

# The Process of Society Empowerment in Managing Waste for Sustainable Development(Study on Waste Bank in Sicanang District Belawan)

*by* Mujahiddin -

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*Mujahiddin*

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### **1. Author information**

*Mujahiddin*

Department of Social Welfare, Faculty of Social and Political Sciences,  
University of Muhammadiyah Sumatera Utara (UMSU), Medan,  
Indonesia

### **2. Author e-mail address**

*mujahiddin*

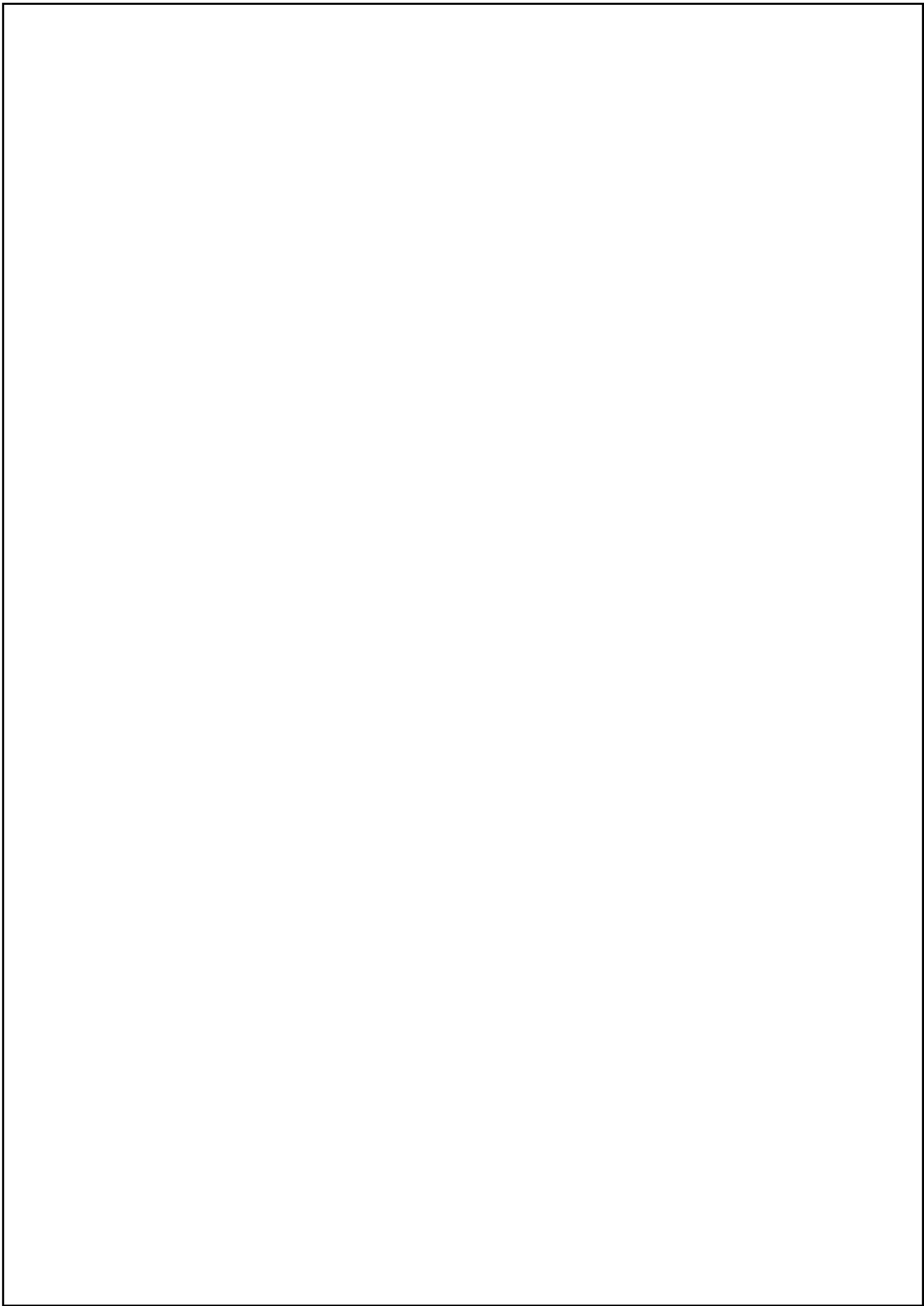
E-mail: [mujahiddin596@gmail.com](mailto:mujahiddin596@gmail.com)

