

Domestic Waste Management In Samarinda City

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Abstract: Garbage is solid wastes which have mostly organic composition and the rest consists of plastic, paper, cloth, rubber, bone and others. Garbage disposal in urban areas is often a burden because it involves financing for waste transport, disposal sites, health and environmental hygiene. The burden of waste management is increasing as the volume of waste increases due to population growth and community behavior. Samarinda as a developing city also experienced the problem. Problems encountered include low service coverage, especially for domestic waste, high landfill demand, and high government subsidies that resulted in the community no matter the amount of waste generated. The purpose of this study is to determine whether the waste management by the government of Samarinda City from management aspects, institutional capacity and financing system is environmentally sound. The method used is non experimental method and do direct observation in the field. Data collection with questionnaires, field observations, document analysis and literature. Based on the results of the study concluded as follows: Waste management by the Government of Samarinda City as a whole has been good, and has environmentally minded by running the system of collecting, transporting and destruction and separating waste from waste processing and sources into compost fertilizer though still very limited in scope. Waste management by the capital intensive Samarinda City Government leads to high costs by the operational costs of trucks and other vehicles.

1. INTRODUCTION

Environmental management is defined as a conscious effort to maintain or and improve the quality of the environment so that our basic needs can be met with the best (Soemarwoto, 2001). One of the efforts of environmental management, among others, is waste management in each environment. Garbage is solid waste that has a mostly organic composition and the rest consists of plastic, paper, cloth, rubber, bone and others. The issue of waste management has become a serious problem in the city of Samarinda, the capital of East Kalimantan Province. Although the Municipal Government (Pemkot) of Samarinda has issued the Regional Regulation (Perda) no. 2/2011 on Waste Management, but this has not been able to solve the garbage problem in this city. 2/2011 is published, efforts to handle the problem of garbage has actually been done based on several local regulations to provide a strong legal basis. In 1987, the municipal government of Samarinda issued Perda no. 5/1987. Then in 2002 issued by Local Regulation no. 19/2002 to replace the previous law. The policies set the same issue with the goal of creating a clean and healthy city environment. But in reality the waste management in this city still leaves the problem. Waste production tends to increase from year to year while the increase in garbage transportation capacity is still limited and even lagging behind the growth of waste production. It has even been reported that as many as 300 tons of waste is not transported per day in this city (Kaltimpost, 23 April 2013). Samarinda city has an area of 718 km² with a population of 2014 of 830,676 inhabitants, so the population density in this city is 1,157 inhabitants / km². The increase of population from year to year has a correlation with increasing production of waste generated mainly from the household sector. Graph 1 shows the trend of waste production in this city from 2005 Until 2014, which has a tendency to increase every year, except in 2013. There is a tendency to increase the volume of parallel garbage with increasing population which also increases every year. The household sector produces thousands of tons of waste every day and the increase in population also contributes to the increase of household waste production. On the other hand, the ability of municipal government to carry garbage is not sufficient with the volume of waste generated by the residents. This fact not only implies the health problems of citizens, but also broadly raises the problem of the beauty of the city (aesthetic), environmental health and threaten the realization of the vision of Samarinda city. This should

encourage municipalities to evaluate existing waste management policies. Although this policy has been implemented since several years ago, but in reality the garbage problem still can not be solved properly. In 2010, the agency recorded 31 units of dump trucks for garbage transport. Then in 2011 decreased that only operates 25 units of trucks and resulted in decreasing the ability of garbage collection so that the garbage that does not accumulate to increase as much as 334,147 tons. Furthermore, in 2012 and 2013 the number of garbage trucks increases to 36 and 52 units respectively (BPS, 2014: 108). Although in general there is an increase in the number of garbage fleets from 2010 to 2013, but there is still a gap between the volume of waste produced by the amount of waste that has been transported. Even after 2011 when the policy is issued, there is still a lot of waste that is not transported. Then in 2014 the number of dump trucks (dump trucks) actually decreased to 47 units (BPS, 2015: 108). Whereas in that year the amount of waste production increased drastically from 798,918 tons to 1,073,552 tons. As a result, garbage transport capability decreased to 654,169 tons and the amount of non-transported waste increased to 419,383 tons in the year. This fact needs to be a serious concern for the city government and its stakeholders.

