

Analysis of Household Waste Volume in North Banjarbaru District, Banjarbaru City

Almira Ulimaz *

Program Studi Diploma III Agroidustri Jurusan Teknologi Industri Pertanian Politeknik Negeri Tanah Laut
Pelaihari, Indonesia

Nana Citrawati Lestari

Department of Biology Education, School of Teacher Training and Education (STKIP PGRI)
Banjarماسin, Indonesia

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ABSTRACT

Increasing the number of residents in the city of Banjarbaru certainly increases the amount of waste generated. This study aims to analyze the generation of household waste volume in the City of Banjarbaru. Specifically, this research is focused on the people who live and live in the District of North Banjarbaru. Quantitative research was conducted to determine the generation of household waste volume while qualitative research was conducted to analyze how later good waste management could be carried out in the region based on obtained research data. Research samples for data about garbage generation is 50 households. Data is processed descriptively through data tabulatio . The results of research on the generation of household waste volume is 0.4 868 kg / capita per day. Based on the data generated from the solid waste volume based on the existing population, the required fleet projections from the Banjarbaru City Sanitation Department are at least seven transport trucks, while currently only two garbage trucks are available.

* corresponding author: almiraulimaz@politala.ac.id

INTRODUCTION

Garbage is a problem that never ends as long as humans still live in this world. This is because humans are - only living creature during his life who produce waste. Garbage is a consequence of human activities and daily activities - day existence should be properly managed (Regasa, et al., 2011). The more human population, the amount of waste produced must also increase. When the amount is small, the garbage may still be managed well and regularly, but if the number increases, it will be difficult to manage properly and regularly.

Waste is leftover material that is not used, not liked, or something that must be discarded. Waste generally comes from daily human activities (Fadhilah, et al., 2011) . The existence of waste in the environment is something that cannot be avoided. This is due to almost every human activity can certainly always produce waste. Hundreds or even thousands of people in cities in developing countries such as Indonesia relies on recycled materials from garbage for their job (Wilson, et al., 2006). One of them is the garbage officer whose job it is to transport the rubbish into the garbage

transport trucks and maybe sort the trash for yourself so that it can be sold back to the collectors of used goods.

Garbage is one of the problems that is often experienced in big cities. For some cities that are less able to manage their own waste, waste can become a far more complex problem (Fuadhilah, 2012). Waste is something that must be managed so that it will have added value, can be reused and does not pollute the environment (Mahyudin, 2014).

Garbage or waste arises from human activities. Waste causes pollution that adversely affects soil, water, and air. Pollution can endanger health and damage the environment. Pollution also destroys plant and animal habitats. Along with the increasing population, pollution and environmental damage due to sprouts will increase (Sulistiyorini, 2018).

The population in an area will increase every time. This increase in population will be directly proportional to the increase in the generation of waste generated (Ratya & Herumurti, 2017). Similarly, in the City of Banjarbaru. Based on the projected population of the Regency / City of the Province of South Kalimantan 2010-2020, the population in the City of Banjarbaru will continue to increase each year (Jatmiko & Subekti, 2015). Along with the increase in the number of residents in the city of Banjarbaru it is feared that will become more garbage.

Increasing the amount of waste can cause increasingly complex waste management problems. Solid waste management is a complex process because it covers many technologies and scientific disciplines. It includes technology associated with the control of generation, storage, collection, transfer and transportation, processing and disposal of waste, which is acceptable and in accordance with the principles of public health, economy, engineering, aesthetics and the other environmental considerations which is including responses to general public (Tchobanoglous et al. in Mahyudin, 2014).

Data on the volume, composition, and characteristics of waste are very supportive in composing a waste management system in an area such as urban or rural. The data must be available so that an alternative solid waste management system can be developed. This amount of waste volume will usually relate to elements of waste management (Damanhuri and Padmi, 2010; Pramudia et al, 2016). By knowing waste volume, it can be used as a material consideration in waste management (Wardiha, et al., 2013).

Waste management activities are a series of activities ranging from sorting, collecting, transporting, processing and final processing of waste. From the waste management activities, there are 3 (three) handling locations, namely: the source of waste, which is a household, a temporary shelter (TPS) or an integrated waste processing site (TPST) and a final waste processing site (TPA). If related to the location of the final waste site which is generally far from the source of waste, and this results in the cost of transporting waste to be expensive, then the waste recycling efforts, which is conducted in locations close to waste sources is becoming increasingly necessary (Sahwan, et al., 2016).

This research was conducted with the aim to analyze the generation of household waste volume in the City of Banjarbaru. Specifically, this study aims to analyze the generation of household waste volume by people who live and live in the District of North Banjarbaru. For the continuation of the results of this study later is to analyze how good waste management can be done in the region based on obtained research data. The results of this research hoped can be used as a material consideration in good waste management. With good management, waste will be more environmentally friendly.

METHODS

The research sample was 50 households living on Jl. Kebun Karet RT. 41 RW. 08 and RT. 27 Loktabat Utara, Kecamatan Banjarbaru Utara, Banjarbaru. Waste volume is obtained from the total weight of household waste volume in one day divided by the total number of individuals on that day. The data source in this study is to analyze how waste management in the area is scavengers, garbage transporters and the society. The type of data taken is the result of the calculation of waste volume and interviews with informants. Determination of the sample by *purposive sampling*. Interviews were conducted in *depth interviews*.