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<sup>2</sup>  
*The Process of Society Empowerment in Managing Waste for Sustainable Development (Study on Waste Bank in Sicanang District Belawan)*

Mujahiddin\*

Corresponding author:  
Mujahiddin  
E-mail: mujahiddin596@gmail.com

**Abstract**

The society-based waste management efforts can be part of efforts to support the sustainable development agenda or in other terms referred to <sup>8</sup> as sustainable development. By empowering the society in waste management, it will indirectly reduce the volume of waste production to <sup>1</sup> the landfill that the accumulation of waste in the landfill that produces methane gas (CH<sub>4</sub>). This research was conducted by <sup>3</sup> case study approach to the existing bank waste customers in SicanangBelawan district in Medan. The data that have <sup>3</sup> been collected through interviews and subsequent observations are analyzed by qualitative approach interactive model as proposed by Miles and Huberman, which consists of three main things namely; data reduction, data presentation and conclusion or verification. The results of the study found that the community empowerment process in managing waste begins with the increase of public participation by changing the value of waste from unworthy into rupiah value through waste saving. Increased participation is then followed by dissemination of waste segregation and waste recycling training. The whole process has a positive effect on social, economic <sup>7</sup> and environmental change. Where the three aspects of change is an integral part of the principles of sustainable development, namely; social development, economic development and environmental conservation.

Keywords: empowerment; waste management; sustainable development.

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\* Department of Social Welfare, Faculty of Social and Political Sciences, University of Muhammadiyah Sumatera Utara (UMSU), Medan, Indonesia.

## 1. Introduction

Waste in general can be interpreted as a goods or materials that no longer have value in use because the main part of the goods have been taken or used for various forms of purposes. Because it has no use value, it is often regarded as the waste of a material that no human wants; either at the individual or household level. In Act No. 18 of 2008 on Waste Management, waste is defined as the rest of the daily activities of humans and/or natural processes in the form of solid.

Waste from human production according to Mujahiddin (2014) can be classified in two traits: organic waste or decompose and inorganic or non-decomposing waste.

Both types of trash are usually never sorted well. Its always blends in one garbage heap both in the household sector, the market, shopping malls, offices and other places. Though specifically, with the differences in the nature of the waste then the treatment of waste management is also definitely different. That is why in waste management we are familiar with 3R concept namely; Reduce, Reuse, Recycle.

Waste separation process has actually been done by providing different waste bins between inorganic and organic waste. Based on the international standard there are three color bins that have different shelter function. First, the green color that serves to accommodate garbage with organic types or garbage from household products. Second, the blue color that serves to accommodate waste with organic types such as paper, plastic and various types of waste that can be recycled back. Third, the red dumpster, this waste bin serves to accommodate waste with types of iron, aluminum, steel cans, soft drink cans, and bottles.

But the concept of waste separation is not implemented well in Indonesia. In some places, for example, although there have been sorted garbage trunks by type, but in the transporting phase of the disaggregated waste is reunited in one bus or one garbage truck vehicle. So that the selection process conducted in the upstream (such as households, malls, hotels, and offices and terminals and airports) does not arrive at the final stage.

During this time, the waste management model still uses the traditional pattern that is; garbage collected on a household or environmental scale, then transported by a janitor and dumped to a temporary collection place (TPS) and then transported for disposal to landfill (TPA). This condition makes waste piles in the landfill continue to increase from year to year like mountain peaks. Moreover, most landfills in Indonesian cities still use open dumping system which in many studies has been considered ineffective in overcoming the current waste problem.

