



Handling of Household Waste That Impact on Environmental Pollution in Kupang City Review Based on Law Number 18 of 2008 Regarding Waste Management

Satria Akbar Bachtiar¹; Evelyn Bellatrix Sumbly²; Rahma Pramudya Nawang Sari¹; Sofyan Wimbo Agung Pradnyawan³

¹ Faculty of Law, Universitas Muhammadiyah Kupang, Indonesia

² Faculty of Law, Universitas Muhammadiyah Surakarta, Indonesia

³ Universitas PGRI Madiun, Indonesia

E-mail: satria.kefamenanu123@gmail.com, vey.sumbly@gmail.com, rahmapramudya.rpns@gmail.com, sofyannusantara@gmail.com

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Abstract

Various efforts were taken by creating a healthy environment for the community. Related to this, Indonesia already has Law No. 18 of 2008 concerning Waste Management. Until now, waste management in Indonesia is still using the old paradigm: collect-transport-dispose. In Kupang City, East Nusa Tenggara, the management of household waste is still not optimal, especially with the lack of public understanding and awareness about the impact of waste that is not managed properly and correctly. There are still many people who throw household waste carelessly at certain points around the edge of the road and this creates an unfavorable view and smells that interfere with breathing in the surrounding environment. Thus, this problem must provide a response from various parties not only by the government and citizens (public), the private sector but also between governments (Kupang City Government and NTT Provincial Government). This can be seen in the lack of synergy between the government's movements and policies in dealing with waste in Kupang City. Handling the waste problem is closely related to environmental problems. If the environmental conditions are clean and healthy, the community will have an impact on public health and environmental pollution. If the community is healthy, the health budget will also be reduced. In this regard, based on Law Number 18 of 2008 concerning Waste Management, concrete steps to be applied in the implementation of waste management must start from the ministry to the RT level and change people's behavior by throwing garbage not in random places. must be removed. In addition, waste management must be carried out jointly by the government, the community and the private sector by helping to prepare waste transportation facilities because the waste transportation facilities belonging to the government of Kupang City are also limited in number to transport waste in various parts of Kupang City where the amount of waste is very large. The role of the private sector is to help the government by preparing garbage bins or helping to educate the public about the importance of maintaining cleanliness.

Keywords: *Waste, Government; Policy; Pollution; Environment*

Introduction

The increase in population growth every year has an impact on social relations in society. This can be seen over time in social and economic activities that produce more and more household waste and have an impact that has turned into a serious public problem in many countries, especially in urban areas. Regarding its impact on human health. The WHO report in 2016 for example that 24% of global diseases are caused by all kinds of preventable environmental factors and more than 13 million deaths each year that can be prevented. The four diseases caused by the bad environment are diarrhea, lower respiratory tract infections, various types of non-intense wounds, malaria and so on (1).

Waste management in Indonesia needs to be accelerated quickly and accurately. the volume of waste generated by people in big cities is increasing every day, which is a problem for the environmental sector. Handling the waste problem is closely related to environmental problems. If the environmental conditions are clean and healthy, the community will have an impact on public health. The health sector is one of the largest expenditure items in the government's State Revenue and Expenditure Budget (APBN).

Garbage is something that really needs serious attention from various parties and local residents, because for now waste is still a problem that has failed in terms of handling. Judging from the impact that is certain to occur in the community if waste management is not handled properly it will have an impact on decreasing the quality of life, the beauty of the environment, the potential for flooding will be greater because it will block the flow of water so that natural disasters such as floods and decline in the quality of health of the people who live around the waste pollution area. If this continues in the long term, it can affect the flow of regional investors, the selling power and attractiveness of the area will decrease drastically. Even according to health experts, waste pollution has a negative impact on health. This results in various kinds of diseases that can be caused in the waste pollution area such as indexed digestive tract, typhus, dysentery, and others.

