Public Perception of Waste Transportation in Ternate City

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A B S T R A K

Lingkungan hidup sesuatu yang penting bagi makhluk hidup terutama manusia. Lingkungan hidup dimanfaatkan manusia untuk memenuhi kebutuhan hidup, apabila tidak menjaga lingkungan dengan baik maka akan menyebabkan permasalahan lingkungan. Permasalahan lingkungan hidup banyak, salah satunya permasalahan sampah. Permasalahan sampah merupakan masalah yang sering terjadi di perkotaan, salah satunya di Kota Ternate. Pemerintah Kota Ternate perlu memilih solusi yang pas untuk mengatasi permasalahan-permasalahan yang terjadi akibat sampah, akan tetapi sebelum membuat solusi perlu mengetahui bagaimana persepsi masyarakat terhadap pengangkutan Sampah di Kota Ternate. Metode penelitian adalah deskriptif kuantitatif dengan menggunakan kuesioner yang disebarkan kepada responden sebagai instrumen penelitian. Teknik sampling yang digunakan dalam penelitian ini adalah random sampling dengan jumlah sampel 400 responden yang ada di empat kecamatan di Kota Ternate. Sampel tiap kecamatan berjumlah 100 responden. Analisis data menggunakan persentase yang diinterpretasikan. Pada hasil penelitian menunjukan persepsi masyarakat terhadap pengangkutan sampah di Kota Ternate adalah baik.

Keywords:
Public Perception
Garbage Transport

A B S T R A C T

The enviroment is something that is important for living things, especially humans. The enviroment is used by humans to meet the needs of life, if it does not take care of the enviroment properly it will cause enviromental problems. There are many environmental problems, one of which is the waste problem. The problem of waste is a problem that often occurs in urban areas, one of which is in the city of Ternate. The Ternate City Government needs tochoose the right solution to overcome the problems that occur due to waste, but before making a solution it is necessary to know how the public's perception of waste transportation in Ternate City is. The research method is descriptive quantitative using a questionnaire distributed to respondents as a research instrument. The sampling technique used in this research is random sampling with a sample of 400 respondents in four districts in Ternate City. The sample of each sub-district amounted to 100 respondents. Data analysis using interpreted percentages. The results showed that the public's perception of waste transportation in Ternate City was good.

Introduction

The environment is something that is important for all living. One of the living things that need the environment is humans. The Environment according to Law Number 32 of 2009 concerning Environmental Protection and Management is a unitary space with everything in it, including behavior that affects the survival and welfare of humans and other living creatures.

Humans use the environment to meet their needs because they have reason, but humans are less able to protect the environment so that environmental pollution occurs. One of the environmental pollution or environmental problems is the problem of waste. The waste problem is one of the problems that occurs in urban areas and disturbs the residential environment if it is not handled properly.

Menteri Pekerjaan Umum (2006) stated that the condition of a healthy and prosperous society in the future will be created from a healthy residential environment. Healthy terminology can be interpreted as a condition if waste can be managed properly where humans carry out activities in it.

Law Number 18 of 2008 concering Waste Management waste as the rest of human daily activities or natural processes in the form of solid or semi-solid organic or inorganic substances that are biodegradable or non-biodegradable which are considered no longer useful and are disposed of into the environment. The types of waste produced by humans can be broadly grouped into three. First, Organic Waste is waste that is easily broken down in natural processes. Second, Inorganic Waste is waste which as a whole is not easily biodegradable while some others can only be decomposed in a very long time. Third, Hazardous and Toxic Waste is the residue of a business or the active result of daily human activities that can have a harmful impact on the short and long term.

Waste problems will become complex along with the increase in human activities, both production activities and consumption activities. This increase in activity is due to the increasing population growth. This is felt especially in urban areas where the population tends to always increase, while the government's ability to collect and transport municipal waste is very limited. The increase in the volume of waste will be directly proportional to population growth with various activities (Hertati, 2018; Hidayat & Faizal, 2020)

The problem of waste has an impact on the environment and humans. For the environment in the form of air, water, and soil pollution. As for humans, it has direct and indirect impacts. Direct impacts such as bad smell, dirty, and dirty. For the indirect impact, waste becomes a breeding center for living things that are detrimental to humans (Sri, 2010).

Ternate City is one of the cities that continues to grow with a population of 212,997 people with a population growth rate of 2.51% per year. This condition shows the potential for increased waste production will continue to increase every year. Tony S. Pontoh as the Head of the Ternate City Environmental Service in maluku.inews.id dated April 25, 2021 stated that the volume of waste in Ternate City ranges from 50 tons - 80 tons / day. The high production of waste, of course, requires integrated management in order to reduce the impact it will have on the environment and the community itself.

Waste management is considered good if waste does not become a breeding ground for disease germs and waste does not become an intermediary for disease. The reasons for waste management according to Arief (2013), namely reducing the hazardous nature of waste, separating waste according to type, reducing the amount of waste that will be sent to final disposal sites, and converting waste into useful materials or goods. Waste management in Indonesia consists of waste reduction and handling activities (Permen, 2012). Waste reduction aims to limit waste generation, recycle waste, and reuse waste by the community and the government (Suryani, 2014). Waste management aims to deal with waste generation and can make it an economic value (Indartik et al., 2018). Handling of waste must start from the source, in order to have a sense of responsibility to manage waste.