2. RESEARCH METHODS

Research Sites

This research was conducted in Samarinda, East Kalimantan Province. Samarinda is the capital of East Kalimantan province which is the center of the City Government of Samarinda which covers 780 hectares. A third of the city of Samarinda is the urban area. Samarinda City as the seat of government of East Kalimantan Province and the City Government of Samarinda and center of industry, trade and services that have office facilities, education, commerce, entertainment, sports, hotels, restaurants, industrial, terminal, air and sea ports, housing developers (developers), business centers, hospitals, legislative, executive, judiciary and others that burden is so high for the city of Samarinda. Samarinda capacity as : (1) As the capital of East Kalimantan province that became the benchmark in all areas that should the environment clean and tidy is not solely for its appearance but also the health of its citizens. (2) The city of Samarinda as city services, trade and industry contributed a lot in urban development

related efforts to hygiene and grooming for this city produces waste that very high volume. (3) Samarinda is building up on a five (5) in recent years, namely since the enactment of Law No. 22 / 1999 and No. 32 / 2004 and No. 12 / 2008 on Regional Government and Law No. 25 / 1999 and No. 33 / 2004 on Financial Balance between Central and Regional. Motto Samarinda with TEPIAN acronym stands Shady, Neat, Safe and Convenient. Comfortable on the motto of the term is a partial requirement to create an environment of Samarinda city clean and tidy. Samarinda city located on the island of Borneo, precisely in the East Kalimantan province with 117°03'00" position until 117°18'14" East Longitude and 00°19'02" until 00°42'4" south latitude. Boundaries as follows:

North : Muara Badak Kutai regency
 East : District of Muara Badak, Anggana and Sanga Sanga Kutai regency
 South : District of Loa Janan, Regency.
 West : District of Muara Badak, Tenggara
 Seberang Kutai Kertanegara

Samarinda city that serves as the central government of Samarinda and the capital of East Kalimantan Province, bear a heavy burden. For example, waste production of 784 tonnes / day (Koran Kaltim March 21, 2016).

3. THE BASIC FRAMEWORK OF THEORY

Trash

According Sukanto Reksohadiprojo and Budi Purnomo (2000) states that solid waste disposed to be:

1. Waste consisting of decomposing organic matter.
2. Waste that can not rot, except ash, and consists of substances that can not burn.
3. The remaining ash from wood charcoal, fossil fuels.
4. Animal carcasses
5. Street and market waste.
6. Industrial waste

Meanwhile, according to Sastrawijaya (1987), waste is solid or semi-solid waste comprising organic and inorganic substances, derived from human activities which are considered to be useless (excluding human dung) and must be managed so as not to endanger public health and Pollute the environment and to save development investment. Refuse is part of something that is unused, unpopular or something to be discarded which generally comes from activities carried out by humans including industrial activities, but not the rest of the biological activity (Azwar, 1993). In general, the waste is defined as a liquid, liquid and solid waste which is derived from human activities or non-reusable animals under the current conditions. However, sometimes the remaining products are reprocessed so that they can still be utilized and provide useful value for the wearer (UNPAS Research Team, 1996). According to Mahida (1992), garbage according to the chemical nature of its forming elements can be divided into 2, namely, organic waste (commonly called wet waste) and inorganic waste (commonly called dry waste). Organic waste consists of plant and animal constituents that are derived from nature or produced from agricultural activities. This waste is easily broken down in a natural process. Household waste is mostly organic waste,

such as garbage from kitchen, vegetable residue, fruit peel and leaves. Inorganic waste derived from natural resources can not be renewed such as minerals and petroleum, or from industrial processes. Some of these materials are not found in nature such as plastic and aluminum. Some organic substances as a whole can not be decomposed by nature, while others can only be described for a very long time. This type of garbage in household tingkatat, for example in the form of bottles, plastic bottles, plastic bags and cans, Paper, Newspaper and Cardboard are exceptions based on origin, paper, newspapers including organic waste. But paper, newspapers and cartons can be recycled like any other inorganic waste then, included in inorganic waste.

Waste management

Garbage management is considered good if the waste is not a breeding ground for disease seeds and the waste does not become an intermediary for the spread of disease (Azwar, 1993). Waste management is a gradual process of waste management management that is collecting, transporting, processing, recycling or disposal of waste materials. The types of waste that must be managed include waste generated from :

1. Household waste: garbage coming from daily household programs, excluding stools and specific waste.
2. Commercial activities: trade centers, markets, shops, hotels, restaurant and entertainment venues.
3. Social facilities: houses of worship, hospitality, prisons / prisons, hospitals, clinics, and puskesmas.
4. Public facilities: terminals, ports, airports, public transportation stops, parks, roads, and sidewalks.
5. Industry
6. Result of cleaning of public open channel, such as river, lake, and beach.

