

Waste Management in Makassar City Based on Regional Regulation Number 4 Year 2011

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Abstract

Garbage is a problem faced by almost all countries in the world. Increasing the volume of waste requires good and effective management. In Makassar City, waste management is regulated by the Regional Regulation Number 4 Year 2011 concerning Waste Management, which can be said to be a responsive regional regulation because it has accommodated the involvement of various parties, especially the community and the business world in waste management in Makassar City. The local government of Makassar City determines two types of solid waste or cleaning service policies, namely the Communal Service Policy (Indirect Service Policy) and Individual Service Policy (Direct Service Policy). Effective waste management in Makassar City is measured by the form of services provided by the government and the fulfillment of solid waste facilities and infrastructure in Makassar City. In terms of services, these services are provided every day by the local government of Makassar City through their apparatus. Then regarding the facilities and infrastructure, the Makassar City Government has made efforts to fulfill all facilities and infrastructure, especially related to waste transportation.

Keywords: Effectiveness, garbage, management, regional regulations, responsiveness.

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INTRODUCTION

The issue of waste continues to be discussed, because it is related to the lifestyle and culture of the community itself [1]. Waste can be defined as a valuable burden or resource depending on the way it is managed [2]. Waste is the residue of human daily activities and / or natural processes in solid form. Waste management is meant to be a systematic, comprehensive and sustainable activity which includes the reduction and handling of waste. Based on the physical and chemical properties, waste can be classified into: 1) any waste which is easily decomposed consists of organic waste such as vegetable scraps, meat scraps, leaves and others; 2) non-decaying waste, such as plastics, paper, rubber, metals, building material scraps and others; 3) garbage in the form of dust/ash; 4) waste that is dangerous (B3) for health, such as waste originating from industries and hospitals that contain dangerous chemicals and disease agents.

Garbage as something that is less useful and valuable, or waste that is not useful [3]. Garbage is a problem faced by almost all countries in the world. Not only in developing countries, but also in developed

countries, waste has always been a problem. On average, every day, big cities in Indonesia produce tens of tons of waste. The rubbish is transported by special trucks and thrown away or just piled up in the space provided without being done anything else.

In order to carry out waste management in an integrated and comprehensive manner, fulfill the rights and obligations of the community, as well as the duties and authorities of the Government and local governments to carry out public services, a direct role based on the legal umbrella in the form of existing laws is needed.

Waste management is an activity of reducing and handling waste in which the reduction of waste in question includes activities for limiting waste piles (reduce), reuse, and recycling of waste which are shown to improve public health and environmental quality as well as make garbage as a resource. The waste handling activity in question includes selection in the form of grouping and separating waste according to the type, quantity and nature of the waste as well as collection in the form of collecting and moving waste from the source of the waste to a temporary shelter or an

integrated waste management site. Transportation in the form of carrying waste from the source or from a temporary garbage collection site or from an integrated waste management site to the final processing site.

It takes a long time and costs a lot for landfills to decompose through natural processes. Waste management aims to improve public health and environmental quality, as well as make waste a resource. In this context, the consequence is that the government is obliged to provide public services in waste management. This has a legal consequence that the government is the competent and responsible party in the waste management sector, although operationally the management can partner with business entities. Apart from that, solid waste organizations and community groups in the same field can also be involved in waste management activities.

So far, waste management has only been carried out by government officials in order from the source of the waste to the Temporary Waste Disposal Site (Tempat Pembuangan Sampah Sementara/TPS) and finally to the Final Disposal Site (Tempat Pembuangan Akhir/TPA)[4]. Transportation of waste from waste sources (residential, office, commercial, industrial and other areas) to the TPA is a conventional method which until now still dominates the pattern of waste management in Indonesia[5]. According to Article 6 paragraph (1) Letter d of Makassar City Regional Regulation Number 4 Year 2011 states the task of the City Government, namely "Implementing solid waste management and facilitating the provision of infrastructure and facilities for waste management". In order to carry out waste management in an integrated and comprehensive manner, fulfill the rights and obligations of the community, as well as the duties and authorities of the Government and local governments to carry out public services, a direct role based on the legal umbrella in the form of existing laws is needed. Waste management is an activity to reduce and handle waste. Where waste reduction in question includes activities to limit waste piles (reduce), reuse of waste, and recycling waste which is shown to improve public health and the quality of the environment and make waste as a resource. The waste handling activity in question includes selection in the form of grouping and separating waste according to the type, quantity and nature of waste, collection in the form of collecting and transferring waste from the waste source to a temporary shelter or integrated waste management site. Transportation in the form of carrying waste from the source or from a temporary garbage collection site or from an integrated waste management site to the final processing site.

