

# The waste management by Grade VIII students through the waste bank at MTs Negeri 6 Sleman

Royyan Hukma I<sup>1</sup>, Saliman Saliman<sup>1</sup>

<sup>1</sup>Social Science Education, School of Postgraduate Studies, Universitas Negeri Yogyakarta

**Abstract.** This study aims to investigate: the implementation of the Waste Bank Program, the constraints in the implementation of the Waste Bank, and the waste management by Grade VIII students through the Waste Bank Program at Madrasah Tsanawiyah Negeri 6 Sleman. This was a study using the quantitative approach. The research population comprised all students of Grade VIII of MTs Negeri 6 Sleman with a total of 155 students. The data were collected using documentation and a questionnaire. The instrument validity was assessed by the product moment correlation and the reliability by Cronbach's Alpha. The data were analyzed using the descriptive analysis technique. The research was carried out within three months at MTs Negeri 6 Sleman. The results of the study are as follows. The implementation of the Waste Bank Program at in MTs Negeri 6 Sleman is in the moderate category. The constraints in the implementation of the Waste Bank at the school are by is in the low category, The waste management by Grade VIII students through the Waste Bank Program at the school in the moderate category. Keywords: Behavior, Waste Bank, Waste Management.

## 1 Introduction

Garbage is an environmental problem that has not been resolved in Indonesia. Based on news quoted from Liputan6.com July 15, 2018, the Minister of Maritime Affairs and Fisheries, Susi Pudjiastuti said that Indonesia is now the 2nd largest plastic waste contributor in the world. In the end, a lot of plastic waste is thrown into the sea. This condition is very concerning, because the plastic waste can damage the survival and the existing ecosystem. Problems regarding waste also occur in various regions in Indonesia such as garbage in the Ciliwung River, Jakarta which causes flooding. The Indonesian Forum for the Environment [1] suggests that Indonesia should be ashamed because it has become the 3rd largest country in the world as a contributor to greenhouse gases. glass from forest fires and burning peatlands (which are converted into residential or industrial forests). In addition, the river as a flood controller also malfunctions due to human behavior that throws garbage carelessly in the river. In life, humans are always surrounded by various situations that can threaten their welfare. The situation can be considered a very dangerous and threatening situation, it can also be considered a harmless situation. The assessment of these various situations is related to the perception of the risk of the disaster that will be faced. This is important to know so that it can be studied about things that are considered as disaster risks [2]. Through the Waste Bank, waste is assessed as goods / waste that cannot be reused, through the Waste Bank [3]. The Waste Bank system has several advantages in addition to its benefits in the field of environmental health, this method also serves to empower the community because by depositing sorted waste, the community can benefit economically.

The purpose of establishing a Garbage Bank is to solve the waste problem which has not yet been resolved properly, to familiarize people not to litter, to lure people to want to sort waste so that the environment is clean, maximize used goods, instill in the public an understanding that used goods can be useful and reduce the amount of used goods that are wasted. Waste bank management has important benefits for the community. Waste Bank Management has supporting factors that facilitate waste management and there are obstacles in running the Waste Bank program. The management system at the Waste Bank, which prioritizes real waste reduction and handling activities, is considered capable of overcoming the waste problem. Garbage banks provide economic benefits, namely that people get money from waste that is saved in a waste bank, which can be taken within a certain period of time according to the rules in each Waste Bank. According to [4] garbage is an object that is not used or is not

wanted and must be disposed of, which is produced by human activities. Garbage can also come from industrial activities, mining, agriculture, animal husbandry, fisheries, transportation, household, trade, and other human activities. According to [5] waste is a by-product of human activities that have been used, which comes from household activities, markets, offices, lodging houses, hotels, restaurants, industry, debris from building materials and scrap metal used for vehicles. According to [6] garbage can be classified into several categories, the classification of waste is based on the source of the waste and its form. waste, based on the source, namely:

