Solid Waste Management System with Denstiyng Flies at Terong Market Makassar, Indonesia

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Abstract - The trash management of the Terong Market so far has not been appropriate with environmental-friendly trash management methods and techniques, resulting in negative impacts on public health and the environment so that researchers need to pay special attention to the relationship between the trash management system and the density of flies in the Makassar Terong Market. This type of research is an observational study with a cross-sectional study design. The number of samples in this study was 164 kiosks that will be selected by a sampling system, namely Simple Random Sampling. The results of this study show that there is a significant relationship between trash storage and the density of flies in the Makassar Terong Market, the p-value = 0.010. There is a significant influence between trash collection and the density of flies in the Terong Makassar Market, the p-value = 0.023. There is a significant influence between trash disposal and the density level of flies in the Makassar Terong Market, the obtained p-value = 0.003 and the most influential variable is the storage variable with a p-value of 0.001 p <0.05). The level of fly density was significantly related to the storage, collection and disposal of trash, where the storage aspect was the most related aspect. Thus, the real effort is needed in trash management that meets health requirements.

Keywords: Trash Management, Garbage Storage, Trash Collection, Garbage Disposal, Flies Density Level.

I. INTRODUCTION

Health development is an integral part of national development. In-Law Number 36 of 2009 concerning Health, it is stated that health is a state of well-being, starting from body, soul, and society, which enables everyone to live productively socially and economically. Thus, health apart from being a human right, health is an investment [1]. Development cannot be carried out properly without the availability of one of the basic assets, namely the condition of the public health level [2]. According to Hendrik L. Blum (1974) states that health status is the result of the interaction of four factors, namely heredity, environment, behaviour, and health services. From these four factors, it can be argued that environmental factors have the most important role compared to other factors. So that in managing and utilizing the environment, it is necessary to pay attention to the impact that will occur on changes in environmental conditions. For example, waste handling is directed at provision and facilities and management techniques to achieve a clean environment [3].

The tendency of the population which is increasing nowadays is followed by the activities of the city which is increasingly developing which results in the impact of an increasing and varied tendency of waste. According to Robert J Kodoatie (2005), the increasing number and rate of the urban population have resulted in an inadequate infrastructure system, because its supply is lower than population development. The result is that the city becomes an uncomfortable place [4].

To achieve optimal solid waste services, it is time for a paradigm shift in market waste management. The transformative paradigm is the concept of market waste management that can prevent or minimize pollution and other negative impacts that are detrimental to society and the environment [5].

According to Bucle and Olivier (2001), the paradigm shift in waste management in most European countries has started since 1970. Waste management policies emphasize reducing waste at the source, sorting and recycling. A very important starting point in changing this paradigm is to change the policy towards minimizing waste at its source, not at its disposal [6].

When observed, the emergence of solid waste problems cannot be separated from the behaviour of humans/communities as producers and managers of waste. So far, it is felt that people's understanding and awareness of cleanliness have not gone according to expectations. There are still many people who litter, even though trash cans are available. The problem of waste should not only be the responsibility of the government, but also the responsibility of the whole community. For community participation to be real, there need to be efforts that can generate motivation, abilities, opportunities and explore and develop existing resources in the community, so that people are willing to participate in consistent and sustainable waste management. Given that people's behaviour has a big influence on cleanliness, the community must also play an active role in optimal waste management [7].

Waste that is not managed properly is proven to often cause environmental problems and health problems in humans. Among other things, from aesthetic problems, clogged waterways that can cause flooding, fire hazards, environmental pollution, to an increase in vector-borne diseases [8].
In a healthy Indonesia 2025, the expected strategic environment for health development is a conducive environment, namely an environment free from socio-cultural vulnerability and pollution. From environmental health studies, it is implied that a person's health status is influenced by clean environmental factors [9].

Waste management is still inadequate so far with environmentally sound waste management methods and techniques, causing negative impacts on public health and the environment so it needs special attention [10].

Waste has become a national problem so its management needs to be carried out comprehensively and integrated from upstream to downstream so that it provides economic benefits, is healthy for the community, and is safe for the environment, and can change people's behavior [10]. By medium city standards, the level of waste generation is 3 litres/person/day.