In Makassar City, there are actually so many places to dispose of garbage, as well as garbage trucks and other facilities, but still the problem of garbage in Makassar City has not been resolved. With a population

of approximately 1.6 million people, it produces around 4,500 cubic meters of waste every day where each month ranges from 600-800 tons, so it can be predicted that the volume of waste in Makassar City is quite high. The city with an area of approximately 177,557 hectares is capable of producing up to 500 tons of waste or about 4,000 cubic meters per day. Meanwhile, the Makassar City Environmental Service, through its Solid Waste Sector, is only able to handle around 3,500 cubic meters per day. This means that there are around 1,000 cubic meters of waste in Makassar City which is not handled by the people of Makassar City. The garbage container with a capacity of 1,500 cubic meters or the TPS with a capacity of 2,000 cubic meters is full and is spilling over to the shoulders and road bodies which have an impact on the environment of residents around the site. If using a motorized vehicle and without a nose mask, be prepared to feel nauseous and feel uncomfortable when crossing the road to TPA Antang. Even if you use a car and the windows are tightly closed, you can still smell the smell of trash, vegetables, cardboard, and leaves that are still wet. Long queues of around 155 trucks of Makassar City Government garbage fleets from 14 sub-districts are still visible around the Tamangapa Raya road and many more around the ABRI Masuk Desa road and the Borong Rambu Raya junction. Even the 300 m of the 450 m road leading to the TPA Antang dump site cannot be accessed by the new Tangkasaki model (compact dump) and can only be accessed by the old model container trucks (arm roll truck) and garbage motorbikes. In fact, of the 246 garbage trucks, about 100 trucks are arm roll trucks, while the rest are new trucks with a capacity of 60 cubic meters. Whereas previously, the Mayor of Makassar had previously stated that his party had allocated APBD funds of around Rp. 10 billion for infrastructure development such as the road fence for the TPA Antang area and another Rp 2.5 billion for the construction of special access roads.

Based on the explanation of the Head of the Makassar City Environment Agency's Garbage Division, the volume of waste in Makassar in 2013 reached 500-550 tons or around 4,000 cubic meters per day and can double in certain seasons. The most abundant waste produced by high population areas is the Rappocini, Tallo, Bontoala, and Tamalanrea Districts. The volume of waste in 2018 reaches 800 tons per day. The latest data in 2019 are 997 RT/RW which produce approximately 11,964 cubic meters of waste per 2 days and household waste generated approximately 6 cubic meters per 4 days or 1.5 cubic meters per day.

Taking into account this fact, it is necessary to have a comprehensive solid waste management form and a process from transporting waste to landfills. This raises the question of how exactly the waste management procedure is in dealing with solid waste

problems in Makassar City considering that the community has rights related to waste management as stated in Article 11 paragraph (1) of Law Number 18 Year 2008 concerning Waste Management. Based on this explanation, this paper aims to analyze the existence of the Makassar City Regional Regulation Number 4 Year 2011 concerning Waste Management as a responsive Regional Regulation in the context of effective waste management in Makassar City.

RESEARCH METHOD

This type of research is descriptive analytic which aims to describe the social phenomena, practices, and habits of society. This study seeks to identify efforts for the existence of responsive local regulations (Study of Makassar City Regional Regulations Number 4 Year 2011 concerning Waste Management). This type of research is included in qualitative research [6]. Sources of data were obtained through observation and interviews and secondary data was obtained through literature study, references, laws and regulations, documents, observations, which were obtained from research locations during 2020. As for the informants in this study were 10 people selected. purposively (deliberately) with the consideration that they are considered to know the problem under study and can provide information about this research. The data analysis process was carried out at the same time as the data collection process was taking place. Data analysis was carried out through three channels, namely data reduction, data presentation, and conclusion drawing.