- 1) Natural waste, namely waste produced in the wild is integrated through a natural recycling process, such as dry leaves in the forest that are inscribed into soil.
- 2) Human waste, which is a term commonly used for the products of human digestion such as feces and urine.
- 3) Household waste, namely waste generated from activities in the household, the waste that is often produced by most households is paper and plastic. The characteristics of this household waste, most of it is organic waste which has the property of quickly decomposing.
- 4) Consumption waste, namely waste generated by humans from the process of using goods.
- 5) Office waste, namely waste originating from the office environment and shopping centers where most of the waste produced is organic waste, paper, textiles, plastics, and metals.
- 6) Industrial waste is categorized into two, namely general waste and liquid or solid hazardous waste. General waste such as paper and plastic.
- 7) Nuclear waste, which is the result of nuclear fusion and nuclear fission that produces uranium and thorium which are very dangerous for the environment and humans.

According to [7] there are three impacts of waste on humans and the environment, namely:

- 1) Impact on Health  
Inadequate waste location and management (uncontrolled waste generation) is a suitable place for several organisms and attractive to various animals, such as flies and dogs which can transmit disease. The potential health hazards that can be caused according to [7] are as follows:
  - a) Diarrhea, cholera, typhus which spread rapidly due to viruses originating from garbage, dengue fever can also increase rapidly in areas where waste management is inadequate.
  - b) Fungal diseases can also spread (eg skin fungus)
  - c) Fungal diseases can spread through the food chain. One example is a disease transmitted by tapeworms (taenia).
- 2) Impact on the environment  
The liquid seepage of garbage that enters the drainage or river will pollute the water, besides that the garbage that is buried in the river will cause the river water to overflow, causing a flood disaster. This flood disaster is a disaster caused by humans who litter in rivers, such as opinion [8]. Decomposition of waste disposed into water will produce organic acids and organic liquefied gases, such as methane. In addition to having a bad smell, this gas at high concentrations can explode.
- 3) Impact on Social and Economic Conditions  
According to [7] the impact of waste is also felt on the social and economic, these impacts are as follows:
  - a) Inadequate waste causes low levels of public health. This is important because it will increase the cost of treatment.
  - b) Other infrastructure can also be affected by inadequate waste management. If garbage collection facilities are lacking or inefficient, people will tend to throw their garbage on the street. This resulted in the road being cleaned and repaired more often.

Garbage that is not treated properly causes the spread of bacteria and germs, as a result of which health is threatened. Diseases encountered due to garbage are usually stale food which is infested by flies and other types of insects. The next impact is environmental pollution. This statement is in accordance with the statement written by [9] The interaction between humans and the environment does not always have a positive impact, sometimes it has a negative impact, namely causing disasters, disasters, and other losses. disease caused by waste, will lead to an increase in treatment costs. Inadequate infrastructure results in littering on the streets, or even in people's yards. As a result, the act of littering indiscriminately and inappropriately applies to any time. Several regions in Indonesia are starting to realize the importance of waste management. This awareness must be in line with the participation of the community as well as the availability of facilities that are arranged in line with the ideals that are promoted. Waste management with a 3 system (Collection, Transport and Disposal) must be started. Garbage is collected from the source, then transported to the TPS (Temporary Disposal Site) and disposed of at the Final Disposal Site (TPA). In the collection stage, the community should play a role in sorting organic and inorganic waste from the

source, for example from school households. This system will speed up the 3R (Reuse, Recycle and Reduce) program [5].

In the Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management, it is explained that what is meant by waste is the residue of human daily activities and/or natural processes in solid form [10]. Meanwhile, according to the *Dictionary of Environmental Terms* (1994), waste is material that has no value or is not valuable for the usual or primary purpose in the manufacture or use of damaged or defective goods in manufacturing or excess or rejected or discarded material [11]. Based on the various problems above, waste causes environmental damage. The waste problem has raised public awareness to take part in waste management. The current environmental management program that is being intensively implemented among the community is the Waste Bank program. According to Law Number 18 of 2008, a waste bank is a place for sorting and collecting waste that can be recycled and/or reused that has economic value [10].

