

Study of sustainable environmental sanitation management policies and programs in Makassar city

Andi Agustang^{1*}, Shermina Oruh², Andi Dody May Putra Agustang³

¹⁾ *Departement of Sociology, University of Negeri Makassar, South Sulawesi, Indonesia*

²⁾ *Department of Public Health, University of Pejuang Republic Indonesia, Makassar, South Sulawesi, Indonesia*

³⁾ *Department of Sociology Education, University of Negeri Makassar, South Sulawesi, Indonesia*

ABSTRACT: Environmental sanitation treatment, especially waste from the source is essential to be implemented in the city of Makassar through government policies and programs as well as support from all levels of society. The purpose of this study was to examine policies and programs for sustainable environmental hygiene management. Data collection was carried out through interviews with the leadership and staff of the Sanitation and Landscaping Office, sub-district leaders and staff, and the community. The data collected is in the form of qualitative and quantitative data. The results showed that the waste management policies and programs in Makassar City are currently being managed by the Makassar City Sanitation and Landscaping Office. Facilities and infrastructure for collection, transportation, and processing are still minimal, both in terms of quantity and quality. The Antangl and fill will be able to accommodate municipal waste for 15-20 years if community empowerment can be carried out optimally. The results of the contingency table found that there was a significant relationship between environmental hygiene management policies and programs and the level of community empowerment in the city of Makassar.

KEYWORDS: *cleaning staff, community empowerment, facilities, landfill capacity, waste management policies, and programs.*

I. INTRODUCTION

Law Number 18 of 2008 concerning Waste Management [1] stipulates that waste management is a systematic, comprehensive, and continuous activity which includes waste reduction and handling. This provision supports the demands of the Millennium Development Goals, namely providing fulfillment of environmental sanitation services in residential, domestic, and industrial areas, handling waste services towards a healthy and clean environment as desired by some people, and continuing on to the Sustainability Development Goal's (SDG's) in goal 6 namely ensuring the availability and management of clean water and sustainable sanitation for all people.[2]

One of the quite complex problems in the city of Makassar is waste. Garbage is an actual problem for a long time for the State of Indonesia, especially for cities because of the influence of the social, cultural, and economic conditions of the local community. In practice, waste management in the city of Makassar is still experiencing problems: (1) the lack of transportation vehicles due to damage and the old age of the transportation fleets, (2) the difficulty of obtaining land for temporary waste disposal sites (TPS), (3) there is still a lack of awareness community in keeping the environment clean, (4) and weak law enforcement related to environmental cleanliness.

The ideal policy and program for handling waste in urban areas are by disposing of waste while simultaneously using it and economically it will reduce the management budget. Therefore, policies and programs for integrated and holistic urban waste management are needed, one of which is the gradual elimination of the TPA model. The purpose of this study was to examine policies and programs for sustainable environmental hygiene management, including the provision of facilities, infrastructure, TPA capacity, and cleaning staff, especially waste management in the city of Makassar.

II. METHODS

The method of collecting data in reviewing sustainable environmental hygiene management policies and programs in the city of Makassar, using the interview method with the leadership and staff of the Sanitation and Landscaping Office, leaders of the Market Service, sub-district leaders and staff, and urban village officials.

The determination of the respondents was carried out using a purposive technique, namely deliberately in accordance with the research objectives [3].

To examine the relationship between environmental hygiene management policies and programs and the level of community empowerment, household respondents are used as the unit of analysis. Location samples were obtained using a multistage cluster random sampling technique [4]. Realizing the breadth of the location and the large number of households as a population, the sample size of a respondent used a proportional formula, and as many as 344 respondents were selected.

To complete the data and variables to be measured, observation methods are used on the TPA capacity, waste volume, disposal process, and waste processing technology. The documentation method is also used to supplement data on local regulations on environmental hygiene, facilities, the number and working hours of cleaners, periodic reports, and institutional structures related to environmental hygiene.

To analyze the relationship between environmental hygiene management policies and programs and the level of community empowerment, the $r \times c$ contingency table is used. Moore and McCabe [5] explain it as follows, suppose that a sample of size n is taken from the population. Then everyone selected as the sample is classified into two categories with an opportunity to enter the first category (row) of r_i and the opportunity to enter the second category (row) of c_j . The null hypothesis, in this case, is that row and column classification are independent of each other; in other words, there is no relationship between classification by row and by row. Furthermore, if P_{ij} - individual probability enters row i and column j , the null hypothesis is: $H_0: P_{ij} = r_i c_j$ for all i and j , the alternative hypothesis is: $H_1: P_{ij} \neq r_i c_j$.

To see the policy implications, a content analysis was carried out on Law Number 18 of 2008 concerning Waste Management. The parameters in the laws and regulations analyzed are those related to aspects of waste management, the role of stakeholders, and cooperation and partnerships.