RESULTS AND DISCUSSION

Waste Management Concept

In Law No. 18 Year 2008 concerning Waste Management, the types of waste that are regulated are: (1) household waste, (2) household-like waste, and (3) specific waste. Waste management mechanism in Law No. 18 of 2008 concerning Waste Management includes waste reduction, namely activities to overcome the emergence of waste from waste producers (households, markets, and others), reuse waste from its source and / or at processing sites, and recycle waste at its source and/or at the processing plant. Waste reduction will be regulated in a separate Ministerial Regulation.

Waste handling, which is a series of waste management activities that include sorting (grouping and separating waste according to its type and nature), collection (moving waste from a waste source to a TPS or integrated waste processing facility), transportation (moving waste from a source, TPS or processing site), integrated waste, processing of final products (changing the shape, composition, characteristics and amount of waste so that it is further processed, utilized or returned by nature and active processing of waste processing activities or residue from previous processing so that it can be returned to environmental media.

The pattern of relations between the Governor and the Regent/Mayor in relation to the implementation of good governance in the implementation of the Governor's role as the representative of the central government, the relationship between the Governor and the Regent/Mayor is multilevel in which the Governor can play a role of fostering and supervising the implementation of regional governance. On the other hand, the Regent/Mayor must always coordinate in the administration of governance in the regions, including in relations between districts/cities and provinces [7]. The Regional Government is expected to be able to carry out political policies, especially regarding waste management and should be fully supported by the Central Government by involving all stakeholders in technical planning, implementation and development. In Integrated Waste Management as one of the efforts to manage urban waste, the concept of a waste management plan needs to be made with the aim of developing a waste management system that is modern, reliable and efficient with environmentally friendly technology.

The system must be able to serve the entire population, improve public health standards and provide opportunities for the public and the private sector to actively participate. The approach used in the concept of this waste management plan is to improve the waste management system that can meet the demands of community participation-based waste management.

Garbage is a material that is wasted or thrown away from the source of the results of human activities or natural processes that do not have economic value [8]. In ideal urban waste management, the solid waste management system that is developed must be a community-based management system starting from waste management at the household level. In the waste management plan, it is necessary to have better waste processing methods, increase the participation of related institutions in increasing the efficiency and effectiveness of waste management, increasing community empowerment, increasing economic aspects which include efforts to increase waste retribution and reduce funding burdens and improve legal aspects in waste management.

The Existence of Makassar City Regional Regulation Number 4 Year 2011 as a Responsive Regulation

Regional regulation is a strategic instrument as a means of achieving decentralization goals. In the context of regional autonomy, the existence of regional regulations in principle plays a role in maximizing decentralization. From the perspective of political empowerment, the objectives of decentralization can be seen from two sides, namely the regional government and the central government. The goal of decentralization from the perspective of local

government is to achieve political equality, local accountability and local responsiveness. Meanwhile, the objective of decentralization from the central government perspective is to create political education, provide training in political leadership and create political stability [9]. In the context of waste management, the Regional Government through the concept of regional autonomy has great authority in determining policies including policies on solid waste services in accordance with the situation and conditions of their respective regions. This is a form of public service by local governments to the community. Public services or public services are all forms of services, both in the form of public goods and public services which in principle are the responsibility of and implemented by government agencies at the central, regional and in the environment of State Owned Enterprises or Regionally Owned Enterprises in the framework of efforts fulfill the needs of the community as well as in the framework of implementing the provisions of laws and regulations. Solid waste services are a form of public service that is the responsibility of the government, including in Makassar City.

According to Baiq Aprimawati [10] that the implementation of solid waste services for the Makassar City government is based on the government policy on Retribution for Garbage or Cleanliness Services. In this policy, the local government of Makassar City stipulates 2 (two) types of solid waste or sanitation service policies as follows:

1. Communal Service Policy (Indirect Service Policy), namely the transportation of waste by the city government from TPS or containers to TPA which is collected by the community to TPS or containers subject to a fee of Rp. 15,000,00- (fifteen thousand rupiah) per month per household.
2. Individual Service Policy (Direct Service Policy), which is direct garbage collection at parcels or buildings then transported to the TPA to be destroyed by the city government subject to a monthly fee considering the amount of waste production.