The principles and objectives of waste management are Waste Management organized based on the principle of responsibility, the principle of sustainability, the principle of benefit, the principle of justice, the principle of awareness, the principle of togetherness, the principle of safety, the principle of security and the principle of economic value and waste processing aims to improve public health and quality Environment and make waste as a resource.

Environmentally sound waste management

Environmental management pursuant to Law Number 23 Year 1997 article 1 item 2 states that an integrated effort to preserve the environment covering policy, structuring, utilization, development, maintenance, restoration, supervision and environmental control. So from the definition can be said waste management is the process of waste management activities generated so that in accordance with the common goal is to create conditions of the region in accordance with health value, aesthetic value and the survival of natural resources. The action framework should be based on the hierarchy of objectives and focus on 4 waste-related programs:

- a. Reduce the amount of waste
- b. Increase waste reuse and environmentally sound recycling
- c. Promoting landfill and environmentally sound processing plants

d. Expanding coverage of waste services

4. RESEARCH FOCUS AND RESEARCH METHOD

In order to avoid expansion in this study and to facilitate the search data then the authors focus on research on :

1. Waste Management by Sanitation and Gardening Agency of Samarinda City with waste reduction and handling stages :
 - A. Handling waste that includes:
 - 1) Sorting garbage
 - 2) Garbage collection
 - 3) Garbage transport
 - 4) Waste processing, and
 - 5) Final waste processing
 - B. Waste reduction including:
 - 1) Reduce (reduce waste)
 - 2) Reuse (reuse),
 - 3) Recycle (recycle),
2. Constraints faced in the implementation of waste management in the city of Samarinda.

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1. Waste Separation

Separation of waste is an initial activity that must be done by the community before undertaking some stages of garbage management. Dirakukanya separation of waste aims to separate between organic and inorganic waste as well as B3 waste other than that to reduce the amount of waste that will be discharged to the Temporary Shelter (TPS). Utilization of waste from the results This sorting of organic waste can be utilized as compost and inorganic waste can be sold back to the collectors or re-handled into useful goods. The remaining waste from the cut-off is then disposed of to the Temporary Shelter (TPS) by packing it into a container to prevent waste from waste and facilitate the transport process.

2. Garbage Collection

Garbage collection is done from the source of waste to the temporary shelter (TPS) can be done on their own or using the service of garbage transporters. For proper garbage collection, the community is obliged to collect the garbage at the stipulated time that is at 18.00-06.00 Wita and if there is any society violating the regulation it will be threatened with imprisonment for 3 (three) months or a fine of not more than Rp. 50.000.000,00 (Fifty Million Rupiah) and the Rules are in Local Regulation of Samarinda City Number. 02 Year 2011 Article 47 on Criminal Provisions. In order not to be a violation by the public then the Office of Sanitation and Gardening Samarinda City appealed to provide counseling directly or indirectly by way of giving leaflets and stickers and write the right garbage disposal in garbage collection bin.

3. Trash Transportation

The garbage is done by the officers of the Sanitation and Gardening Agency of Samarinda City, from Temporary Detention Center (TPS) to Final Disposal Place (TPA) and

the garbage dumping time is done from 05.00 to 12.00 noon but this schedule is not fully valid, the amount of smapah The day reaches 1559.5 M3 requires the officers of the Sanitation and Garden Service of Samarinda City to do the garbage dumping until night. For garbage transport workers in 1 (one) driver or one garbage truck is 5 (five) workers. The number of 5 (five) workers is also erratic because the workers take turns taking day off work so that garbage dumping workers are sometimes in 1 (one) driver or one vehicle of shrimp smapah numbering 4 (four) workers. The obligation of transporting or disposing of large quantities of garbage and the volume generated by hospitals, hotels and commercial areas is required to dispose of them directly to the Final Processing Place (TPA) so this is no longer the duty of DKP but the duty of the community or waste generator. To facilitate waste transportation activities from the Department of Hygiene and Gardening, the supervision department conducts daily monitoring at the locations of the TPS to monitor the field workers whether they have done their job well or not.