Flies like to live in a dirty, wet, cold temperature, and the trash is the most preferred place for flies to nest and breed. Therefore, good waste management is needed because it greatly affects the life cycle of flies, which are vectors for various types of diseases.

Data from the results of a study conducted by the US Public Health Service (USPH) in Bambang Riyanto states that 22 kinds of diseases when waste management is not sanitary, including elephantiasis, dengue fever (DHF), and bubonic plague commonly known as Europe 'The Black Death". National data reveal that the average total waste generated in a day is 5 million cubic meters/day, whether it is household, corporate or industrial waste. For example, the city of Jakarta in 2000 produced 18,500 m3 of waste per day, in 2015 it increased to 25,700 m3 per day. If calculated in a year, the volume of waste in 2015 reaches 170 times the size of the Borobudur temple (volume of Borobudur temple: 55,000 m³). Apart from Jakarta, the amount of waste is quite large in Medan and Bandung [5].

According to the report from the Department of Environment and Beauty Management, the volume of waste in Makassar currently reaches 3,500-3,900 cubic meters per day, with 2-3 litres of waste production per person per day. The increase in waste products along with the increase in the number and activities of the population affects environmental conditions.

Garbage is the result of human activities and comes from a natural process. In urban areas, garbage often creates problems. One of the problems that are often encountered is the problem of solid waste in traditional markets [11].

The traditional market is an important trade medium for urban communities. The presence of this traditional market can disrupt the community if the waste is not managed properly. One important trade facility, for example, Makassar City is the Terong Market on Jalan Perintis Kemerdekaan. This market occupies an area of 13,253 m² and is occupied by around 280 traders. Trash found in the Terong Market is garbage generated by the activities of traders and market visitors. There are 2 temporary dumpsites in the Terong Market area. The generation of waste collected at Landfill I is 101.68 m³ / day with a density of 0.33 kg / l or equal to 33.55 tons/day, while the generation of waste collected in Landfill II is 33.89 m³ / day with a density of 0.13 kg / l or equal to 4.4 tons/day so that the total waste generation at the Terong Market is 135.57 m³ / day or equal to 37.96 tons/day.

Based on data from the Sub-Division of Disease Control and Environmental Health, the Health Office of South Sulawesi Province in 2016, the average healthy public place has only reached 51.99%, especially the market, which ranks fourth 40.93% of hotels 64.85%, restaurants 65.13% and public places for food management 50.93% [12].

While the results of the preliminary survey at the Makassar Terong Market, it appears that environmental sanitation, especially waste management, is not optimal regarding the facilities, including irregularities or less functional containers, then temporary garbage dumps or containers in the vicinity there are still garbage scattered everywhere, such as gutters or roadside. Also, temporary containers/shelters still do not meet the requirements, for example, the construction of trash cans is not strong and impermeable so that it can create nests as vectors for disease carriers such as flies, rats, and other animals.

The trash bin must meet the recommended requirements of the trash, such as strong construction, not easy to leak, the trash can has a lid, and is easy to lift by one person. Most of them use trash baskets made of bamboo, cardboard, and plastic bags. Traders who do not have their litter box will throw garbage around the merchant premises, making the place dirty and most of it throwing it into the sewer. An open garbage collection area can become a breeding ground for disease germs, which will be a source of infection and a breeding ground for disease vectors that can transmit disease through food and drink, as well as aesthetic disorders. This condition needs to be observed so as not to cause a decrease in environmental quality. Currently, the existing waste storage is not uniform, increasing from the shape and capacity as well as the material. Starting from the collection, transfer, transportation and temporary disposal to final disposal, it is deemed that they still need to be addressed [13].

For this reason, research is needed to assess a suitable waste management system by analyzing the waste management system. Starting from the description above, the researchers are interested in analyzing the waste management system with the density of flies in the Makassar Terong Market.

II. METHODE

This type of research is an observational study with a cross-sectional study design which aims to see the relationship between the waste management system and the density of flies in the Makassar Terong Market.

The location of this research will be carried out in Makassar Terong Market which can be easily reached by researchers by
vehicle. Time this research was conducted in April - June 2018.

Primary data sources were obtained from direct observations in the field using interview sheets. Meanwhile, secondary data obtained in this study are data from the Makassar City Sanitation Office.

