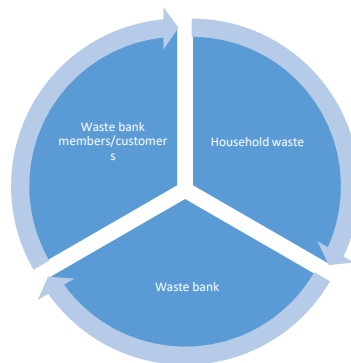


Figure 1 The circulation of household waste in the Kunjang waste bank

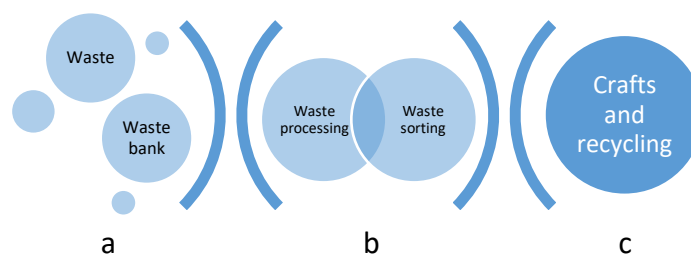


Figure 2 Waste bank management process model

Figure 2 shows a model of the waste bank management process, starting with household waste, sorting and reusing it by household crafts and recycling to empower the community of waste bank customers/members. In this phase, waste is sorted and collected to be taken to the waste bank (At this stage the waste that has entered the waste bank is disposed of again and then processed and made into crafts (b). This stage requires the creativity of households/groups to add to the economic value of the waste. The existence of community synergy or waste bank managers in making handicrafts at this stage. Support in efforts to strengthen energy the regional economy. Pattern of development through waste banks not only encourages local community

initiatives but also requires synergy from community, waste banks, and government.

Synergy between community, waste banks and local governments is manifested in parts (a), (b), and (c). Part (a) shows the cooperation between the community and the waste bank. This collaboration is manifested in an effort to support and participate in waste management efforts through the waste bank program. This participation is not only beneficial from an economic point of view, especially during this pandemic period it is useful for strengthening the local economy, but also related to environmental and social issues. Reinforced in Figure 1, it shows the pattern of local economic development through waste banks, which are not only based on individuals, but require synergy between the community, waste banks and the government through the triple helix model above. Collaborative and cooperative relationships with the government and the community as well as an active form of community participation in an effort to support government programs in local economic and environmental development programs that are useful as supporters during the Covid-19 pandemic. On the other hand, government support for the community is manifested in the form of support for human resource improvement programs through mentoring, training, and socialization. Next, is the collaboration between the waste bank and the government. This is manifested in cooperation in realizing the local economy, strengthening communities and also in alternative models to overcome social and economic waste problems, especially in Covid-19 era. Through of these elements synergy, the economic empowerment program makes families more independent and improves the economy, social, and ecological. In accordance with Birkhölzer (2009), local communities describe a common goal (not just individual goals but for the common good). An improved economy is born on the basis of community or local community commitment. In addition, an integrated holistic approach is important for defining economic problems. Taking into consideration, not only goods and services are produced, but ecological, social, and cultural factors are also taken into account. Building social capital is important to increase the capacity, knowledge and local communities' skills.

## **CONCLUSION**

Waste management is mandated in Law No. 18 of 2008, which changes waste disposal paradigm into processing based on reduction and management. The 3R (Reduce, Reuse, Recycle) model is an alternative to solving the waste problem. The solution is not limited to end-of-pipe systems, but to management systems such as waste reduction from the source, waste segregation to recycling processes. Waste Bank is the campaign in waste management by buying back waste in savings system form such as banking system. Such as Kunjang waste bank. The waste management model through waste bank management has a purpose and is divided into five aspects: ((1) Environmental aspects help in reducing the amount of waste in the Kunjang area, (2) Social aspects that arise from a sense of concern and ability to work together to form a waste bank unit in each area. hamlets to make the environment clean and cool, (3) Environmental education aspects in the community and members of the waste bank, knowing the dangers of unprocessed waste and the benefits of disposing of waste directly from the source (home) of family (father/mother and child) members reaching internal local government level, (5) Family economic aspect, which consists of saving waste, which is appreciated by the waste bank cooperative, and borrowing money and paying it with waste. In Kunjang waste bank, customer's majority are housewives. This pattern of development through waste banks not only encourages local community initiatives but also requires synergy from the community, waste banks, and the government. Balance synergy between communities, waste banks and local governments. Collaborative and cooperative relationship between government and public as well as an active form of community participation in an effort to support government programs in local economic and environmental development programs. An improved economy is born on the basis or local



community commitment.

In order to activate public's role, it's necessary to have a lighter from an institution or social activity. Thus, waste management socialization plan can be easily carried out. It aims to increase public awareness and make them willing to manage waste in accordance with established procedures and equate concepts/views with waste management considerations. The supervisor is the organization or person who directs and instructs waste management activities, as well as colleagues or consultants. Given, humans in his day no longer care about the environment as a tradition, but on rational problem solving and requirements for survival. Thus, each stakeholder is an player in environmental policies development, including government, corporate institutions, and mass media at all.

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