Various efforts were made to create a healthy environment for the community. Therefore, waste management services are an investment that must be implemented. The cost for handling the waste problem is quite high in implementing waste management with the funds needed depending on the volume of waste to be processed and the technology applied. Related to this, Indonesia already has Law No. 18 of 2008 concerning Waste Management. Until now, waste management in Indonesia is still using the old paradigm: collect-transport-dispose. Source reduction (reduction starting from the source) or waste sorting never goes well. Although there have been composting and recycling efforts, they are still limited and unsustainable. Burning waste with incinerators is considered to only transfer the problem to air pollution(2).

In Kupang City, East Nusa Tenggara, the management of household waste is still not optimal, especially with the lack of public understanding and awareness about the impact of waste that is not managed properly and correctly. There are still many people who throw household waste carelessly at certain points around the edge of the road and this creates an unfavorable view and smells that interfere with breathing in the surrounding environment. Thus, this problem must provide responses from various related parties which tend to differ not only by the government and citizens (public), private sector but also between governments (Kupang City Government and NTT Provincial Government). This can be seen in the lack of synergy between the government's movements and policies in dealing with waste in Kupang City. All of these conditions lead to the main issue which is a public problem (garbage).

The Kupang City Government through the Natural Resources Section of the Kupang City Secretariat held a Focus Group Discussion (FGD) activity on the Formulation of Policies and Strategies for Household Waste Management in Kupang City(3). Waste management has been regulated in Law No. 18 of 2008, that waste management is a systematic, comprehensive, and sustainable activity that includes waste reduction and handling. However, this long chain of waste management experiences many

obstacles and problems. This is due to several factors, including the limited capacity of the government, the low participation of the private sector and the public, as well as the increasing amount and type of waste each year.

This FGD was held with the aim of obtaining alternative formulations in the form of policy recommendations and strategic steps that could be taken related to the implementation of the local government regulations.

Methods

A. Approach Method

In this study, the author uses this normative juridical approach with the intention to approach the problem by looking at the applicable laws and regulations, documents and various theories(4). The normative juridical approach in this research is carried out by examining reading sources that are relevant to the research theme, which includes research on legal principles(5), legal sources(6), statutory regulations that are scientific theoretical in nature that can analyze the problems discussed.

B. Research Specification

The research specifications used are descriptive analytical, namely providing a relevant description of the nature or characteristics of a problem situation in the research to be analyzed (7)based on legal theories and practice of implementing positive law concerning problems in general.

C. Data Collection Method

The type of data used in this study is secondary data, namely data regarding the literature on theories of experts related to the subject matter that will be used as a theoretical basis for thinking(8). This secondary data can be from laws and regulations, official documents, books, papers related to title issues. Secondary data in the field of law consists of(9):

- a. Primary legal material, or positive legal material, which is a legal norm that has binding power.
- b. Secondary legal materials, namely legal materials that complement primary legal materials, such as books, papers, journals and websites related to the object under study.
- c. Tertiary legal materials, in the form of the Legal Dictionary and the Big Indonesian Dictionary which are used to complete the analysis of primary legal materials and secondary legal materials.

D. Data Analysis

The data collected were analyzed using qualitative analysis techniques which include:

- a. qualitative data obtained from in-depth interviews in the form of notes, recordings related to the substance of the research;
- b. selecting things that are considered basic and relevant to the substance of the study, then the trend or pattern of the collected data is determined by categorizing the various data;
- c. triangulation of interview results both in terms of content and informants to bring up a certain pattern.

Results and Discussion

i. Definition of Waste, Types, Impact and Handling Method

Waste is waste generated from a production process, both industrial and domestic (household). Meanwhile, in Law Number 18 of 2008 concerning Waste Management, it is stated that waste is the residue of human daily activities or natural processes in the form of solid or semi-solid in the form of

organic or inorganic substances that are biodegradable or non-biodegradable which are considered no longer useful and are disposed of in the environment. Garbage comes from several places, namely:

- a. Garbage from residential areas in a settlement is usually generated by a family living in a building or dormitory. The type of waste produced usually tends to be organic, such as food scraps or wet, dry, plastic ash and others.
- b. Garbage from public places and trade in public places is a place where many people can gather and carry out activities. These places have considerable potential in producing waste, including trading places such as shops and markets. The types of waste generated are generally in the form of food scraps, rotten vegetables, dry waste, ash, plastic, paper, and cans and other waste.