The population in this study was 280 stalls in the Terong Market Makassar. Meanwhile, the sample in this study was carried out by "Simple Random Sampling". To determine the sample size, it can be calculated using the Slovin formula. So that the sample size is 164 kiosks.

The instrument or measuring instrument in this study is a questionnaire consisting of several questions for each variable.

Data processing is carried out in four stages. Editing is done after the questionnaire is collected again from the respondent to check the completeness of the data, clarity and consistency of answers. Coding, coding each answer, then classified with the same code. Data entry. After the data is complete and coded, then the data is processed so that it can be analyzed. This process is carried out by entering data from the questionnaire into the SPSS 22 computer program. Cleaning, at this stage after all the data from the questionnaire, have been entered, then it is checked again to find out any errors that might occur during the data entry process and then corrected.

Data analysis in this study was carried out to facilitate interpretation. The analysis method is divided into three parts. First, the Variable Percentage Distribution Analysis (Univariate) is intended to describe the waste management system based on the rate of waste piles, waste compartment, waste collection methods, waste transportation methods using frequency distribution tables. Second, the analysis of the cross tab (cross tab) is intended to see the waste management system with the density of flies by using the Chi-Square test for a one-sided hypothesis. Third, multivariate analysis is conducted to determine the pure relationship of each independent variable to the dependent variable by controlling for the presence of other independent variables. The statistical test used is logistic regression.

III. RESULTS

The results of the research that researchers have conducted on 164 respondents, by collecting data through direct interviews with respondents, can be presented in the form of a frequency distribution as follows:

A. Univariate Analysis of Respondent Characteristics and Research Variables

This research was conducted to determine the relationship between the waste management system and the density level of flies in the Makassar eggplant market. These characteristics will describe age, gender and education:

<table>
<thead>
<tr>
<th>Respondent Characteristics</th>
<th>n (164)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;35 year</td>
<td>135</td>
<td>82.3</td>
</tr>
<tr>
<td>20-35 year</td>
<td>29</td>
<td>17.7</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>74</td>
<td>45.1</td>
</tr>
<tr>
<td>Women</td>
<td>90</td>
<td>54.9</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>63</td>
<td>38.4</td>
</tr>
<tr>
<td>Junior high school</td>
<td>53</td>
<td>32.3</td>
</tr>
<tr>
<td>Senior High School</td>
<td>24</td>
<td>14.5</td>
</tr>
<tr>
<td>College</td>
<td>24</td>
<td>14.6</td>
</tr>
</tbody>
</table>

Source: Secondary Data, 2018

Based on table 1, data obtained from 164 respondents aged over 35 years were 135 people (82.3%), with 29 people aged between 20-35 years (17.7%). Judging from the gender of the respondents, it can be seen that most women are 90 people (54.9%) and 74 men (45.1%). In terms of education, 63 respondents (38.4%) have an elementary school education, and 53 people (32.3%) have a junior high school education, and 24 people (14.6%) have high school education and 24 people (14.6%) have a bachelor's degree /College.

<table>
<thead>
<tr>
<th>Research variable</th>
<th>n (164)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not ligible</td>
<td>114</td>
<td>69.5</td>
</tr>
<tr>
<td>Collection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not ligible</td>
<td>133</td>
<td>81.1</td>
</tr>
<tr>
<td>Disposal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not ligible</td>
<td>123</td>
<td>75.0</td>
</tr>
<tr>
<td>Fly Density</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>50</td>
<td>30.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>80</td>
<td>48.8</td>
</tr>
<tr>
<td>High</td>
<td>15</td>
<td>9.1</td>
</tr>
<tr>
<td>Very high</td>
<td>19</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: Secondary Data, 2018

Based on table 2, data is obtained from 164 stalls in the eggplant market that store 50 stalls (30.5%) of eligible waste, and 114 stalls (69.5%) that do not meet the requirements for storage of waste Judging from the garbage collection, it can be
seen that those who meet the requirements are 31 stalls (18.9%) and those that do not meet the requirements are 133 stalls (81.1%). And in terms of waste disposal, there are 41 stalls (25.0%) that meet the requirements and 123 kiosks (75.0%) that do not meet the requirements. And from the density of flies where there are no flies in waste management, namely 34 stalls (20.7%), while 80 stalls (48.8%), 15 stalls (9.1%) high and 19 stalls (11.6%) very high.

