

Waste Management in the Simeulue Coast of Aceh Province (Case Study in Suka Maju Village, Simeulue Timur District)

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Abstract: Waste Management is becoming a prominent discussion due to direct contiguous with human culture and lifestyle. Simeulue Regency is one of the specific places that experience the escalation of population and economic sectors; hence, the number of wastes also increase by the times. It is not an uncommon sight to find wastes or rubbishes spreading around every coastal in Simeulue Regency, primarily in Suka Maju Village. The seawalls are full of garbages from the citizen. The field observation has found out the trigger of the accumulation of the waste are caused by the lack of awareness from the people about littering and the government who is seemingly indifferent with the area. The limitation of garbage carrier is the main problem for the government, according to the local information, the interval of garbage transportation spends 4 until 5 days long. It causes most of the garbage officers who come from each route can not finish their job. Meanwhile, government policy has not a significant role to be obeyed. The increasing of waste products without proper management will never create a better environment. This research is qualitative research which priorities the information from the competence interviewers. They were selected from the local communities and related citizen services. The result shows that there are some possibilities things to solve the massive garbages in Suka Maju Village. Some factors in managing the waste are behavior and culture of people such as the way of collecting, transporting and disposing of the waste.

1 INTRODUCTION

Waste management system, specifically in urban areas, must be implemented accurately and systematically. The activity of waste management will involve the utilization of several infrastructures and waste facilities that cover the storage, collecting, transporting, processing and final annihilation. Waste issues are closely related to human lifestyle and behavioral themselves. Therefore, waste management is not only government duty but also needs the contribution from every citizen. Every year the number of waste are getting higher and parallel with the increase number of population and the life quality of people also accompanied by the advancement of technology which create the friction in people's habit who become more consumptive (Sahil et al. 2016)

Simeulue Regency is one of regencies in Aceh province that encounter the rise number of population and economic, in another side, the number of waste also climbs every year. The seawalls are full of garbages from the citizen. The field observation has find out the trigger of the wastes accumulation are caused by the lack of awareness from the people about littering and the government who is seemingly indifferent with the area. The limitation of garbage carrier is the main problem for the government, according to the local information, the interval of garbage transportation spends 4 until 5 days long.

The pattern of waste management in Simeulue Regency is *door to door* method, and it will immediately throw to the landfill without any further action. This method is assumed as improper way. The more rubbishes are throwed to the landfill the greater number of rubbishes will accumulate until

the landfill have not enough space to put the waste away. The limit number of garbage carrier also can not finish their work because they only pick up the garbages from 8 am until 11 pm. If the time is running out, they will delayed their job until tomorrow comes. In other hand, the government policy has not a significant role to be obeyed. One of the regulatlions is retribution payment. The government does not see it as a serious matter while it causes a less intention from the local people.

The increasing of waste products without a proper management will never create a better environment. It is showed by the uncountable waste (the organic and anorganic waste are combined) piled up in the area. The limit number of litter bins around the area are causing the massive garbages spread around the coastal, including litters in resident houses, drains and sea. That is how environmental pollution created in Suka Maju Village.

2 MATERIAL AND METHOD

This research is using qualitative method that describe the reality circumstance and participation of the people themselves. The data is gained by field observation, interview with capable sources and proved by documentations in the object area. The research reveals the reality based on the factual condition through the informations from the figures from the local people and another is the figures from the institution or government. There is no limit number for the interviewer because the more interviewer will give more valuable data. The interviewers were selected by the consideration of people who can give a big impact to the society such as Head of Village, Head of Sub-District and some of local people representatives. This research was conducted by collecting data through interviews, visual materials and observation in the field directly. There are some preparations before doing the interview such as an early approach by joining the daily routine of local society to avoid the awkward condition while starting the interview. Beside that, the result of the research is obtained through the straight phenomenon that happened in the place, it could create a convenient situation with the interviewers. The main reason of conducting this research is considering the initial survey area where the location are full of litters specifically in seawalls area and resident areas. The litters are not just organic rubbish but inorganic either. This indicates that people used to litter everywhere. Another

consideration is some complaints from the public were often heard, it is about the lack of public services from the government such as garbage bins, the improper of garbage carrier that caused a massive accumulation number of garbage, as shown below;



Source: doc. KPPLD of Simeulue Regency, 2018
Figure 1: Waste dumped carelessly by residents.