Various kinds of garbage show that human life will never be separated from garbage. Especially the accumulation of garbage that occurs in public places such as in markets. The types of waste that are around us are quite diverse, some are in the form of household waste, industrial waste, market waste, hospital waste, agricultural waste, plantation waste, livestock waste, institutional / office / school waste, and so on.

Based on its origin, solid waste can be classified into 2 (two), namely as follows:

- a. Organic waste is waste produced from biological materials that can be degraded by microbes or are biodegradable. This waste can easily be decomposed through natural processes. Most of the household waste is organic material. This includes organic waste, such as kitchen waste, food scraps, wrapping (other than paper, rubber and plastic), flour, vegetables, fruit peels, leaves and twigs. In addition, traditional markets also donate a lot of organic waste such as vegetable, fruit and other waste.
- b. Inorganic Waste is waste produced from non-biological materials, either in the form of synthetic products or the result of technological processes for processing mining materials. Inorganic waste is divided into: metal waste and its processed products, plastic waste, paper waste, glass and ceramic waste, detergent waste. Most of the inorganic can not be decomposed by nature / micro-organisms as a whole (unbiodegradable). Meanwhile, others can only be described in a long time. This type of waste at the household level includes plastic bottles, glass bottles, plastic bags, and cans (Gelbert et al, 1996).

Based on the shape or form, there are three types of waste or waste, namely: liquid waste, solid waste, and gas waste. Examples of liquid waste are washing water, soapy water, residual cooking oil, etc. Examples of solid waste are snack wrappers, used tires, drinking water bottles, etc. Examples of waste gases are carbon dioxide (CO₂), carbon monoxide (CO), HCl, NO₂, SO₂ etc. The negative impact of solid waste that accumulates a lot cannot be decomposed in a long time will pollute the soil. What is categorized as waste here is material that is no longer used (refused) because its main parts have been taken by processing into unwanted parts and economically there is no price.

According to Gelbert et al (1996) there are three impacts of waste on humans and the environment, namely:

1. Impact on health

Inadequate waste location and management (uncontrolled waste disposal) is a suitable place for several organisms and attracts various animals such as flies and dogs which can transmit diseases, such as:

- a. Diarrhea, cholera, typhus spread quickly because viruses that come from waste with improper management can mix with drinking water. Haemorrhagic fever can also increase rapidly in areas where waste management is inadequate.

- b. Fungal diseases can also spread (eg skin fungus).
- c. Diseases that can spread through the food chain. One example is a disease transmitted by tapeworms (taenia). These worms previously entered the digestive tract of livestock through their food in the form of food waste/garbage.

2. Impact on the environment

Waste seepage liquid that enters the drainage or river will pollute the water. Various organisms including fish can die so that some species will disappear, this causes changes in biological aquatic ecosystems. Decomposition of waste dumped into water will produce organic acids and organic liquefied gases, such as methane. In addition to smelling bad, this gas at high concentrations can explode.

3. Impact on Social and Economic Conditions

- a. Inadequate waste management results in low levels of public health. The important thing here is the increase in financing (to treat the hospital).
- b. Other infrastructure can also be affected by inadequate waste management, such as the high cost of water treatment. If garbage collection facilities are lacking or inefficient, people will tend to throw their garbage on the street. As a result, roads need to be cleaned and repaired more often.

4. Waste Management With 3R Concepts

Reducing waste requires efforts from upstream to downstream, efforts that can be made in reducing waste from waste sources (from upstream) are to apply the 3R principle which in general is an effort to reduce waste disposal, through programs to reuse (Reuse), reduce (Reduce), and recycle (Recycle).

- a. Reuse (reuse) is the direct reuse of waste, both for the same function or other functions.
- b. Reduce, namely reducing everything that causes waste.
- c. Recycle (recycling) which is to reuse waste after undergoing a processing process.