4. Waste Processing

Waste processing is an act of changing the characteristics of waste into various preparations that can be reused. For garbage treatment, the Office of Sanitation and Gardening of Samarinda City has cooperated with Waste Bank to manage organic waste into compost fertilizer and the result of this waste management can be resold or utilized by themselves for environmental purposes together besides from the Department of Hygiene and Gardening has also donated composter tool For biogas processing.

5. Final Processing

Final Processing Waste is an action or process whereby garbage reaches the final stage in its management since it starts to arise sourced, collecting, transporting, processing and disposal. Final Disposal Place (TPA) is a place where garbage diisolasi safely in order not to cause disruption to the surrounding environment. Pengrosean final garbage in the city of Samarinda done in Bukit Pinang by using open dumping system of this system is only limited waste disposable, stacked and left to rot no further handling of waste. Actually, such handling is inefficient for the environment because air pollution can occur by gas, odors and dust, groundwater contamination by leachate, the risk of fire is large, encouraging the growth of disease vector nests (rats, flies and mosquitoes), reducing the aesthetics of the environment and Land can not be reused. However, for the more environmentally friendly final processing the Sanitation and Garden Office of Samarinda City has planned to change the open dumping system with a sanitary landfill system whose garbage system is located in a concave location, then the garbage is spread out and the garbage is compacted and then coated with soil. Coating with soil is done daily at the end of the operation and then compacted back as thick as 10% -15%. Then at the top of the pile of soil can be spread over the garbage back and then dumped again with the soil with a thickness of 20-30 cm, and so on to form layers of waste and soil.

6. Reduce Waste

To reduce waste, the Sanitation and Garden Office of Samarinda City encourages communities and producers to

reduce excessive use of goods that can increase the amount of waste, in addition at the distributor level should also start reducing the amount of wrapping of goods purchased by the buyer and for consumers should start reducing the use Plastic to carry groceries by selecting containers, bags or objects that can be used multiple times. Then reuse the empty container or packing for the same function or other functions and sell or give the disaggregated waste to the party that needs to be reused.

7. Reuse

Reusing garbage or used goods is still a lot of people who have not done it, because people prefer to use new items instead of reusing existing goods. Office of Sanitation and Gardening of Samarinda City in conducting counseling keep trying to remind public awareness in every purchase of goods or containers that roughly that can be used many times and can be recycled so as to reduce the volume of waste that will be disposed to the Temporary Shelter (TPS) In addition to reusing goods that are still fit to use we can also save on purchases of goods.

8. Recycle

Recycling waste is the act of changing the characteristics of waste into various kinds of handicrafts. Office of Sanitation and Gardening of Samarinda City in cooperation with several parties by transforming waste into various handicrafts such as bags, flowers, tissue holder, hat, vest, lanterns, place accessories, tablecloths and others. For the sale of crafts buyers come directly or have booked in advance. While the proceeds from the sale are used to repurchase the basic materials of handicraft making.

9. Internal and external constraints

a. Internal Constraints

Insufficient number of garbage field workers, insufficient number of garbage hauling fleets, lack of sufficient land for late waste removal, lack of budgets and no leach facilities.

b. External Constraints

Lack of public awareness in managing waste which includes the segregation phase of garbage, garbage collection in place and in time and reduce the amount of waste.

5. CONCLUSIONS

Based on the results of field research related to the management of domestic waste by the Sanitation and Garden Agency of Samarinda City, in the handling and reduction phase based on Samarinda City Government Regulation No. 02 of 2011 which includes waste sorting activities, garbage collection, garbage transportation, waste processing and final processing Waste and reduce waste, reuse and recycle garbage. In the implementation of waste management, Office of Sanitation and Gardening Samarinda has done a pretty good management done this can be seen from some activities undertaken by the Department of Sanitation and Gardening Samarinda That includes activities :

1. Counseling on waste management covering waste separation that must be done related to the separation between organic and inorganic waste.

2. Counseling and distributing brochures on correct and timely garbage collection also contains fines for those who commit violations in garbage collection.
3. Conducting garbage transportation from the TPS to the final processing until late at night and there is a TPS that trash transport is done up to twice in one day.
4. Conducting final waste processing in Pinang hill and has a work plan to do the final processing more environmentally friendly with sanitary landfill system with land area 30 Ha.

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