The Waste Bank Program is not only implemented in the community but also in the school environment. In Indonesia, especially in Yogyakarta, there are many schools that implement the Waste Bank program. The implementation of the Waste Bank program in the school environment aims to reduce the amount of waste so that it does not accumulate and be wasted, because through the Waste Bank program, used goods that are no longer useful still have economic value. The purpose of implementing the Waste Bank program is not only to earn money, but also to instill environmental care in students. One of the schools implementing the Waste Bank program is Madrasah Tsanawiyah Negeri 6 Sleman.

Waste bank is a place to save garbage in the truest sense. More clearly, customers save their waste in the bank. At the Waste Bank, customers save in the form of waste that has been determined. Waste bank according to [5] is a residential waste management by implementing the 3R strategy (Reuse, Reduce, Recycle) then the community deposits the waste to an agency formed and mutually agreed upon. The waste is saved up to a certain amount and time and then exchanged for some money. The purpose of the waste bank is to change people's behavior (social behavior) so they don't burn trash and don't throw garbage into rivers, or into sewers. Meanwhile, the definition of a waste bank according to [11] is a place where there are activities against waste savers carried out by waste bank tellers.

According to [11] there are three components in the implementation of the Waste Bank, namely savers, tellers and collectors. Savers are people, both individually and in groups, who are members of waste savers. The proof of the members of the waste saver is the ownership of the account number, and the waste savings book, and are entitled to the results of their waste savings. Tellers are tasked with serving waste savers, activities carried out by tellers include weighing waste, labeling waste, taking notes in the main book, and communicating with collectors. Furthermore, collectors are individuals and/or institutions that evaluate economically each waste that is saved by the community, either individually or in groups. The mechanism for implementing the Waste Bank according to [11] is almost the same as the mechanism for saving money in banks in general. Saving waste individually and communally. The mechanism for saving individually is that residents choose waste periodically which is saved to the waste bank, while the mechanism for saving waste is communal, i.e. waste is stored in TPS in every RT, then Waste Bank officers pick up waste at each TPS. So the implementation of the Waste Bank program is controlled by three components, namely savers, tellers, and collectors. Each component has its own role that supports each other, then the mechanism for implementing the Waste Bank is almost the same as the mechanism for saving money in banks in general. Waste management through waste banks has a positive impact on various aspects of life. According to [11], these impacts include:

- 1) Environment  
Creating a healthy and waste-free environment, reducing air pollution caused by the habit of burning waste, reducing soil pollution due to landfilling.
- 2) Education  
Through the waste bank can provide education to the community, especially children. The waste bank can familiarize children with sorting and disposing of waste, so that they will live in a healthy and clean environment from waste. In addition, saving trash can familiarize children with saving so that they fully understand the importance of saving.
- 3) Socio-economic  
Increasing family income through waste savings, closer community relations, reducing transportation costs for collectors who should be spent looking for waste, besides that the impact of waste banks can also be a means for people to engage in entrepreneurial activities because turning waste into money is a creative thing, as Mulyani said. Nurseto and Widiastuti said that entrepreneurship is a mental attitude and soul that is always active or creative, empowered, creating, working, humble, and trying to increase income in its business activities or work.

## 2 Methods

This research is a research with a quantitative approach. The population of this study were all students of class VIII MTs Negeri 6 Sleman as many as 155 students. Data were collected by questionnaire and documentation. Test the validity of the instrument using Product Moment correlation and reliability test using Alpha Cronbach. The data analysis technique used descriptive statistical analysis. In the data description, the ideal mean (Mi) and the Ideal Standard Deviation (SDI) will be presented. The research was carried out within 3 months (December 2018 – February 2019) at MTs Negeri 6 Sleman.

## 3 Results And Discussion

### 3.1 Results

#### 3.1.1 *Implementation of the Waste Bank Program for Class VIII MTs Negeri 6 Sleman students*

Based on data from the questionnaire distributed to class VIII students, the questionnaire on the implementation of the waste bank program with a total of 4 question items obtained the highest score of 15 and the lowest score of 11. The results of calculations using the SPSS 22.0 for Windows program showed Mean (M) of 13.23, Median (Me) of 13, Mode (Mo) of 14, and Standard Deviation (SD) of 0.9112. Based on the results of data analysis, the indicators for the implementation of the waste bank program have an average score of 13.23. The data shows that in the implementation of the waste bank program, class VIII MTs Negeri 6 Sleman students are in the good category. The average score of 13.23 on this indicator indicates that students have implemented the Waste Bank program whose waste collection is carried out regularly once a week.