In reality, neither the communal service policy nor the individual service policy worked as mandated by the Makassar City local government policy. This is indicated by the remaining un transported waste of 368.62 m³ or 12.81% per day [11].

The policy of the Makassar City Regional Government in managing solid waste in the City of Makassar is through the Makassar City Regional Regulation Number 4 of 2011 concerning Solid Waste Management. As previously explained, regional regulations are the basis for implementing regional autonomy in order to improve the quality of public services by local governments to the community. Likewise, with the Makassar City Regional Regulation Number 4 of 2011, this regional regulation is a sign of

the seriousness of the local government in overcoming the problem of solid waste in Makassar City and at the same time providing maximum service to the community in terms of managing solid waste in Makassar City.

Based on the Makassar City Regional Regulation Number 4 of 2011, the Makassar City local government has established various policies in their implementation. Empirically, as previously stated, the Makassar City Government has provided 248 units of garbage trucks. The Tangkasaki truck fleet is 210 units, of which 15 units are distributed in each sub-district in 14 sub-districts in Makassar City. There are also 145 Arm-Roll trucks that are in operational standby. There are also 21 units of special private garbage fleets (hotels/ restaurants/industry/housing) and 603 units of garbage bins motors available in Makassar City. There are also 620 cleaning staff, 420 people who are distributed as many as 30 people/ districts, and 143 managers. There are about 57 available fleet drivers who are official honorary employees, 12 official fleet drivers, and 42 people transporting waste from containers.

If you look at the empirical conditions regarding government policies as described above, it is clear that the Makassar City Government is very serious in dealing with this solid waste problem. This seriousness is carried out by the local government of Makassar City by involving the community and the business world proportionally. The involvement of the business world is very real where there are 21 units of garbage trucks obtained by the Makassar City Government from several private companies in Makassar. In addition, the seriousness of the Makassar City Government in dealing with this solid waste problem is also evident in the operation of the 210-unit Tangkasaki garbage trucks which are spread in 14 (fourteen) sub-districts where each sub-district gets 15 (fifteen) units. This amount is very sufficient to solve the problem of solid waste in Makassar City.

Another form of seriousness from the Makassar City Government in managing solid waste is the policy of establishing a Waste Bank Technical Implementation Unit at the Makassar City Environmental Service based on Makassar Mayor Regulation Number 126 of 2016 concerning Formation, Position, Organizational Structure, Job Description and Work Procedures for Bank Technical Implementation Units. Garbage at the Environmental Service. The duties of the UPT Waste Bank are regulated in Article 5.

Empirically, Makassar City already has nearly a thousand waste bank units. This was explained by Andi Sainal Abidin [12] which confirmed that the number of waste banks in Makassar City currently has reached 844 units, but only 489 units are running

effectively and productively processing waste. This unit has a number of customers reaching more than 50 thousand people.

Waste that is managed by the Makassar City Government based on Makassar City Regional Regulation Number 4 Year 2011 concerning Waste Management is household waste, household-like waste, and specific waste. This household waste comes from daily activities in the household, excluding feces and specific waste. Then the type of household waste referred to comes from commercial areas, industrial areas, special areas, social facilities, public facilities and/or other facilities. While the specific waste referred to includes waste containing hazardous and toxic goods, waste containing hazardous and toxic waste, waste arising from disasters, rubble from building demolitions, waste that cannot technologically be managed, and waste that does not occur periodically [13].

The local government of Makassar City cannot deny taking care of the solid waste problem in Makassar City because it is part of the public service. Because it is part of public services, Makassar City Regional Regulation Number 4 Year 2011 assigns duties and authorities to the Makassar City Government, namely ensuring the implementation of good and environmentally friendly waste management in accordance with the objectives of solid waste management, namely to improve public health and quality environment and make waste as a resource [14]. This regional regulation is enforced by the civil service police unit (Satuan Polisi Pamong Praja) [15].

The City Government in reducing waste is carried out by limiting waste generation, recycling waste, and/or reusing waste. Waste reduction is carried out through monitoring and supervision of the implementation of plans for the use of environmentally friendly production materials by business actors as well as facilitating the community and business world in developing and utilizing recycled products, marketing of recycled products and reusing waste [16].