This can be seen from Article 44 paragraph 2 of Law no. 18 of 2008 on Waste Management stating that the local government must close the final waste disposal site using open dumping system for 5 (five) years since the enactment of Law no. 18 of this year 2008. But the order in the law has not been able to be realized by the local government to replace the Open Dumping system in waste management into Sanitary Landfill system. Based on the report of Indonesia Solid Waste Newsletter; March 2013, there are 90 percent of TPA in Indonesia are still doing the practice of open dumping. The main reason local governments to use the open dumping system is the limitation on human resources as well as funds.

In addition to unpreparedness in waste management including the provision of adequate landfills, another problem that arises is the production of waste is predicted to continue to increase every year. Central Bureau of Statistics (BPS) noted in 2011 the amount of waste production generated by 380 cities in Indonesia reached 80,000 tons per day. In the prediction in 2025 the amount of waste production will reach 130,000 tons per day. Specifically in Jakarta for example, garbage production reaches 6500 tons per day. In Bandung the amount of waste production reaches 11,000 tons per day where 65 percent consists of inorganic waste. While in Medan in 2013 the volume of waste generated by the community ranges from 1700 tons per day or 44,000 tons per month (Mujahiddin, 2016).

Slamet in Sasmita (2009) noted that there are three factors that affect the quantity and quality of waste are: first, the population. The more the population, the more waste generated. Because in one report said the waste generated by an average individual reaches 0.5 kg/day. Second, the socio-economic situation. At this point, the higher the socio-economic condition of one community, the more the per-capita amount of waste is discarded. Third, Technological advances. At this point the technological advances will increase the number and quality of waste, because the use of increasingly diverse raw materials, how packing products and manufacturing products are also more diverse.

The number of population and socioeconomic conditions are the main factors affecting the development of waste in quality and quantity. Therefore, waste management efforts should no longer be referenced to the pilot-hauling model that has been practiced in waste management systems in many areas. But the waste management system must be developed with a management model based on community empowerment. This is important to do, because individuals are an integral part of the garbage production chain. Society as consumers in industrial products eventually become producers in producing waste every day.

Therefore, in the process of community empowerment, provision of understanding and skills to individuals in waste management; starting from the sorting stage, recycling to reuse of recycled products, should be done by forming community communities in each neighborhood, kelurahan and or kecamatan. In addition, these community empowerment efforts should also be followed by local government policies that favor improving waste management systems that have been relying on retribution model (cost-sharing) into a waste-saving model that can directly reduce the volume of garbage disposal in TPA

Garbage that accumulates in TPS or in TPA indirectly contributes to the increase of greenhouse gases such as water vapor, carbon dioxide (CO<sub>2</sub>), metana (CH<sub>4</sub>) and dinitrooksida (N<sub>2</sub>O). Permadi (2011) notes that from piles of garbage – which exist in TPS or TPA – will produce tons of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) gases. The same note was also expressed by Utami (2013) said that the garbage dump in the open dumps could cause a bigger problem than what is being planned. Organic waste undergoes an anaerobic decomposition process and produces methane gas that contributes to global warming.

This means that community based waste management efforts can be part of efforts to support the sustainable development agenda or in other terms referred to as sustainable development. By empowering communities in waste management it will indirectly reduce the volume of waste production to the landfill so that the accumulation of waste in landfill that produces methane gas (CH<sub>4</sub>) can be reduced and the greenhouse effect generated from waste piles can be reduced. Based on the above description, this research will analyze about How Community Empowerment Process In Managing Waste for Sustainable Development at Garbage Bank in SicanangBelawan District?

## 2. Method of the research

This research was conducted by case study approach the existing bank waste customers in SicanangBelawan district in Medan. This approach was chosen in order to reveal in depth the process of community empowerment in managing waste for sustainable development at the garbage bank in SicanangBelawan district. The data that have been collected through interviews and subsequent observations are analyzed by qualitative approach interactive model as proposed by Miles and Huberman, which consists of three main things namely; data reduction, data presentation and conclusion or verification. The whole process is one that intertwines before, during and after data collection (Idrus, 2009).