B. Bivariate Analysis of Garbage Storage, Collection, and Disposal with Density Levels of Flies in Makassar Eggplant Market.

To see the relationship between the independent variable and the dependent variable using the chi-square test. In the variables of storage, collection, garbage disposal with fly density, the analysis results can be seen in table 3.

Based on Table 3, it can be seen that of the 164 stalls whose storage meets the requirements and the level of fly density is very high, as many as 1 stall (20%). And those whose storage did not meet the requirements and the density of flies was very high as many as 9 stalls (7.9%). After performing statistical tests using the chi-square test with a confidence level of 95%, the obtained p-value = 0.010, which means less than α-value (p > 0.05). The density of flies at the Makassar Terong Market. Meanwhile, the collection variables that meet the requirements and the density of flies are very high as many as 4 stalls (12.9%). And those whose collection and did not meet the requirements of very high fly density were 15 stalls (11.3%). After a statistical test was carried out using the chi-square test with a confidence level of 95%, the p-value = 0.023 was obtained, which means it is smaller than the α-value (p < 0.05). Thus it can be concluded that there is a relationship between garbage collection and density of flies at the Makassar Terong Market.

Table 3 above also shows that of the 164 stalls whose disposal meets the requirements and the density of flies is very high, 4 stalls (9.8%), and those whose disposal does not meet the requirements and the density of flies is very high, 15 stalls (12.2%). After a statistical test was carried out using the chi-square test with a confidence level of 95%, the obtained p-value = 0.004 which means it is smaller than the α-value (p < 0.05). Thus it can be concluded that there is a relationship between waste disposal and the density of flies at the Makassar Terong Market.

C. Multivariate Analysis of Waste Management Systems with Density Levels of Flies

Multivariate analysis was carried out to see the relationship of the independent variables together on the dependent variable. To find out the most related variables, the correlation test and multivariable logistic regression test were used using the SPSS for windows version 22 program.

Based on table 4 regarding the relationship between the waste management system and the density level of flies in the Makassar Terong Market, the table above shows the entanglement analysis of each variable being studied to see which variable has the most influence. The collection variable was not significant (p = 0.643; p > 0.05). The variables that influenced based on the research results were storage and disposal of p-value 0.001 and 0.008, then the most influential variable was the storage variable with a p-value of 0.001 p < 0.05).

IV. DISCUSSION

A. Solid Waste Storage with Flies at Terong Market Makassar

From the results obtained, it can be seen that of the 164 stalls whose storage meets the requirements and the level of fly density is very high as many as 1 stall (20%). And those whose storage did not meet the requirements and fly density were 9 stalls (7.9%). After the statistical test was carried out using the chi-square test with a confidence level of 95%, the p-value = 0.010 was obtained, which is smaller than the α-value (p > 0.05). Thus it can be concluded that there is a significant relationship between waste storage and the density of flies in the Makassar Terong Market.

Table 3: Distribution of Waste Storage, Collection, and Disposal of Solid Waste at the Makassar Terong Market

<table>
<thead>
<tr>
<th>Research variable</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
<th>Very high</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Qualify</td>
<td>14</td>
<td>28</td>
<td>17</td>
<td>34</td>
<td>9</td>
</tr>
<tr>
<td>Not ligible</td>
<td>36</td>
<td>31.6</td>
<td>63</td>
<td>55.3</td>
<td>6</td>
</tr>
<tr>
<td>Collection</td>
<td>22</td>
<td>71</td>
<td>1</td>
<td>3.2</td>
<td>1</td>
</tr>
<tr>
<td>Not ligible</td>
<td>28</td>
<td>21.1</td>
<td>79</td>
<td>59.4</td>
<td>11</td>
</tr>
<tr>
<td>Disposal</td>
<td>28</td>
<td>68.3</td>
<td>3</td>
<td>7.3</td>
<td>6</td>
</tr>
<tr>
<td>Not ligible</td>
<td>22</td>
<td>17.9</td>
<td>77</td>
<td>62.6</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>30.5</td>
<td>80</td>
<td>48.8</td>
<td>15</td>
</tr>
</tbody>
</table>

Source: Secondary Data, 2018

www.rsisinternational.org
From the results obtained that there is an effect of waste storage with a waste management system on the level of fly density in the Makassar eggplant market, according to the observations obtained there are still some garbage storage stalls that already meet the requirements, but still stalls with very high fly density figures. because the kiosk has provided a trash storage area according to the procedure and meets the requirements for storage of waste, but the garbage storage used still does not meet the capacity compared to the volume of waste generated in the kiosk so there is still a lot of garbage scattered around the trash storage area and trash storage never cleaned, which creates an odour that can attract the density of flies.