5. Waste Processing Techniques

Garbage is part of something that is not used, disliked or something that must be thrown away, which generally comes from activities carried out by humans (including industrial activities), but is not biological (because human waste is not included) and is generally solid. Sources of waste can vary, including: from households, markets, stalls, offices, public buildings, industries and roads. 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 an estimated 78% of this waste can be reused. Waste management is all activities carried out in handling waste from the time it is generated to its final disposal. Broadly speaking, activities in waste management include controlling waste generation, waste collection, transfer and transport, processing and final disposal(10).

ii. Government Efforts in Waste Management in Indonesia

Currently, waste management in Indonesia is still using the old paradigm: collect-transport-dispose. Source reduction (reduction starting from the source) or waste sorting never goes well. Although there have been composting and recycling efforts, they are still limited and unsustainable. Burning waste with incinerators is considered only to move the problem of air pollution. Garbage, a topic that is not popular with most of the people, has become daily food for Waste Management Technology. The ideal waste management according to Dr. Enri Damanhuri as Chair of the Air and Waste Management KK (Expert Group) at the Faculty of Civil and Environmental Engineering ITB conducted research as close as possible to the source. Departing from that concept, Pak Enri became a pioneer in the establishment of the ITB PPS (Waste Processing Center) located in Pojok Sabuga (Sasana Budaya Ganesha) in 2006. The

Garbage Power Plant which is currently being discussed is a source of energy, from the heat it produces in the combustion process. This concept is known as 'waste to energy'. There are actually a lot of waste processing technologies, from the cheapest to the most expensive.

The waste produced by people in big cities is increasing every day, becoming a problem for the environmental sector. Handling the waste problem is closely related to environmental problems. If the environmental conditions are clean and healthy, the community will have an impact on public health. In this regard, based on Law Number 18 of 2008 concerning Waste Management, concrete steps to be applied in the implementation of waste management must start from the ministry to the RT level and change people's behavior by throwing garbage not in random places. must be removed.

The handling of waste problems is quite high and this also applies in developed countries in implementing waste management. The calculation of the required funds depends on the volume of waste to be processed and the technology applied. To overcome the high cost of waste management, refer to policies implemented by countries such as Singapore and Japan, where citizens pay a fee for waste management. The effect is that the results of waste management can be used as fuel for Waste Power Plants (PLTSA) and compost for agricultural and plantation activities. So, the benefits arising from waste management can also be felt by other sectors. This digital company offers a PLTSA solution that is considered suitable to be applied in Indonesia as an alternative energy source. In waste management so that it can run well and smoothly. First, the legal aspect. Related to this, Indonesia already has Law No. 18 of 2008, concerning Waste Management. Second, the institutional aspect. In this case, it is a concrete step that is implemented in the implementation of the waste management law starting from the ministry to the RT level. Third, the funding aspect, because waste management is not cheap, which is calculated from the APBN and APBD, including the costs that must be incurred by each household. Fourth, the socio-cultural aspect must be started early by the community with the habit of littering and must be eliminated. The fifth aspect is the technological aspect which is divided into short, medium and long term waste management technology. The side effects of waste management activities depend on the technology used(11).

Garbage is very dangerous for human health and the environment. Waste must be processed or recycled properly so as not to pollute the environment and interfere with human health. unique. In general, waste management is carried out in the form of collection, transportation, and final disposal or processing(12). At the final disposal or processing stage, the waste will undergo certain processes, either physically, chemically, or biologically. In this final disposal process, there are things that can be done with an open dumping system (open dumping) or a sanitary landfill (healthy disposal). In the open dumping process, waste is piled up alternately with soil as the cover layer. Disposed waste must be selected so that each part can be recycled optimally. This is much better than throwing it into a polluted garbage disposal system.