3 RESULTS AND DISCUSSION

The area of the research is in Suka Maju Village, Simeuleu Regency, Aceh province where it is located along the coastal areas and border with the sea directly. The majority of citizen are transmigrated people from outer islands and the original people of Simeuleu. Work responsibilities, find a job and trade become the factors of transmigration. The village has three variety of daily traditional languages such as *Lekkon*, *Jame and Evulai (Sigulai)*. The village is divided in to 3 hamlets, they are Mawar, Melati and Sedap Malam hamlets. The Village Report of Suka Maju in 2018 was ± 2.704 populations and keep increasing over the year. By this fact, it is also followed by the increasing of litter numbers. Hartanto (2006) states that the consequences of the expansion of the urban area accompanied by the growth of the urban population will also increase community activities within it, hence, it requires public services and basic infrastructure such as clean water, waste water, drainage, solid waste and so on. Waste is a consequence of human activity. Every human activity must generate waste or garbage. The amount or volume of waste is proportional to the level of human consumption of goods or materials that people consume everyday. Likewise with the type of waste, it depends on the type of material consumed (Kazam, 2011).

Improper habit like littering become a normal condition for people in Suka maju Village, however,

it causes the occurrence of landfill in several points. The society should be aware with the severe effect for instance, environmental pollution and health problems. It is also applied in solving the matter, the society strongly relies on the government, eventhough it is about gaining the society welfare. Martinawati, et al. (2016) states that the efforts to overcome the increasingly problematic garbage problems require waste management by involving the community. Without the participation of the community in this process, it can be said that it is impossible for the government itself to solve the problem of garbage that is increasingly piling up.

3.1 Condition of Waste Management in Suka Maju Village

The stages of solving waste consist of collection, transportation and destruction that each system influences the success of waste handling. Problems in Suka Maju Village cannot be separated from the three stages, including:

a. Waste Collection

- Waste collected by officers is usually just office waste. The garbage is collected at the polling station and other officers will transport it to the landfill. Meanwhile, household waste does not go through collection stage but transports directly to the landfill.
- The government provides polling stations at each office point that is used as a temporary collection point for garbage before being transported to the landfill. However, the problem is, often the waste in the TPS accumulates for a long time, hence, the garbage emits an unpleasant odor. Then the garbage disposed of at polling stations is often found to be trash, even though TPS is only intended for offices.
- As a result of the lack of polling stations, the citizens were disposed of the garbage in the polling station, but other problems were that the residents do not throw into the polling stations but around the polling stations, as a result of the garbage scattered in the TPS area.
- The number of containers to date is still very limited, even though remembering garbage is getting bigger and bigger. Lack of transportation, such as amroll, causes containers to be transported late to landfills.
- Public awareness about garbage collection is still very low.

b. Waste Transport

- The process of transporting waste in Suka Maju Village is still very limited, this is not comparable with the amount of garbage produced by residents at any time.
- There is no written guarantee regarding the safety of the transport officer even though what is really needed is the transport officer.
- The transportation time is still not maximal, because the transportation is often done at night at 8:00 to 11:00. Officers only carry 3 hours of trash while the divided routes are often not resolved.
- The transportation equipment is often not covered so that when the garbage is full in the truck it will be blown off by the wind into the road, this triggers garbage to be scattered on the highway and disrupts traffic comfort.

c. Extermination of Waste

- Waste disposal is carried out at the landfill, there is no sorting of waste between organic and inorganic.
- Simeulue Regency landfill still uses open dumping. This system can trigger odors and diseases from flies and mice.
- Places designated for landfill have consumed the road, so that road users are expected.

3.2 The Village Waste Collection Pattern Suka Maju

a. Direct individual Patterns

The applied pattern in collecting wasted in Suka Maju Village is by the way of officers coming to every source of garbage (door to door) and directly transported to be disposed of at the landfill. The tools used are dump truck cars and garbage bins.

b. Direct Communal Pattern

This method is carried out by the residents themselves, meaning that every citizen who produces waste will be immediately disposed of to the polling station or to the pengakut truck and immediately disposed to the landfill. The equipment used is amroll cars and litter bins.