Based on the results of observations made, the high density of flies is also determined by the availability of food for the flies, as well as a breeding place that is in accordance with the fly's life cycle, namely damp, wet, and dirty. The highest point of fly density occurs at point 7, this is due to the close distance between food and grocery sellers, where livestock sellers live, so that garbage or animal waste can attract flies. The types of waste in the place are wet trash, dry waste, and liquid waste. This is what triggers more flies than at any other measuring point. Humidity and lighting can also affect the level of fly density at a certain point that has the potential for fly breeding. Because flies are very happy with humid and cool areas and cannot reproduce at temperatures above 35°C, even with shards, flies like light.

If the waste is not managed properly, it will have a big impact on health and the environment. The influence on health can be direct or indirect. The direct effect is caused by direct contact between humans and waste. Meanwhile, the indirect effect is generally caused by the presence of vectors that carry germs that breed in the garbage to humans. And the effect on the environment if the waste management is not good can disturb the aesthetics of the environment and cause unpleasant odours [14].

Storage or container is one way of collecting waste before it is collected, moved, transported and disposed of in a landfill. Storage of waste in question is a place for temporary disposal of garbage before being transported and disposed of. Storage of local waste or close to waste producers is important in waste management related to the health of the surrounding community because it can involve values of beauty, health and economy [15].

Considering that the waste produced in a market consists of two types, namely wet (organic) and dry (inorganic) waste, of course, it has a trash can that must match the type of waste. Capacity, form and type of material, collection patterns are very closely related to one another. Unsuitable waste containers will be able to hinder the process of collecting and transporting the waste, especially the time required for garbage disposal.

Human-powered waste generation requires a different waste container from mechanical manufacturing. As an illustration, there is a newly built market equipped with several large 8 m³ capacity containers but not provided the required load, haul vehicle (Arm Roll Truck). As a result, the market is not clean and beautiful, on the contrary, it is dirty and smelly due to garbage piled up outside and in containers that are difficult to move/load onto the garbage truck. In another city some buy large quantities of 1 m³ metal containers such as Jakarta but do not have trucks equipped with lifters, making it difficult for garbage collection operations.

For this trash can to support the success of garbage collection, it needs to be designed in such a way that it is light enough and makes it easy for cleaners to take/move the trash into the collection equipment, hygienic enough in the sense of reducing the possibility of direct contact between garbage and officers, closed to avoid flies and odours, durable, relatively inexpensive and pay attention to aesthetic elements. The waste storage container is placed in such a way, making it easier for officers to collect it quickly.

### B. Garbage Collection Against Flies Density Levels in Makassar Eggplant Market

From the results obtained, it was seen that of the 164 stalls whose collection met the requirements and high fly density were 4 stalls (12.9%), and those whose collection and did not meet the requirements of high fly density were 15 stalls (11.3%). After a statistical test was carried out using the chi-square test with a confidence level of 95%, the p-value = 0.023 was obtained, which means it is smaller than the α-value (P <0.05). Thus it can be concluded that there is a relationship between waste collection and the density of flies at the Makassar Terong Market.

### Table 4: The Relationship between Waste Management System and Flies Density Level in Makassar Terong Market

<table>
<thead>
<tr>
<th>Variabel</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fly Density</td>
<td>2.206</td>
<td>0.288</td>
<td>58.482</td>
<td>1</td>
<td>0.000</td>
<td>1.641 - 2.771</td>
</tr>
<tr>
<td>Garbage Storage</td>
<td>1.176</td>
<td>0.348</td>
<td>11.404</td>
<td>1</td>
<td>0.001</td>
<td>0.493 - 1.858</td>
</tr>
<tr>
<td>Garbage Collection</td>
<td>-0.344</td>
<td>0.742</td>
<td>0.215</td>
<td>1</td>
<td>0.643</td>
<td>-1.798 - 1.111</td>
</tr>
<tr>
<td>Waste disposal</td>
<td>-1.791</td>
<td>0.679</td>
<td>6.957</td>
<td>1</td>
<td>0.008</td>
<td>-3.123 - -0.460</td>
</tr>
</tbody>
</table>