III. RESULTS AND DISCUSSION

1. Aspects of waste management policies and programs in the city of Makassar

Garbage is still a serious and complex environmental problem in the city of Makassar. On average each person per day generates around 0.43 kg of waste and this will continue to increase in line with the increase in people's welfare and lifestyle. On the other hand, conventional waste management policies and programs have resulted in the waste problem not being properly controlled. Garbage transportation in the city of Makassar is carried out by The Organizational Unit of the Makassar City Parks and Sanitation Service in the field of Cleanliness Management which consists of three sections namely (1) Collection and Transportation Section, (2) Cleaning Operation Control Section and (3) Equipment Maintenance Section.

These three sections coordinate to manage both domestic and non-domestic waste down to the sub-district level and markets so that the waste is collected at the temporary storage site (TPS) on the protocol road, then transported to the Antang final landfill (TPA).

2. Aspects of waste generation in the city of Makassar

Makassar City as a big city with a population of more than 1,427,619 people, produces around 1,139 – 1,500 tons/day of waste or 2,278 – 3,000 cubic meters/day, or around 0,316 kg/day/person. Administratively, the Makassar city government consists of 15 sub-districts and 153 sub-districts. Most of the waste from the 98 urban villages, both household waste and public waste, is transported to the Antang TPA, Manggala sub-district. About 446.75 m³/day of waste was transported to the Antang landfill. The processing of waste at the Antang landfill is carried out using sanitary landfill technology, namely the coating of waste with soil. According to the conditions in the field, waste with a thickness of 1.5 m-2.0 m is compacted with heavy equipment (bulldozer), then covered with soil with a thickness of 10 cm - 15 cm.

Results of the study by Agustang, A., Oruh, S., & Agustang, A. D. M. P [6] show the Antang TPA is still able to accommodate Makassar city waste for 7.6 years, which means it must move to another location in 2028. The volume of organic waste is 65-70 percent. If this waste can be processed into compost, then the age of the Antang landfill can be increased by two to two and a half times so that it will be able to extend life of the Antang landfill to 15-20 years.

3. Aspects of sources of funds

The local government in dealing with the waste problem has allocated a budget through the Makassar City Revenue and Expenditure Budget, whose management is carried out by the Makassar City Sanitation and Landscaping Office. Locally generated revenue from the waste sector comes from receiving garbage fees, whereby the community is charged a garbage fee of IDR 10,000/family/month. However, the amount of income from the waste levy is still not able to finance waste management operations in the city of Makassar.

4. Aspects of community participation.

Lothar Gundling referred to by Soerjani and Rofiq [7] states that the basis for such participation is: (1) providing information to the government, (2) increasing public willingness to accept decisions, (3) assisting legal protection, (4) democratizing decision making. Community participation in waste is needed because it can reduce the burden on managers, therefore a program is needed to increase community participation in an

integrated, regular, and continuous manner and in collaboration with existing organizations so that community participation can be changed from an environmental component to a sub-system.

The expected form of community participation is the cost of implementing waste management. This is carried out by withdrawing a levy from the community of IDR 5,000 – IDR 10,000/month or cooperation in technical waste handling. Cooperation is expressed by the participation of the community in carrying out some of the waste handling operations, for example in collection activities, and/or participation by the community is responsible for handling waste by following established hygiene regulations and carrying out a waste reduction (such as recycling, composting). Based on interviews with respondents, this collaboration can be carried out in the form of (a) being responsible for cleaning the house and the environment, (b) being active in cleaning programs, (c) paying attention to the cleanliness of the house and environment, (d) being actively involved in the program -cleaning program, (e) informally participate in explaining the meaning of cleanliness to other members of the community, and (f) follow the hygiene procedures set by the government.

4.1 Community participation in waste management

According to BPPLH [8] community participation in cleaning and waste management in the city of Makassar can be divided into two forms, namely increasing community participation in waste management and regular outreach about waste management with the 4R method, which is as follows:

- 1) Recycle, utilizing waste or waste through physical or chemical processing, to produce other products.
- 2) Reuse, utilizing waste or waste by reusing it for the same purposes without changing its form.
- 3) Reduce, and minimize goods or materials used because the more materials you use, the more waste will be generated.
- 4) Replace, items that can only be used once with items that are more durable. Try to use items that are more environmentally friendly. For example, replace plastic bags with baskets when shopping, and don't use Styrofoam because these two materials cannot be degraded naturally.

The results of a survey conducted on the method of waste disposal by households in Makassar City showed that the most common method of waste disposal was transportation (49.30%), landfilling (40.83%), burning (6.55%), and disposal to river as much as 3.32%. The results of the survey indicate that there is still a need to increase public awareness in terms of protecting the environment considering that there are still households that dispose of garbage without regard to the environment.