Disposal of mixed waste can damage and reduce the value of materials that may still be used from the waste. In relation to efforts to free the environment from waste problems, community participation in processing waste is also very necessary to reduce the amount and volume of waste. However, this effort to involve the community also needs to be developed, as well as fostering community participation in a directed and oriented way towards people(13)

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iii. The Government's Role in Handling Household Waste That Has an Impact on Environmental Pollution in Kupang City

One of the locations where garbage accumulation is still common is at several beach points in Kupang City. One of them is the condition of Pasir Panjang Beach, Kupang City, East Nusa Tenggara which is a crucial point of environmental damage in this area. The East Nusa Tenggara Forum for the Environment (WALHI) stated that Pasir Panjang Beach in Kupang City was a crucial point of environmental damage in the capital city of NTT Province(14).

The environmental damage in Kupang City, especially in the Pasir Panjang Beach location, has become a gathering place for plastic waste from the sea and the beach is muddy so that when it passes, the stench is very strong. The production of waste in Kupang City is very high, so handling this waste problem does not only depend on the Department of Environment and Hygiene but is also the responsibility of all the people of Kupang City. According to the Head of the Environmental and Hygiene Service of Kupang City, East Nusa Tenggara, household waste production in the area is very high, reaching 200 to 250 tons a day(15). To realize a clean and beautiful Kupang City requires the cooperation of all parties and the support of adequate facilities and infrastructure in overcoming the waste problem.

The limitations of the waste transportation facilities owned by the Kupang City Government are quite limited while the daily waste production is not comparable to the facilities provided. The household waste that is mostly disposed of is generally organic waste that should be processed independently by residents at the household level to become organic fertilizer. However, in reality, organic waste and plastic waste are disposed of at the same time into garbage collections, resulting in a large accumulation of waste. This is due to the lack of public understanding about the empowerment and separation of each type of waste. The high production of waste in the area has a major impact on the capacity of the Kupang City Government's final disposal site (TPA), which has very limited land. So that the concern and awareness of the people in the capital city of the province of NTT not to litter is still very limited, making it difficult for officers to transport garbage.

Waste management must be carried out jointly by the government, the community and the private sector by helping to prepare waste transportation facilities because the waste transportation facilities belonging to the Kupang City government are also limited in number to transport waste in various corners of Kupang City, which is very large in number. The role of the private sector is to help the government by preparing garbage bins or helping to educate the public about the importance of maintaining cleanliness.

Based on data from several sources including the Head of the Environment and Forestry Office of the Province of NTT, the Head of the Environment and Hygiene Office of Kupang City, and environmental experts, waste activists and from the Regional Market Company, the limited resources owned by the government cause the scope of waste management services to be limited. still low. Waste that is not sorted or processed first when transported from TPS (temporary shelter) to TPA (final processing site) is one of the factors for waste mixed between organic, inorganic and waste which causes the burden of the landfill to be very heavy. The impact is not only environmental pollution, but also increased operational costs, and the emergence of potential social conflicts. Meanwhile, the involvement of the private sector is still limited to the recycling of inorganic waste, such as plastic, paper, glass and metal. The amount of organic waste dominates the total waste generated every year. Based on data from the Ministry of Environment and Forestry of the Republic of Indonesia, in 2019 the amount of waste in Indonesia has reached around 66-67 million tons. This is more than the average amount of waste per year which reaches 64 million tons, which is dominated by household waste, which is 63.95% of that amount(16).

In addition, according to the Head of the NTT Natural Resources Conservation Center (BBKSDA), the coastal area of Kupang Beach, produced as much as 20,711 kilograms of waste and had been transported from six coastal points during the environmental clean-up action to commemorate the 2019 National Waste Care Day (HPSN). The collected waste consists of inorganic waste, such as plastic, metal, and glass, as well as organic waste. The waste is then transported in 13 trucks to be disposed of in a final disposal site (TPA). The large amount of garbage collected by BBKSDA appeals to the people of Kupang City to maintain and care for the surrounding environment by not throwing garbage in any place, because the impact is very bad for human health and marine animals. The waste problem in Kupang City has been categorized as an emergency status(13).