### 3. Discussion

2 In order to answer the formulation of the research problems about how the process of community empowerment in managing waste for sustainable development at garbage bank in sicanangbelawan district? Then the data to be presented in this chapter of this discussion will be sorted based on three categories namely; first, the relation of waste banks and community empowerment.12 Second, the process of community empowerment in waste bank. Third, community empowerment in waste management for sustainable development. Furthermore, the three categories will be presented in more detail below:

#### 3.1 Waste Bank and Community Empowerment

1 This waste management model through waste bank is a form of waste management business by applying the principle of 3-R (Reduce, Reuse, Recycle). In garbage banks, the system implemented is a system of managing waste and accommodating,1 then sorting and distributing waste to other waste treatment facilities or to those in need. Here the value of goods that have become waste can be upgraded, which was previously useless into useful goods.

1 In addition, shelter processing and waste processing by distributing to other waste treatment facilities or to those in need can also help reduce the intensity of garbage disposal to TPS or TPA.

Seen from the understanding, Utami (2013) describes garbage bank as a collective waste management system that collectively encourages people to participate actively in it. This system will accommodate, sort, and distribute the economic value of waste to the market so that the people get the economic benefit from saving the garbage. So all activities in the junk bank system are done from, by and for the society. Trashes deposited by customers have to be sorted. This requirement encourages people to segregate and classify waste. For example, by material type; plastic, paper, glass and metal. So, the garbage bank,1 will create a new culture for people to sort out garbage. Thus, the garbage bank system can serve as a tool for social engineering (Utami, 2013).

The ability of garbage bank to do social engineering is characterized by the active participation of the communities around the garbage bank. The active participation of the community is not only listed as a waste bank customer, but the community is also active in sorting waste from home, saving garbage in garbage bank and participating in recycling garbage independently. As a result, the waste that has been saved or recycled becomes

economically valuable and the community becomes more empowered because it is given the authority to participate in waste management and is given knowledge of waste sorting and waste recycling.

### ***3.2 Community Empowerment Process in Garbage Bank***

Empowerment is often associated with the power concept. Because in the process, empowerment is a form of transfer of power in the form of authority and ability. Soetomo (2011) states that the authority and ability in community empowerment as the main element. Both of these things, according to Soetomocan not be separated, because although it has obtained authority but if the community has not or does not have the ability to run and implement the authority then empowerment has not materialized.

Specifically, Eric Fromm – as quoted Trijono (2001) – a power in two forms; (1) power as liberating and (2) power as limiting. In this context, Fromm incorporates empowerment as part of the power liberating individual, group and/or society from certain structural obstacles. This principle of structural liberation-in the process of community empowerment<sup>3</sup> according to Parson et al (in Suharto 2009) is characterized by the ability of a person or group to participate in order to acquire sufficient skills, knowledge and power to change or affect his or her life and the lives of others to his attention.

Based on that understanding, the process of community empowerment in managing waste can be started by transferring power to the community to be able to perform waste management independently by providing space for participation and also waste management training. This participation is done by the management of garbage bank in SicanangBelawan by inviting people to be active in waste management in nearby garbage bank.

The invitation is also followed by the lure that waste is a valuable item and can be saved to be exchanged for money. This approach is considered very effective to increase community participation in waste management because almost all people in Sicanang, Belawan District is a lower middle class society.

There is money there, the change from money to garbage is very close. Especially in the periphery of waste issues can not be accommodated well by the cleanliness agency. Well, it then triggers the behavior of littering. So there garbage has no meaning at all. But since there is a garbage bank and the garbage can turn into money, that is what makes them interested because they can get money for free, (Interview with Armawati, bank junk bank).

What was said by Amawati justified Amnah, Supriadi and Aisiah who are customers of the garbage bank in SicanangBelawan. According to them, the change in the value of waste from something that is not valuable into valuable goods or worth the rupiah makes them interested to become customers of junk bank.

Moreover, the garbage in Sicanang special in waters of Belawan Sea was so much that it can be a source of additional income for their family's economy. When they went to the sea to find fish, Amnah and Supriadi even always settle for taking plastic waste, plastic bottles, cans and other types of waste in the waters of the Sicanang Sea.