Source: Secondary Data, 2018
From the results obtained that there is an effect of garbage collection on the density level of flies in the Makassar eggplant market, from the results of the observations made this is because there are still several stalls that do not meet the requirements for garbage collection, such as not separating waste according to the type of waste according to its type, namely organic and inorganic waste, garbage is still a lot scattered around the kiosk, this is due to the traders themselves. After all, these traders do not collect trash properly or by waste collection procedures, namely in collecting garbage they do not use brooms, rakes, etc. There are still many traders who collect rubbish, not in the place it should be, the garbage that is scattered and garbage piles that are not separated based on the type of garbage will cause an aroma/odour that can invite the density of flies in the garbage collection point. The waste collection pattern that is applied in the Makassar eggplant market is an indirect individual pattern which is an activity of collecting waste from each waste source brought to the transfer location to then be transported to the final disposal site.

Processing garbage (organic) biologically and takes place in an aerobic and anaerobic atmosphere. Waste decomposition with the help of bacteria obtained compost or humus. Anaerobic decomposition is very slow and odorous, but aerobic decomposition is relatively fast from anaerobic decomposition and is less odorous.

Based on its chemical composition, waste is divided into organic waste and inorganic waste. Research on solid waste in Indonesia shows that 80% is organic waste, and it is estimated that 78% of this waste can be reused [16].

Meanwhile, municipal solid waste management experiences difficulties in terms of waste collection and efforts to find a place or land that is truly safe. So waste management can be carried out in a preventive manner, namely utilizing waste such as composting [17].

In waste collection operations, container issues play a very important role. Therefore, the trash is the responsibility of the individual who produces waste (source of waste), so that each source of waste should have its own container/trash can. Waste storage at the source is needed to accommodate the waste it produces so that it is not scattered or scattered. The volume depends on the amount of waste generated per day by each waste source and the frequency and pattern of collection undertaken.

For communal waste, it is necessary to know/estimate the number of sources of waste that will use communal containers together as well as the number of working days of the cleaning management agency per week. If the working day is 6 (six) days a week, the communal shelter capacity must be able to accommodate the waste generated on Sunday. The calculation for the capacity is the amount of waste per week (7 days) divided by 6 (the number of working days per week).

C. Garbage Disposal Against Density Levels of Flies in Makassar Terong Market

From the results obtained, it can be seen that of the 164 stalls whose disposal met the requirements and high fly density were 4 stalls (9.8%), and those whose disposal did not meet the requirements and high fly density were 15 stalls (12.2%). After a statistical test was carried out using the chi-square test with a confidence level of 95%, the obtained p-value = 0.003 which means it is smaller than the α-value (p <0.05). Thus it can be concluded that there is a relationship between waste disposal and the density of flies in the Makassar Terong Market.

From the results of observations made that the waste produced in the Makassar eggplant market will be transported to the final waste collection place without going through any sorting or processing process first and from the analysis results obtained that there is an effect of waste disposal on the level of fly density in the Makassar eggplant market. Because the pile of garbage is too late to be transported, giving rise to nests as vectors for disease carriers such as flies, rats and other animals and can invite fly density levels.

Disposal of waste to move waste from a temporary disposal site to a relatively large final disposal site and then processing the waste is an effort to reduce the volume of waste or change its form to be useful, including burning, recycling, crushing, and drying.

Waste processing and reuse can mean the handling of waste by using all techniques, equipment and infrastructure, to increase efficiency from all other elements to reuse all objects that are still useful or change products originating from waste.

Temporary garbage disposal or landfill is a place to collect waste from the temporary community because the waste will still be forwarded to the final waste disposal site. Landfills do provide benefits for us, but we also have to know what impact the existence of landfills has on our environment. Accumulated rubbish can cause various problems for several aspects of life, especially if the waste collection work system does not run smoothly.