Waste management according to Azwar (1990) includes three main points, namely waste storage, waste collection, and waste disposal. For this waste management, collaboration between the community and the government is needed. For the community itself, waste management starts from reduction, sorting and collection. Meanwhile, for the government, starting from transportation to the final processing of waste as well as providing direction and information to the public.

The city of Ternate has a collection pattern with three patterns, namely direct individual patterns, indirect individual patterns, and direct communal patterns. The direct individual pattern is that the transport officer takes the waste door to door and immediately throws it to the final disposal site. The indirect individual pattern is that the community or janitor picks up waste at each waste source and then places it in a temporary shelter. For a direct communal pattern, people throw their garbage directly into the temporary shelter that has been provided (Sahil et al., 2016).

Temporary shelter is a places before waste is transported to recycling, processing, and/or integrated waste processing sites (Menteri Pekerjaan Umum RI, 2013). For the existence of temporary disposal sites, Ternate City is divided into 2 forms, namely 11 units of containers and 77 units of communal tanks. The existence of temporary shelter sites is not evenly distributed in the Urban Village.

The potential amount of waste generated every day in Ternate City is 583.43 m3/day. The number of waste transportation fleets in Ternate City has the potential to transport garbage every day of 426 m3/day with two operations, thus 157.43 m3/day the volume of waste cannot be transported. Garbage that is not transported causes environmental problems in Ternate City. Based on the description above, there are indications that the current waste management carried out by the City of Ternate is not optimal. Therefore, researchers are interested in knowing the transportation of waste which is part of waste management, so the authors want to examine public perceptions of waste transportation in Ternate City.

Method

This study uses a quantitative descriptive method. The population in this study is the people of Ternate City. The research sample amounted to 400 heads of families, with the distribution of 100 heads of families in each sub-district. There are four sub-districts in Ternate City, namely, North Ternate, Central Ternate, South Ternate, and Ternate Island. Sampling using random sampling technique. The research data collection used the form of a closed questionnaire with a Likert scale. The Likert scale used is as follows: Strongly Agree = Score 5, Agree = Score 4, Don't Know = Score 3, Disagree = Score2, and Strongly Disagree = Score 1. Data analysis by calculating the total score divided by the maximum score multiplied by 100%.

Table 1. Score Interpretation Criteria

Percentage (%)	Category
0 -20	Less once
21 – 40	Not enough
41 – 60	Enough
61 – 80	Well
81 - 100	Very well

Results and Discussion

Public perception of waste transportation in Ternate City, sub-district, namely:

Table 2. Public Perception of Waste Transportation in Ternate City

Sub-district	%	Category
North Ternate	68	Well
Central Ternate	73	Well
South Ternate	82	Very well
Ternate Island	61	Well

The public perception in the four sub-districts in Ternate City is categorized as very good and good. For the very good category, there is only one sub-district, namely South Ternate District. Meanwhile, the good category is in the Districts of North Ternate, Central Ternate, and Ternate Island. For more details, see the map below:

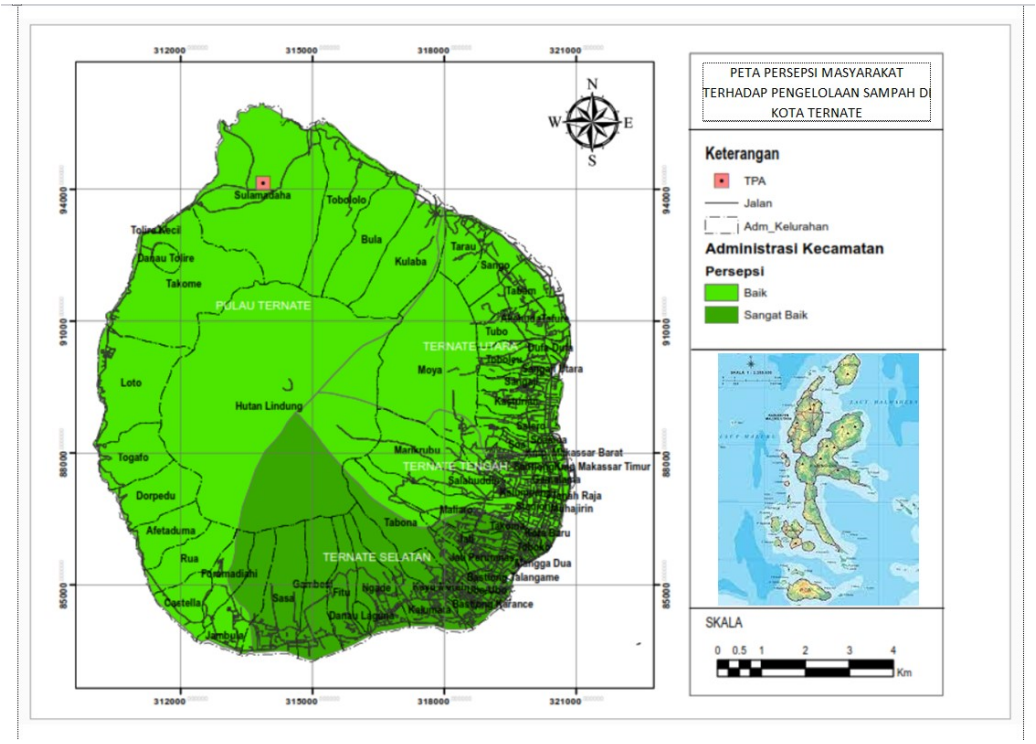

Figure 1. Community Perception Map of Waste Transportation in Ternate City

Public perception is a process that involves the entry of messages or information into the human brain, through human perception continuously in contact with the environment obtained through the senses of sight, hearing, touch, taste, and smell (Slameto, 2010). People's perceptions of waste transportation in Ternate City, namely in three urban villages, are categorized as good, because pick up cars and garbage dump trucks transport garbage every day. In addition, there are communal tubs and containers scattered throughout the village.

For public perception of waste transportation in South Ternate District, it is categorized as very good because pick-up cars and garbage dump trucks also transport garbage every day and there are pick-up routes in all urban villages. Garbage transportation in the District of South Ternate is also operated more frequently in villages that have a large volume of waste.

Public perception of garbage transportation in South Ternate District is categorized as very good because pick-up cars and garbage dump trucks also transport garbage every day and there are pick-up routes in all urban villages. Garbage transportation in the District of South Ternate is also operated more frequently in villages that have a large volume of waste.

Public perception of waste transportation is also influenced by sufficient public knowledge about the meaning of waste. Public understanding of waste is also important because the community is part of waste management. The results of this study also agree with the results of the study Asmara (2015), which states that the perception of waste is supported by a fairly good public knowledge of the definition of waste.

Public perception of waste transportation is also influenced by the way the community disposes of waste. Of the 400 respondents, 49% of the people immediately disposed of their garbage into communal tubs or containers provided by the government, and 31% put it in front of the house and then it was picked up by the cleaners. The rest, as much as 20% of the people throw garbage in inappropriate places such as in dead times, in the sea, and burned. This is because the distance between the respondent's house and the communal tub and containers is far away. In addition, their homes are not traversed by pick-up trucks and garbage dump trucks.

For the existence of temporary shelters in the form of communal tubs and containers. Of the 400

respondents, 87% answered that the existence of temporary shelters was important. Therefore, the community asked for additional temporary shelters in their village. The results of this study are also the same as the results of research by Masirete et al., (2019), which states that the number of waste collection sites is inadequate and not evenly distributed so that people have not fully utilized the waste collection sites.

Temporary shelter is a places before waste is transported to recycling, processing, and/or integrated waste processing sites (Menteri Pekerjaan Umum RI, 2013). In addition, people's expectations for the distance of temporary shelters from their places of residence are 1-250 m, 97% answered, 251-500 m answered 2% and more than 500 m were 1%. Although many people answered 1 – 250 m, the construction of a temporary shelter must meet the technical criteria.

The technical criteria for temporary shelters according to the Minister of Public Works Regulation concerning the Implementation of Waste Infrastructure and Facilities in the Handling of Household Waste and Waste Similar to Household Waste, namely the area of a temporary shelter of 200 m2, garbage should not be in a temporary shelter for more than 1 day, the placement does not interfere with aesthetics and traffic and temporary shelters must be clean after the waste is transported. In addition, according to the Head of the Sidoarjo Health Office at rri.co.id on October 29, 2020, he stated that temporary shelters should be at least 200/300 meters away from settlements or factories/food industries. For temporary shelters, namely communal tanks and containers in Ternate City, it can be seen in the following figure:

Figure 2. Communal Tubs and Containers in Ternate City

Based on the picture, it is necessary to repair temporary shelters as well as labels for types of waste. Labeling for the type of waste is needed so that people dispose of waste according to the type of waste and the occurrence of waste sorting at the household level. This waste sorting is done so that it is easy to reuse. Waste that has been sorted such as organic waste can be reused into compost, while inorganic waste can be converted into other forms and has economic value. For waste sorting at the household level, encouragement or stimulus from the government is needed in the form of rewards or sanctions (punishments) with the preparation of regional regulations on waste sorting. This is so that the community participates in waste management and changes in community behavior.

The number of garbage collectors in Ternate City is also expected to be increased and it is not sufficient to transport all of Ternate City's waste produced in one day. The potential waste generated every day is 583.43 m3/day. The number of waste transportation fleets in Ternate City has the potential to transport garbage every day of 426 m3/day with two operations, thus 157.43 m3/day the volume of waste cannot be transported. So it is necessary to increase the number of waste transport fleets. So, the overall public perception of the waste transportation of Ternate City is in the good category with a percentage of 71%.

Conclusion

By looking at the results of the author's research, it can be concluded that the public's perception of waste transportation in four districts in Ternate City is good. However, there were still some shortcomings that were found, including the number of temporary shelters that were not adequate, the condition of the temporary shelters was dirty, the physical condition of the temporary shelters was not maintained, and the number of garbage collectors was inadequate..

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