3.3 Factors Affecting the Waste Management System in Suka Maju Village

- Population Density and Distribution, The population density of Suka Maju Village ranges from about $\pm 2,704$ inhabitants and increases every year. This is influenced by increasing birth factors and population migration factors.
- Environmental and social physical characteristics, at present the level of awareness of the residents of Suka Maju Village regarding cleanliness is very small. This is indicated by the amount of garbage around the area.
- Settlements, most of the houses occupied by Suka Maju Village residents are semi-permanent but there are permanent ones. The most dominant waste produced by residents is organic. Waste is not sorted out easily by people throwing garbage in its place so that the source of garbage is everywhere.
- Market, the most generated waste is from market activities. This is indicated by the selling points scattered around the market, resulting in a foul odor and damage to environmental aesthetics.
- Sea transportation, not only on land but activities at sea also contribute quite a lot of garbage. There are many ports around Suka Maju Village because the Suka Maju Village people are on average fishermen. Every time they go or want to go back to sea, the fishermen first clean the garbage from the boat or boat and the garbage is immediately disposed of in the sea, resulting in environmental pollution.
- Community Attitude and Behavior, the factors that influence waste management are the culture of attitudes and behavior of the community considering that people are the most important waste collectors. Suka Maju Village acknowledges that until now the government still lacks attention to the garbage service. such as garbage containers that are still lacking, transportation that is considered too long and the size of the transportation facilities and Temporary Landfill facilities provided. Environmental conditions are getting worse because some people are less concerned about the environment and lack of knowledge about environmental hygiene.
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3.4 Means of Collection, Transportation, Processing and Waste Final Disposal

a. Waste Collection

The garbage collection that has been applied so far in Suka Maju Village is by using fiber bins, bamboo baskets, plastic baskets, sacks, cardboard bags, plastic bags and used buckets, then some are dumped into Temporary Landfill, some of which are directly disposed to the landfill.

b. Waste Transport

Transportation is carried out by officers who have been determined by the Simeulue Regency Environmental Service. With division for residential areas the road area is transported directly by trucks while parts of the aisles or aisles are transported by wheels 3. The pattern used is to use direct individual patterns and direct communal patterns.

c. Waste Management

The waste produced by the residents of Suka Maju Village is not processed but directly disposed to the Temporary Landfill or Landfill. The garbage is not through sorting, such as vegetable waste, which is immediately disposed of to Temporary Landfill or Landfill. The garbage has no special treatment from the Government so that a lot of garbage is scattered on the road resulting in foul-smelling and dirty garbage as well as port garbage that is directly thrown into the sea.

d. Waste Final Disposal

Final waste disposal carried out by the community in Suka Maju Village, most of the garbage is directly disposed of into garbage transport vehicles. but there are also people who dispose of garbage in polling stations or non polling stations, for example on the sea wall, rivers, roads, sewers without thinking.

3.5 Waste Management Policy in Simeulue District

Regulation has a very important role in carrying out an action activity. Regulation as a guideline or legal basis used in regulating waste problems that exist in the community so that they

can be applied and as a comparison in accordance with the provisions of the applicable article (Fangga and Mulasari, 2016).

At present the policies made by the government itself do not work, so that the people easily make policies as a formality in environmental hygiene activities. Some informants admitted that people in Suka Maju Village often did not pay retribution to officers. The community feels burdened with monthly contributions, even though the retribution is used as an operational hygiene fund.

In the aspect of financing, a common problem especially is the still low cleaning fees that are not comparable to operational and maintenance costs. In the institutional aspect, what is common is that the number of personnel that is not comparable to the amount of waste produced and the knowledge of personnel towards the waste management system is still low. In terms of providing garbage facilities, there are still limited equipment such as containers, and transportation trucks. The pattern of ineffective transportation of waste will also affect service coverage and operational costs of transportation. Because of the government's limitations in waste management, it is necessary to support the participation of the community in waste management, both active and passive participation (Hartanto, 2006).

Table 1. Retribution in Simeulue District.

No	Wide Waste	Source /Volume	Rates
1.	Household	1. Building Size. <50 M ²	IDR 5,000 / month
		2. Building Size > 51 M ² to 100 M ²	IDR 10,000 / month IDR 15,000 / month
		3. Building Size > 101 M ² to 200 M ²	IDR 20,000 / month
		4. Building Size > 200 M ²	IDR 20,000 / month
2.	Shops, Guesthouse, Hotel, Office, and Market	1. Small (garbage volume <0.51 M ³ / day)	IDR 15.000/month
		2. Moderate (garbage volume > 0.51 M ³ / day to 0.75 M ³ / day)	IDR 20,000 / month
		3. Large (garbage volume > 0.75 M ³ / day)	IDR 30.000 / month
3.	Industry,	1. Small	IDR 30.000 /