Andi Sainal Abidin [17] explained that garbage collection is the process of handling waste by collecting from each source of waste to be transported to a temporary disposal site or to regional-scale waste processing or directly to a landfill or final processing without going through the transfer process. The operationalization of garbage collection and transportation starting from the source of waste to the final processing location or to the final disposal site can be done in two ways, namely directly (door to door), or indirectly (by using a Transfer Depo/Container) as a Temporary Shelter (TPS). For Manggala District, waste collection and transportation starting from the source of waste to the final processing location or to the final disposal location is carried out indirectly (by using the

Transfer Depo/Container) as a Temporary Storage (TPS).

The effectiveness of public services in waste management in Makassar City shows that the policies created by the local government are quite responsive, including the regional regulations, which in this case is the Makassar City Regional Regulation Number 4 of 2011 concerning Waste Management. Moch. Mahfud MD[18] argues that a legal product with a responsive character, the process of making it is participatory, that is, inviting as much community participation as possible through social groups and individuals in society. Makassar City Regional Regulation Number 4 Year 2011 concerning Solid Waste Management is considered to have a responsive character because the regional regulation has involved the community and the business world in waste management in Makassar City. Even in Makassar City Regional Regulation Number 4 Year 2011 concerning Solid Waste Management, it regulates the formation of a waste management agency. This is as regulated in Article 20 to Article 23 of the Makassar City Regional Regulation Number 4 Year 2011.

In addition, through the Makassar City Regional Regulation Number 4 Year 2011, the Makassar City Government provides incentives to institutions, business entities, and individuals who make the best innovations in waste management, reporting on violations of prohibitions, reducing waste generation and / or orderly handling trash. The Makassar City Government also provides disincentives to institutions, business entities, and individuals who violate the prohibition and/or orderly violation of waste handling.

Furthermore, it can also be explained that the responsibility of the Makassar City Regional Regulation Number 4 Year 2011 concerning Waste Management can also be seen from the existence of regulations on cooperation and partnerships regulated in 30 and 31, while regarding community participation is regulated in Article 35. Enough space for every person, institution, and business entity to be actively involved in waste management in Makassar City. Thus, the regulation of waste management contained in the Regional Regulation of Makassar City Number 4 Year 2011 concerning Waste Management can be considered quite responsive and participatory by opening up sufficient space for everyone, institutions, and business entities to be actively involved in waste management in Makassar city.

Effective Waste Management in Makassar City

Solid waste services in Makassar City are currently carried out by the Environmental Agency which is specifically carried out by the Waste Sector. The Department of the Environment has also established of UPT Waste Bank. This is done to

encourage the active role of the community in processing their waste so that it is more efficient.

Solid waste service and/or cleaning activities in Makassar City based on the amount of waste per cubic meter per day that can be transported are around 87.97% and around 12.13% remaining per day. In general, solid waste and/or cleaning services in Makassar City can be categorized as good. However, the remaining 12.13% per day must be anticipated if it is not transported for a few days it will freeze up the waste pile.

In terms of solid waste services, waste services in Makassar City by the Environmental Service are implemented based on Article 32 of Makassar City Regional Regulation Number 4 Year 2011 concerning Waste Management, namely direct or individual services and indirect or communal services. Direct (individual) services take the form of collecting and transporting sorted waste from the source of the waste to the TPA. Meanwhile, indirect services (communal) consist of:

- a. Initial services, namely services for collecting and transporting waste that has been sorted from the producer of waste to TPS/TPST (Tempat Pengolahan Sampah Terpadu), transferdepo and/or transfertation;
- b. End services, namely services for moving and transporting waste from TPS/TPST, transferdepo and/or transfer of waste to TPA.

Garbage collection methods in each district are carried out directly or individually (door to door). In this way, residents or home owners bring the full trash container to the side of the road in front of their house and bring the container back to their yard when the officer has taken the trash. The community can also collect their garbage in plastic containers, making it easier for officers to pick up trash.

One of the determinants to measure the effectiveness of waste management is adequate facilities and infrastructure. As previously explained, Article 6 paragraph (2) of the Makassar City Regional Regulation Number 4 Year 2011 concerning Waste Management has obliged the Makassar City Government to fulfill the minimum facilities and infrastructure needed to support waste management efforts in Makassar City, namely (1) Landfills temporary trash; (2) Landfills for final waste; (3) Transportation of waste from the temporary garbage dump to the final garbage dump; and (4) Landfills in public places and on public roads deemed necessary.