4.2 Participation through payment of waste fees by the community

Public participation through payment of waste management fees seems to be lacking. This can be seen from the realization of levy collection which has decreased from year to year. From 2013 to 2018, the waste retribution reached 100 percent. From 2018 to 2022 it continues to decline. The decrease in the realization of the levy target was due to several things, including (1) the ineffective form of collection by officials, (2) some market traders chose to use individual workers to transport garbage due to the frequent delays by officials in transporting garbage, and (3) the large number of street vendors who refuse to pay the garbage fee.

5. Implementation aspects of waste management in the city of Makassar

Until now, the management of waste from markets and settlements in the city of Makassar that implements the 3R system has only been carried out by a small number of community members, while for the market scale, the implementation of 3R has been carried out. Waste processing at TPS comes from waste that has not been processed at home, market waste, office waste, and waste from other places. Therefore, officers sort waste for recycling needs and compost waste needed to make fertilizer/compost that has economic value. Meanwhile, waste that cannot be processed is transported to Antang as a final landfill.

For waste processing in settlements, the results of observations in the field showed that a small proportion of household heads had separated the wet waste from the dry waste. The results of sorting wet waste are used as fertilizer or compost for their own needs, while dry waste is made into handicrafts such as flower vases, key chains, ashtrays, and others.

The aerobic composting process is the most widely used method because it is cheap and easy to do. The basic equipment required for aerobic composting consists of (1) material handling equipment and (2) occupational safety and health (K3) equipment for workers. Composting raw materials are all organic materials containing carbon and nitrogen, for example, animal manure, green waste, municipal waste, liquid sludge, and agricultural industrial waste.

The stages of aerobic composting that have been carried out by the community are as follows: (1) waste segregation, carried out to separate organic waste from inorganic waste and B3 waste, (2) pile arrangement, organic waste that has been sorted is arranged into piles. The dry raw material is placed on top of the soil with the first layer, the next layer is a layer of household waste and market waste, and the last is a layer of sewage or sewage. Each pile is given a bamboo tunnel which functions to circulate air in the pile, (3) turning and shifting, done to dissipate excess heat and inject fresh air into the pile of materials. Turning is done by unloading the pile, then moving it to a new place next to it. The old pile is abandoned and used as a place for another new pile, (4) watering, done at the time of turning or done when the pile is too dry, (5) maturation, after composting takes about 40-50 days, when the pile of garbage is weathered, dark brown or black in color. At this

time, it is considered that the compost has matured properly and is safe for use in plants, (6) screening is carried out to obtain the required compost particle size, and (7) packaging and storage. The filtered compost is packaged in bags according to marketing requirements (5-40 kg). At the time of research, the condition of the Antang landfill which was almost full and close to densely populated settlements prompted the Makassar city government to carry out cooperation with third parties in processing waste at the Antang landfill. Composting and recycling an alternative system. Many communities have been able to reduce the use of landfills or incinerators by 50 percent and some have even begun to change their view from landfills to waste processing sites, and finally to become integrated waste management sites so that they can implement zero waste or waste without remainder.

According to Handono[9], another alternative to waste management that has been widely practiced by the community is recycling. Methods that have been tried and developed by the community to manage waste independently, both communally and domestically, include (1) takakura baskets. This method is successful enough to be applied to the community, but because of its small capacity, it is more suitable for the domestic (household) scale. Nice design and does not take up space, just like ordinary plastic baskets, making the tool flexible to be placed in the kitchen; (2) semi-aerobic composter vat. This semi-aerobic compost bin has a larger size and exhaust holes to support the semi-aerobic (facultative an-aerobic) system in the fermentation and decomposition processes. The capacity is larger because it is made from plastic barrels with a capacity of 50 liters. Tongs are for the household scale, but in large quantities, they can be used for the communal scale. The barrel design has a hole at the bottom which is very suitable to be applied with a combination of the use of decomposing bacteria in a mixture of organic waste materials before being put into this composter bin. It is hoped that the holes at the bottom and at the exhaust section can maintain optimum humidity conditions for the composting process; (3) aerobic composter vat. Aerobic composter bin made of plastic with a capacity of 50 liters equipped with a \pm 2-meter-long chimney, which functions to channel exhaust gases/odors produced during the composting process. Most people make creative items from inorganic waste that are no longer used, for example, make curtains from used plastic drink cups, make bags from leftover plastic, and so on.

The biggest obstacle to implementing recycling is that many household products are not designed to be recycled when they are no longer used. This is because entrepreneurs do not have an attractive economic incentive to do so. Extended producer responsibility (EPR) is a policy approach that requires producers to reuse products and their packaging.