Waste volume data analysis uses formulations of SNI 19-3964-1995 for quantitative data and descriptive methods for qualitative data, and reporting. Waste volume data is processed through tabulated data and presented in a descriptive quantitative manner. Qualitative data analysis using theme analysis techniques. Testing the validity of the data using source triangulation techniques and theories. The credibility test is carried out through discussions with peers and experts in the field of waste about what is being researched.

RESULT AND DISCUSSION

The amount of waste generated during the 8 days by the society in the North Banjarbaru District can be seen in Table 1.

Table 1. Recapitulation of Waste Volume in Settlement

Days to-	Total weight of waste (kg)	Amount (soul)	Waste volume (kg / capita per day)
1	88.00	169	0.5207
2	77.50	158	0.4905
3	106.0	167	0.6347
4	79.00	173	0.4666
5	69.00	166	0.4157
6	83.00	166	0.5000
7	61.50	168	.3661
8	84.50	161	0.5248
Total	648.5	1328	3.9092
Average	81.06	166	0.4868

Note: Waste volume is the total weight per day divided by the number of people whose garbage is taken per day

In Table 1, waste volume is obtained from the total weight of garbage collected from 50 households divided by the total number of individuals on that day and an average yield of 0.4868 kg / capita obtained per day. This number is below the national average of 0.6 kg / capita per day (Yeoh, 2006). Although the amount is still below the national average, if it is not managed better it is feared that one day the garbage generation rate will be much higher.

Based on the results of the research listed in table 1, it can be seen that during the 8 days of calculation of waste volume, the waste volume obtained differ each day. The different population numbers are due to certain days that there are residents who are not at the study site on a certain day. This causes the amount of garbage generated measured every day is also different.

On the third day of waste collection is the largest total weight of garbage measured. On the seventh day the garbage collection is the smallest total weight of the measured garbage. After being evenly leveled, data obtained of 81.06 kg of waste generated per day by residents in the North Banjarbaru sub-district.

Such rapid population growth in urban areas has resulted in an increase in the amount of waste volume (Damanhuri & Padmi, 2010). Based on the results of the study it can be seen that only for the North Banjarbaru sub-district area , the total weight of garbage per day is above 60 kg with the number of people above 150 people. Just one district has produced that much garbage. If garbage accumulates more and more without being managed properly, the waste volume of garbage will also increase.

Data on the waste volume, composition, and characteristics of waste are very supportive in composing a waste management system in an area. The data must be available so that an alternative solid waste management system can be developed. This amount of waste volume will usually relate to waste management elements, including (1) equipment selection, such as containers, collection equipment, and transportation; (2) transportation route planning; (3) facilities for recycling; and (4) area and type of TPA (Damanhuri & Padmi, 2010).

So far, household waste management in the area only involves residents (in this case housewives), garbage collectors, and the local municipal cleaning service. The existence of scavengers has not been involved far and deeper. Therefore, scavengers always operate outside the "country lane". The point is, they work individually and do not involve the local city government. The city sanitation department also still lacks a facilitation for waste managers such as garbage trucks, temporary landfills, and garbage transporters. This is known from the results of interviews with several respondents. All respondents in this study said when interviewed that the official waste facilitation provided by the local government was still minimal. Therefore, the official waste management official cannot reach all areas in Banjarbaru City. The society finally took their own initiative by hiring a garbage collector and some of them made their own landfills illegally.

The separation and sorting of waste both at the source of the generation and at the place of final disposal and the concentration of management activities will further ensure the control of environmental impacts that are not desired (Damanhuri & Padmi, 2010). It also can do a variety of other waste management efforts such as by educating the public about waste, recycling, and making a garbage bank.

Optimizing the garbage bank can be an alternative to reduce waste volume. As researched by Pratt & Ihsan (2017), that through the optimization of waste banks with diversified approach strategy product and affiliates expansion, showed improved performance of waste to 2.5% by the amount of 4,730 tons in 2020. In total during the period 2012-2020, then the amount of waste reduction through the optimization strategy of BSM (Malang Garbage Bank) is 22,702 tons.

These waste reduction strategies will not succeed if they are not carried out systematically and sustainably. In accordance to what is mandated in Law No. 18 of 2008 on the management of waste in Chapter I of Article 1, paragraph 3, that waste management is a systematic, sustainable comprising reduction activities, and handling. The reduction process is an effort to reduce the amount of waste that will be transported and processed at the final waste processing site. The waste management approach should be carried out through a 3R-based and society-based approach, integrated waste management by carrying out management from the source. 3R is an effort that includes activities to reduce (reduce), reuse (reuse) and recycling of waste (recycle). Collecting, sorting, waste management by society must continue (Firmanti, 2010).

CONCLUSION

Waste volume obtained in the North Banjarbaru Subdistrict of Banjarbaru City is 0.4868 kg / capita per day. This figure is below the national average of 0.6 kg / capita per day. In the case of waste management, the interview results show that the government provides adequate infrastructure such as the garbage transport facilities and TPS. The government also facilitates the society in designing curriculums containing environmental education according to the context in which the students are in the hope of raising an environmentally conscious spirit in children. The society obeys waste management regulations and the society also helps the government provide waste management facilities collectively, for example, garbage bins. Based on the generated waste volume associated with the population and available fleet, the required number of official garbage transport facilities from the Banjarbaru City Sanitation Department is at least 7 trucks, while there are only 2 garbage trucks available at the Banjarbaru City Sanitation Department.

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