Poorly organized landfills can cause environmental pollution. The garbage from various sources can pollute the environment, both land, air and water environments. Land pollution that can be caused by garbage, for example, is seen from a health point of view as a nesting place for disease germs to spread, while from a beauty point of view, of course, aesthetic decline (unsightly in sight)

The kinds of air pollution it causes, for example, emit unpleasant odours, dust, and toxic gases. Burning waste can increase carbon monoxide (CO), carbon dioxide (CO2) nitrogen-monoxide (NO), sulfur gas, ammonia and smoke in the air. Smoke in the air, smoke generated from plastic materials are carcinogens, meaning they can cause cancer, be careful when burning rubbish.
Types of water pollution caused by garbage include changes in colour and odour in river water, the spread of chemicals and microorganisms that are carried by rainwater and the absorption of hazardous materials that pollute wells and water sources. Pollutants that enter groundwater can appear to the ground through community wells and springs if the pollutants are in the form of hazardous and toxic materials such as mercury (mercury), chrome, lead, cadmium, dangerous for humans because it can cause nerve disorders, defects in babies, and damage to liver or kidney cells.

The increase in population, changes in consumption patterns, and people's lifestyles have increased the number of waste piles, types and diversity of characteristics of waste. The increase in people's purchasing power for various types of staple goods and technology products as well as the increase in businesses or activities that support the economic growth of a region also contribute greatly to the quality and quantity of waste produced. The increasing volume of waste generation requires management.

Waste management that does not use environmentally friendly waste management methods and techniques will not only have negative impacts on health but will also greatly disrupt the preservation of environmental functions both in residential areas, forests, rice fields, rivers and oceans.

The accumulated garbage will certainly disturb us a lot, in addition to causing an unpleasant odour. This garbage will cause a lot of diseases. For garbage that contains a lot of rotten food, it is a nest of coli bacteria. So that if this garbage piles up during the rainy season, of course, it will cause vomiting or diarrhoea, dengue fever and so on.

Garbage can also invite herds of mice and insects which can cause various digestive diseases, jaundice, stomach worms, and malaria and so on. This is because the garbage can pollute surface water, groundwater, agricultural land and it can also pollute the air which causes problems for humans and their ecosystem. This will pose an even more serious threat because the rainfall will certainly increase sharply. So it is certain that there will be floods and puddles everywhere, coupled with our decreased body defence system.

Waste that pollutes the environment in modern times, is not only a waste product of people's lives (food scraps, plastics, plant parts, etc.), but this waste can also come from the waste of human technological activities, which includes chemical waste or also nuclear activity. Therefore, the chemical composition of the waste is highly dependent on residential location, especially those with drainage that is directly related to the industrial environment.

Waste in the form of organic material derived from human activities as social creatures is called household waste. Meanwhile, compounds/materials derived from human activity residues in technology are called waste substances. Examples that are classified as waste substances are Carbon Monoxide, CFCs, and so on.

In society, garbage does create complicated things, because garbage is a material that must be disposed of properly because of its toxic nature. However, there are also components of waste that have economic value, therefore in waste management; it is recommended not to ignore the recycling aspect. Moreover, with increasingly expensive and limited natural resources, waste recycling becomes an alternative option to save on the cost of producing material, rather than producing it from raw materials.

Garbage dumps are a good environment for disease-spreading animals, for example, flies, mosquitoes, mice and pathogenic (disease-causing) bacteria. The presence of disease-spreading animals (called disease vectors) causes the disease to spread easily and spread to the surrounding environment. Such diseases include cholera, dysentery, typhoid, malaria, diarrhoea, etc.

V. CONCLUSION

Based on the results of data analysis and discussion of the Relationship between the Waste Management System and the Density Level of Flies in the Makassar Terong Market, the results of this study can be concluded as follows: 1) There is a significant relationship between waste storage and the density level of flies in the Makassar Eggplant Market, the p-value is obtained. -value = 0.010 which means smaller than α-value (P < 0.05). 2) There is a significant relationship between garbage collection and the density level of flies in the Makassar Terong Market, the obtained p-value = 0.023 which is smaller than α-value (P < 0.05). 3) There is a significant relationship between waste disposal and the density of flies in the Makassar Terong Market, the obtained p-value = 0.004 which means it is smaller than α-value (P < 0.05). 4) The variables that influence based on the research results are storage and disposal of p-value 0.001 and 0.008, then the most influential variable is the storage variable with a p-value of 0.001 p < 0.05

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