'Yes, while looking for fish, I also have garbage. Not bad and sometimes even the result can be almost the same as looking for fish in the sea' (The results of interviews with Supriadi, customers of junk bank).

The garbage was then collected and taken home to be sorted by type of garbage. This sorting process is intentionally done because it is a requirement that inorganic waste can be saved in junk bank. The ability to sort the garbage they get from the socialization process provided by the garbage bank management before they become junk bank customers. As a result, the society in SicanangBelawan district, especially active in becoming garbage bank customers, became accustomed to sorting the garbage in their homes by using the containers that have been provided.

After the sorted garbage collected, the bank customers then bring the garbage to the rubbish bank for savings. There are many benefits that they feel from the results of waste savings include being an additional income to meet basic family needs such as food expenditures, child costs to school and child pocket money. The amount of benefits generated from waste savings can sometimes help cover the daily income that customers are uncertain because most of them are small fishermen, construction workers and domestic workers.

'Yes, while looking for fish, I also have garbage. Not bad and sometimes even the result can be almost the same as looking for fish in the sea' (The results of interviews with Supriadi, customers of junk bank).

On the basis of that, the society wish to participated in waste management business through garbage bank continues to increase. People who become customers of garbage banks are not only active to do the sorting process of waste based on types of organic or inorganic waste. But the society also began to care about the surrounding environmental situation. During this time, the settlement of residents in BelawanSicanang always around by inorganic waste every time the tide down. Because the tide in the Sea of Belawan always bring garbage to the settlement of the population. The waste

from the tide has been left by the residents so that the environment in the SicanangBelawan area looks dirty and dirty.

But after the garbage bank in some neighborhoods in SicanangBelawan district with a waste saving program, garbage becomes something valuable because it can be converted into rupiah. So that every time the tide, people are already in droves to clean up the settlements from the garbage that comes. The result is the garbage collected and sorted to then saved to the garbage bank in their respective environments.

'used to I still do not care about the same garbage and still shy to quote the garbage carried by the tide. But now since the waste can be saved and can help our lives so no longer embarrassed to collect it every time the tide comes' (Results of interviews with Aisiah, bank customers garbage).

After the participation of the community in the waste management business, the garbage bank then provides training to their customers. Skills training provided in the form of techniques to manage organic waste that is difficult to decompose to become a useful item. Usually inorganic waste in the form of waste plastic waste packaging products processed into shopping bags, wallets, beverages and plastic flowers are interesting. For the rest of the newspaper is processed into baskets and ofamental flower pots. While the rest of the fabrics that are not used try to be processed into broses, key chains, dolls and other jewelry trinkets. Processed products from inorganic waste is then marketed individually to anyone who wants to buy it. Sri Ramadani said the price offered to buyers varies greatly depending on the level of difficulty in the making.

FIGURE 1. Inorganic waste recycling products become accessories.



They never sell bags from plastic packaging for Rp. 25.000, -. While Asna sell dolls berby handmade creations for Rp. 30.000,-.

In addition to inorganic waste management, garbage banks also provide training on recycling organic waste to become compost. This recycled compost is usually used by customers of waste banks to be used as fertilizer for their plants such as for flower, vegetables and trees. This pattern makes the community in BelawanSicanang Environment to be interested to plant flowers or fruit trees. So indirectly there has been a process of reforestation in the region. Thus, what garbage banks do with waste saving and waste recycling programs can make communities more empowered in socio-economic aspects that directly impact on environmental change.

In the social aspect, for example, the garbage bank has succeeded in transforming the behavior of the community into a willing behavior to sort the waste by its type and the behavior that is willing to preserve the environment by cleaning the sea from plastic waste, cleaning the house ban from plastic waste and no longer throwing garbage in any place. In addition, on the social aspect also seen an increase in knowledge and skills in recycling waste into useful goods again. In the economic aspect, people become more empowered because of the additional income generated from waste saving. Revenue from the rubbish savings is very helpful to the community to meet the needs of family food, finance transportation costs and pocket money and can be used for the purposes of renting and repairing the canoe.