Restaurant Factory	hospital (garbage volume <0.51 M ³ / day)	month
	2. Moderate (garbage volume > 0.51 M ³ / day to 0.75 M ³ / day)	IDR 40,000 / month
	3. Large (garbage volume > 0.75 M ³ to 100 M ³ / day)	IDR 50,000 / month
	4. Containers of waste (trash volume above 100 M ³ / day)	IDR 200,000 / month
	Rp. 30,000 / month	

3.6 Weaknesses of Village Suka Maju to Progress in Handling Waste

Nowadays, the problem of garbage is never separated from our lives. Growth is increasing, so the level of waste produced increases either. Not only in big cities, but also in small cities, problems regarding waste also occur. As in Suka Maju Village which is relatively small, the garbage has polluted the village area, especially the embankment and the sea. Places around the embankment of the Suka Maju Village are still a lot of garbage inorganic and organic types. The garbage is disposed of carelessly by the residents themselves because all garbages are household wastes. The problem of environmental pollution due to the lack of waste management is a problem which in some areas has not been resolved and has become a serious burden and problem in almost all Districts/City Governments. This problem arises because the waste (especially garbage originating from households) is not handled properly. The low level of public awareness, limited landfill land, and the limited capacity of the local government in terms of financing are the supporting factors that have resulted in increasingly complex waste problems (Krisnani et al., 2017).

Many problems in handling waste, such as in Suka Maju Village, Simeulue Regency, are increasing in garbage, which is increasingly grow and this is evidenced by the increasing population of Suka Maju Village. In addition, the consumption patterns of the community are dramatically diverse, ranging from plastic packaging to paper. Suka Maju villagers are accustomed to construct the garbage into the sea, coupled with residents' houses with the

sea, which are only limited to embankments, so that people can easily throw garbage at random.

Many people still do not understand about sanitation, we can value them from their daily habits. Another issue is that people rarely pay retribution to the government, therefore, problems like this become a polemic between the government and society. One side of the community does not pay retribution because the waste has already been dumped while on the one hand the government does not want to transport waste because of its non-payment of the waste.

3.7 Weaknesses of the Government Handle Waste

Every activity regarding waste handling, the most important thing is the government. However, date in the role of the government is still questionable. There are many complaints from the community as currently the container provided by the government is not evenly distributed, it means only some people get the container while some people only rely on used barrels or are immediately disposed of into the sea. later, the community often complained because the intervals of transportation of garbage by officers were too long. usually the officer transports trash 3-4 days so it is not uncommon for rubbish to overflow from the container and scatter around the container.

Waste handling is also strongly supported by the availability of operational tools. However, in fact the availability of operational tools in Simeulue District is still very minimal so work is felt to be very slow and time consuming. Another problem is that the sanitary landfill system has not been running for nearly 1 year, but until now it is still like normal open dumping. The problem of waste is one of the sectors that is considered in the adaptation efforts of a city to reach a resilient city. Waste management in Indonesia is currently considered to be less effective and tends to damage the environment so it does not lead to sustainable development that should be proclaimed in every city in Indonesia. Waste management currently carried out in Indonesia only relies on efforts to dispose of waste carried out in an open dumping manner with a limited service life (Manurung, 2013).

Another disadvantage point is the government policies that have been made to date have not been implemented. Example on Qanun article 16 Number 18 of 2012 which regulates criminal sanctions. This article does not work in the community at all, hence, the community does not pay retribution easily. The

government is not strict enough to follow up on this situation even though retribution is very helpful as an addition to the operational process.

The regency's Qanun and Regulations which in the District of Simeulue have so far not been implemented, finally the community has until now considered it only as a written regulation. the informant said that "I don't pay for garbage money, because there is no garbage, so what do I pay for? The garbage that we burn, or we waste the sea. From time to time, the garbage will be transported from where you stack it and you can just throw it away. After all we don't pay even if it's not in law or all kinds.

4 CONCLUSIONS

1. Some of the inhibiting factors for garbage managing in Suka Maju Village are increasing the population growth and movements.
2. The waste management in Suka Maju Village should involve all the components of stakeholders both from the government and from the community themselves.
3. From this study, the community also needs to be socialized regarding environmental hygiene, thus people will no longer littering in clean circumstances.

5 RECOMMENDATION

As a recommendation from this study, it is expected that the government will be more serious in handling waste. policies that are made worthy of being carried out according to the rules so that the community does not view the performance of the government as weak. The government is also expected to be more transparent to the community, so that this does not create a bad community perspective. And it is also hoped that the community will not be complacent or hope for the government alone, solutions and handling can also be done by the community itself. mutual cooperation between the government and the community is more profitable and of course the results are better.

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