#### 3.1.2 *Barriers to the Implementation of the Waste Bank Program for Class VIII MTs Negeri 6 Sleman students*

Based on data from questionnaires/questionnaires distributed to class VIII students, the indicator of obstacles to the implementation of the waste bank program with a total of 3 question items obtained the highest score of 9 and the lowest score of 3. The results of calculations using the SPSS 22.0 for Windows program showed a Mean (M) of 5.78, Median (Me) of 6, Mode (Mo) of 7, and Standard Deviation (SD) of 1.492. Based on the results of data analysis, the indicators of obstacles to the implementation of the waste bank program have an average score of 5.78. The data shows that the indicators of obstacles to the implementation of the waste bank program, grade VIII MTs Negeri 6 Sleman students are in the low category. The average score of 5.78 on this indicator shows that the obstacles experienced in the implementation of the waste bank program by students are low. This shows that most of the students, 90 students or 63.36% of the total number of students, did not feel that there were any obstacles in the activities of the waste bank program, because they considered the waste bank program to be beneficial to the school. However, there are some students, namely 53 students or 36.74% who experience obstacles in the implementation of the waste bank program.

#### 3.1.3 *Waste Management for Class VIII Students Through the Waste Bank at MTs Negeri 6 Sleman*

Based on data from questionnaires distributed to class VIII students with a total of 31 question items, the highest score was 104 and the lowest score was 62. The results of calculations using the SPSS 22.0 for Windows program showed a Mean (M) of 83.98, Median (Me) of 84, Mode (Mo) of 85, and Standard Deviation (SD) of 7.9168. Based on the results of data analysis, the average score of the waste management behavior of class VIII MTs Negeri 6 Sleman students was 83.98. These data indicate that the behavior of waste management through the waste bank of class VIII MTs Negeri 6 Sleman students is in the fairly good category. This shows that the implementation of the waste bank program for class VIII students of MTs Negeri 6 Sleman is quite good. Students participate in the implementation of the waste bank program which is carried out once a week.

## **3.2 Discussion**

### *3.2.1 Implementation of the Waste Bank Program for Class VIII MTs Negeri 6 Sleman students*

Based on the results of data analysis, as many as 78.32% or 112 students from 143 class VIII students at MTs Negeri 6 Sleman were in the "Good" category in the implementation of the waste bank program at MTs Negeri 6 Sleman, students who were in the "Good" category were 78, 32%, while the remaining 21.68%, namely as many as 31 students are in the fairly good category. The data is interpreted that the eighth grade students of MTs Negeri 6 Sleman have implemented and actively participated in the waste bank program. The active participation of students in implementing the waste bank program certainly benefits various parties in the school, the environment becomes cleaner and more comfortable because waste has been managed properly, and students become more aware of protecting the school environment.

### *3.2.2 Barriers to the Implementation of the Waste Bank Program for Class VIII MTs Negeri 6 Sleman students*

Based on the results of data analysis, as many as 40.58% or 58 students from 143 grade VIII students of MTs Negeri 6 Sleman were in the "very low" category on the obstacles to implementing the waste bank program at MTs Negeri 6 Sleman, students who were in the "low" category were 22.78% or as many as 32 students, students who are in the "high enough" category are 23.78% or as many as 34 students, while the remaining 12.96%, namely as many as 19 students are in the "high" category. The data is interpreted that the eighth grade students of MTs Negeri 6 Sleman experience low barriers in implementing the waste bank program. The obstacles experienced by students in the waste bank program include obstacles that come from students and environmental factors. The obstacles that come from students are in the form of assumptions from students who think that the waste bank program does not benefit themselves and the school, and also some students lack motivation in implementing the waste bank program so they are less able to participate in the implementation of the waste bank program. whereas all students should be able to participate in the waste bank program at MTs Negeri 6 Sleman. Barriers that come from environmental factors experienced are the conditions of special places or temporary storage containers for plastic bottles in each class that emit an unpleasant odor, this is a separate obstacle in the implementation of the waste bank program because unpleasant odors will interfere with the teaching and learning process of students in classrooms and make the air circulation less healthy. Another obstacle encountered was in special places or temporary storage containers, plastic bottles in each class emit an unpleasant odor, so that improvements can be made to the garbage collection mechanism, for example, the time for collecting garbage, which was initially only done once a week, could be increased every two weeks or create a special team tasked with being a waste bank officer by empowering students as waste bank officers and giving awards to students who are involved in the special team so that students become more interested and more active in carrying out their duties. implement the school waste bank program.