#### 4. Principle of sustainable development

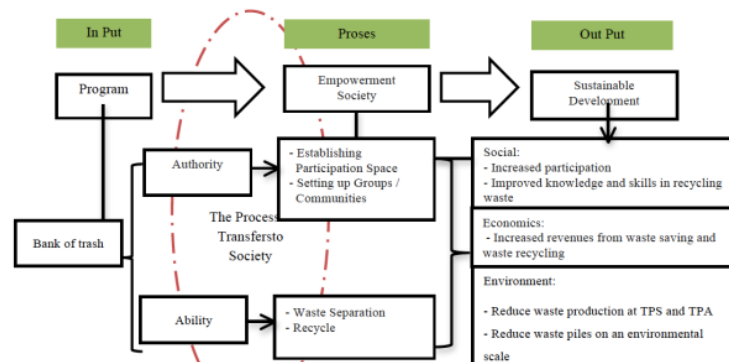
Not only provide empowerment to the social and economic aspects of the community but the waste bank can also provide improvements to the quality of the environment. These three aspects are the fundamental principles of sustainable development. Salim (2010) writes that what is needed in sustainable development are three things that grow together, namely environmental, social and economic aspects that interact with each other. The interaction pattern between the three aspects – as revealed by Salim – can be formulated in the table 1.

The existence of patterns of interaction between social, economic and environmental aspects shows that the process of community empowerment in managing waste through garbage bank gives a real contribution to sustainable development agenda. It supports what Mardikanto (2012) says that community empowerment is closely linked to sustainable development where community empowerment is a prime prerequisite and can be likened to a car that will lead people to a dynamic economic, social and ecological sustainability.

TABLE 1. Linkage matrix of waste bank program and sustainable development.

Principle of sustainability	Economics	Social	Environment
Bank waste program			9
<b>Waste Savings</b>	Increase family economic income	Increase participation in waste management	<ul style="list-style-type: none"> <li>- Reduce the amount of waste to TPS/TPA</li> <li>- Reduce piles of garbage in the neighborhood</li> <li>- Trash is sorted by type</li> </ul>
<b>Organic Waste Recycling Training and An ororganic</b>	Recycled items can be sold for additional family income	Increased knowledge and skills in waste recycling.	<ul style="list-style-type: none"> <li>- Reuse plastic waste into useful items</li> <li>- The existence of verdant</li> </ul>

FIGURE 2. Community empowerment process in managing waste for sustainable development.



If described specifically, the process of community empowerment in managing waste through waste banks can be divided into three stages of the process namely: (1) stage in put, which is marked by the bank garbage program. (2) Process stages characterized by empowerment efforts. And (3) out put stage which is characterized by the emergence of sustainable development principle. More clearly the three stages can be seen in the figure 2.

In figure 2 above looks how the process of community empowerment in managing waste for sustainable development. The empowerment process starts from the transfer of authority and ability of the garbage bank to the society. Transfers of authority are characterized by giving space for participation of the community to form groups and become customers of junk banks. While the transfer of skills is characterized by the socialization and training related to waste separation and waste recycling. With the form of transfer of authority and ability, there has been a process of community empowerment that directly impacts on socio-economic changes in society and environmental changes in residential areas.

This proves that society empowerment is closely related to sustainable development. Where the empowerment of society according to Totok (2012) is a major prerequisite and can be likened to a car that will bring the community into a sustainable economic, social and eco-dynamic.

## 5. Conclusions

The society empowerment process in managing garbage begins with increasing society participation by changing the value of waste from unworthy into rupiah value through waste saving. Increased participation is then followed by dissemination of waste segregation and waste recycling training. The whole process has a positive effect on social, economic and environmental change. Where the three aspects of change is an integral part of the principles of sustainable development, namely; social development, economic development and environmental conservation. Therefore, it is important to continue to support the society empowerment program in managing waste through garbage banks.

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