For waste transportation, the facilities and infrastructure owned by the Makassar City Government are sufficient. However, for the garbage carts available, the Makassar City Government has a garbage cart which is also quite adequate in terms of quantity, but

many carts are no longer suitable for use. For this reason, it is necessary to repair or replace the waste carts to optimize and effectively manage waste in every corner of the city in Makassar City.

Effective waste management can actually take two forms, namely reducing waste and handling waste. For waste reduction, normatively in Law Number 18 Year 2008 concerning Waste Management, there are three ways or methods used to reduce waste that are environmentally sound. These methods are limitation of waste generation (reduce), reuse of waste and recycling. In addition, local governments must also have certain programs that aim to encourage people to use waste so that it becomes an economical item so that waste can be reduced. For Makassar City, currently Makassar City Government only has a "Tangkasaki" program, which is carried out by collecting waste from TPS to TPA. For this form of waste reduction, the Makassar City Government does not have a program for that.

Furthermore, regarding waste handling. In Law Number 18 Year 2008 concerning Waste Management, there are 5 ways or methods that can be used to carry out environmental management of waste, namely selection, collection, transportation, processing and final processing. Sorting waste according to its type is very important, because it helps for the effectiveness of waste management. Sorting must be taught from an early age so that in the minds of the children a habit in such a way is planted. In addition to sorting, collection is also necessary because garbage collection at the nearest TPS has a very strong influence on the waste piles in the TPA. After collection, the rubbish will be transported by transportation from the Department or supermarket which is carried out every day. The government is also expected to be able to impose sanctions on residents who litter, for example by providing social sanctions in the form of cleaning the environment around them littering.

After being transported, the waste will be processed according to its type. Organic waste will be processed into compost using an environmentally friendly system, while inorganic waste will be collected and taken to collectors to be recycled into crafts. Then the remaining waste that cannot be processed is taken to the TPA. This aims to reduce the volume of waste in the TPA so that the waste piles will automatically decrease.

CONCLUSION

Makassar City Regional Regulation Number 4 Year 2011 concerning Solid Waste Management can be said to be a responsive regional regulation because this regional regulation has accommodated the involvement of various parties, especially the community and the business world in waste management in Makassar City. The local government of Makassar City determines 2 two types of solid waste or cleaning service policies,

namely the Communal Service Policy (Indirect Service Policy) and Individual Service Policy (Direct Service Policy). In addition, Makassar City Regional Regulation Number 4 Year 2011 concerning Solid Waste Management has been quite effective in being implemented in Makassar City. This can be seen from the optimal waste services provided by the local government of Makassar City every day.

Effective waste management in Makassar City is measured by the form of services provided by the government and the fulfillment of solid waste facilities and infrastructure in Makassar City. In terms of service, Solid Waste Management has been quite effective in Makassar City where the service is provided every day by the Makassar City government through its apparatus. Then regarding the facilities and infrastructure, the Makassar City Government has made efforts to fulfill all facilities and infrastructure, especially related to waste transportation. To get optimal and effective solid waste services in Makassar City, there are a number of things that must be done by the Makassar City Government, namely policy evaluation, a special budget for the District in managing solid waste/cleaning services, clarity regarding the coverage area of solid waste services for each district, and the collection of user fees is carried out regularly.

Makassar City Regional Regulation Number 4 Year 2011 concerning Solid Waste Management can be categorized as responsive and has been quite effective in being implemented in Makassar City. However, the Regional Regulation of Makassar City Number 4 Year 2011 still needs to be evaluated in order to adapt it to city developments and changes that occur in Makassar City. In addition, Makassar City Regional Regulation Number 4 Year 2011 also needs to be followed up by various other responsive and participatory policies in order to optimize solid waste services in Makassar City. There is also a need for a supervisory agency for the implementation of waste management in Makassar City, especially for the daily waste transportation. In addition, the Makassar City Government needs to improve all existing facilities and infrastructure used for the implementation of waste management in Makassar City, such as transport carts, transportation vehicles, and TSP-TPS which are scattered in the Makassar City area.

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