The NTT BBKSDA then collaborated with the NTT Provincial Government, the Kupang City Government, the NTT Ministry of Environment and Forestry UPT, the TNI/Polri and other stakeholders to clean the environment from garbage at six coastal areas in Kupang City. The location of the beach for this clean-up action is because the coastal area has always been a gathering place for plastic waste from various environments in the community. In addition, plastic waste is currently also a national and international concern, because it has a negative impact not only on humans but also on animals and other marine biota.

iv. Household Waste Management in Kupang City Based on Law Number 18 Year 2008 concerning Waste Management

Based on the 1945 Constitution of the Republic of Indonesia Article 28h paragraph (1), it is stated that everyone has the right to live in physical and spiritual prosperity, to have a place to live, and to have a good and healthy environment and have the right to health services(17). The 1945 Constitution is the basis for the government to provide guarantees for the realization of the right of everyone to a good and healthy living environment as well as related to waste management. Waste management in Indonesia is also supported by the existence of policies as the main basis for waste management, namely Law Number 18 Year 2008 on Waste Management. In Law Number 18 of 2008 concerning Waste Management, in Article 1 paragraph (1) waste is the remains of human daily activities and/or natural processes in solid form, while regarding waste management which is then interpreted in Article 1 paragraph (5) which waste management is a systematic, comprehensive and sustainable activity that includes waste reduction and handling aimed at improving public health and environmental quality and making waste a resource. Waste reduction can usually be started from each individual in the community(18). Meanwhile, waste management is a system that is carried out continuously and regularly, and is treated with periodic areas. In order to implement the provisions of Article 11 paragraph (2), Article 16, Article 20 paragraph (5), Article 22 paragraph (2), Article 24 paragraph (3) and paragraph (4), and Article 28 paragraph (3) of Law Number 18 of 2008 concerning Waste Management, and it is necessary to stipulate a government regulation Number 81 of 2012 concerning the Management of Household and Similar Household Waste. Household waste is waste that comes from daily activities in the household which does not include feces and specific waste. Meanwhile, household waste is household waste originating from commercial areas, industrial areas, special areas, social facilities, public facilities, and others. Waste management according to this Government Regulation is a systematic and sustainable activity that includes waste reduction and handling(19). Presidential Regulation Number 83 of 2018 regulates the handling of marine debris because marine debris can cause pollution and damage to the environment and aquatic ecosystems, as well as endanger human health. Marine debris is waste originating from land, water bodies and coasts that flow into the sea or garbage originating from marine activities.

Based on the 1945 Constitution of the Republic of Indonesia Article 28h paragraph (1), it is stated that everyone has the right to live in physical and spiritual prosperity, to have a place to live, and to have a good and healthy environment and have the right to health services(20). The 1945 Constitution is the basis for the government to provide guarantees for the realization of the right of everyone to a good and

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Closing

Waste production in Kupang City is very high, environmental damage in Kupang City, especially at the beach location, becomes a gathering place for plastic waste from the sea and plus the beach is muddy so that when passing, the stench is very strong. Waste management must be carried out jointly by the government, the community and the private sector by helping to prepare waste transportation facilities because the waste transportation facilities belonging to the Kupang City government are also limited in number to transport waste in various corners of Kupang City, which is very large in number. The role of the private sector is to help the government by preparing garbage bins or helping to educate the public about the importance of maintaining cleanliness.

Based on Law Number 18 of 2008 concerning Waste Management, and it is necessary to stipulate Government Regulation Number 81 of 2012 concerning Management of Household Waste and Similar Households. Regarding waste management, the Kupang City Government through the Natural Resources Section of the Kupang City Secretariat held a Focus Group Discussion (FGD) activity on the Formulation of Policies and Strategies for Household Waste Management in Kupang City, formulating alternatives in the form of policy recommendations and strategic steps that can be taken related to waste management. implementation of the Kupang City Government Regulation in the field of waste management.

Suggestion

It is hoped that there is a need for serious cooperation between the community and the government of Kupang City to handle household waste, one of which is by socializing the understanding of waste management and reuse of household waste so that it is not misused or disposed of in inappropriate places.

Regulation of Law Number 18 of 2008 concerning Waste Management is expected to be the main legal basis both in the regions and cities for handling household waste problems which are still considered less serious attention by the Government and the community.

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