### *3.2.3 Waste Management for Class VIII Students Through the Waste Bank at MTs Negeri 6 Sleman*

Based on the results of data analysis, as many as 67.14% or 96 students from 143 class VIII students of MTs Negeri 6 Sleman are in the "Good enough" category in waste management through waste banks at MTs Negeri 6 Sleman, students who are in the "Good" category are 12.58%, then 19.58% of students are in the "Not Good" category, while the remaining 0.7% are in the "Very Poor" category. The data is interpreted that the VIII grade students of MTs Negeri 6 Sleman have a fairly good behavior in the implementation and management of waste through the waste bank, although there are still obstacles experienced in the implementation of the waste bank program. The results of data analysis also show that the waste management of class VIII students through the waste bank at MTs Negeri 6 Sleman has an average score of 83.98.

## **4 Conclusion**

The implementation of the Waste Bank Program for class VIII students at MTs Negeri 6 Sleman, which amounted to 78.32% was in the "Good Enough" category. Barriers to the implementation of the Waste Bank Program for class VIII students at MTs Negeri 6 Sleman, which amounted to 58.05% were in the "low" category. Waste

management for class VIII students through the waste bank at MTs Negeri 6 Sleman, which is 67.14% is in the "Good Enough" category.

## Reference

1. N. Soyomukti, *Teori-Teori Pendidikan: Tradisional, (neo) Liberal, Marxis-Sosialis, Postmodern*. Yogyakarta: Arr Ruzz Media Group. (2010).
2. S. Wibowo and Sudrajat, Pemahaman Tentang Menejemen Bencana Alam Siswa Sekolah Menengah Pertama. *No. 2, vol. 3*. (2016).
3. A. H. Mustika and Suparmini, Persepsi Anggota Bank Sampah Terhadap Peranan Bank Sampah Kasturi Dalam Pengelolaan Sampah di Padukuhan Gempol Desa Condongcatur Kecamatan Depok Sleman. (2018).
4. Manik, *Pengelolaan Lingkungan Hidup*. Jakarta: Djambat, (2003).
5. C. D. Sucipto, *Teknologi Pengolahan Daur Ulang Sampah*. Yogyakarta: Goysen, (2012).
6. S. Alex, *Sukses Mengolah Sampah Organik Menjadi Pupuk Organik*. Yogyakarta: Pustaka Baru Press, (2015).
7. N. K. A. Artiningsih, Peran Serta Masyarakat Dalam Pengelolaan Sampah Rumah Tangga Studi Kasus di Sampangan dan Jomblang, Kota Semarang. Tesis, Universitas Diponegoro, Semarang, 2008.
8. A. Sudarsono and S. Wibowo, "Pemahaman Manajemen Bencana Siswa SMP di Kabupaten Sleman," *JIPSINDO*, **vol. 4**, no. 1, (2017).
9. Suparmini et al., *Jurnal Penelitian Humaniora*, **vol. 18**, no. 1, (2013).
10. *Undang-Undang Republik Indonesia Nomor 18 Tahun 2008 Tentang Pengelolaan Sampah*. Jakarta: Sekretariat Negara, (2008).
11. B. Suwerda, *Bank Sampah: Kajian Teori dan Penerapan*. Yogyakarta: Rihama-Rohima, (2012).