6. Aspects of the relationship between environmental hygiene management policies and programs and community empowerment.

Rahmawati et al [10] stated in their research results that the role of the policies set in managing municipal solid waste greatly influences the effectiveness of implementation and the achievement of success. The establishment of basic legal policies in Indonesia is still weak so efforts to manage sustainable municipal waste are still hampered, with weak existing basic policies the implementation is not optimal, there are still many regulations that are not implemented as can be seen from the high habit of mixing waste in society so that the processing process becomes difficult.

The criteria used to study environmental hygiene management policies and programs in the city of Makassar are based on the relationship between (1) the availability of facilities and infrastructure and community empowerment according to respondents, (2) the number of cleaners and community empowerment according to respondents, (3) capacity to accommodate TPA with community empowerment according to respondents. Availability of environmental cleaning facilities and infrastructure consisting of (a) temporary waste disposal sites, (b) garbage transport fleets, (c) heavy equipment in the form of excavators, shovels, and bulldozers, (d) brooms, scopes, and masks, sarongs hands, and others. Meanwhile, what is meant by community empowerment is the involvement of the community directly or indirectly in environmental hygiene programs. The relationship between the availability of environmental cleaning facilities and infrastructure with community empowerment according to respondents in percentages is presented in Table 1.

TABLE 1
Respondents' perceptions of the availability of environmental cleaning facilities and infrastructure according to the level of community empowerment (%)

Category of provision of facilities & infrastructure	Community empowerment				n
	Very weak	Weak	Normal	Strong	
Fewest	90,69	9,31	0,00	0,00	86
Insufficient	0,00	100,00	0,00	0,00	116
Sufficient	0,00	6,82	93,18	0,00	88
Very sufficient	0,00	0,00	37,03	62,97	54

From Table 1 if the availability of environmental cleaning facilities and infrastructure is fewest, then most community empowerment (90.69%) is at a very weak level and the remaining 9.31 percent is at a weak empowerment level. This is in stark contrast to the state of community empowerment if the availability of environmental hygiene facilities and infrastructure is sufficient. Under these circumstances, it turns out that most of the community's empowerment level is strong (62.97%) and the rest (37.03%) are at a normal level of empowerment. The existence of a positive relationship between the availability of facilities and infrastructure and the level of community empowerment shows how important the availability of cleaning facilities and infrastructure is in efforts to empower the community for waste management in Makassar.

Environmental cleaning officers, especially city waste officers, are one of the environmental hygiene management policies and programs. The number of officers present contributes to the success of the program. The relationship between the number of cleaning staff and community empowerment in environmental hygiene is presented in Table 2.

TABLE 2: Respondents' perceptions of environmental cleaning workers according to the level of community empowerment (%)

Number of workers	Community Empowerment				n
	Very Weak	Weak	Normal	Strong	
Fewest	83,87	16,13	0,00	0,00	93
Insufficient	0,00	100,00	0,00	0,00	115
Sufficient	0,00	0,00	100,00	0,00	54
Very Sufficient	0,00	0,00	58,53	41,47	82

From Table 2 if the number of environmental cleaning workers is fewest, then the empowerment of most people (83.87%) is at a very weak level and the remaining 16.13 percent is at a weak level of empowerment. This is very different from the state of community empowerment if there are sufficient environmental cleaners. Under these circumstances, it turns out that the level of community empowerment is normal (58.53%), and the rest (41.47%) are at a strong level of empowerment.

There is a positive relationship between the number of environmental cleaning workers and the level of community empowerment, indicating that the fewer the number of cleaning workers, the lower the community empowerment. It can be seen how important it is to have enough environmental cleaning officers to empower the community for waste management in Makassar.

The capacity of the landfill is an important part of the environmental hygiene management program. The ideal capacity is one that can optimally accommodate all municipal solid waste and has a relatively long storage life. The relationship between TPA capacity and community empowerment in environmental hygiene is presented in Table 3.

TABLE3: Respondents' perceptions of TPA capacity according to the level of community empowerment (%)

Landfill Capacity	Community Empowerment				n
	Very weak	Weak	Normal	Strong	
Fewest	100,00	0,00	0,00	0,00	70
Insufficient	6,11	93,89	0,00	0,00	131
Sufficient	0,00	11,30	88,70	0,00	62
Very Sufficient	0,00	0,00	58,02	41,98	81

From Table 3 if the capacity of the TPA for cleaning the environment is fewest, then community empowerment reaches 100 percent at a very weak level. This is in stark contrast to the state of community empowerment if the capacity of the landfill as part of the environmental cleaning program has sufficient capacity. Under these circumstances, it turns out that most of the community empowerment level is normal (58.02%) and some others (41.98%) are at a strong level of community empowerment. The existence of a positive relationship between the capacity of the landfill capacity and the level of community empowerment shows how important the capacity of the landfill capacity is as an important part of the environmental sanitation management program in efforts to empower the community for waste management in Makassar.

Analysis of the relationship between environmental hygiene management policies and programs in the city of Makassar in the form of availability of facilities and infrastructure, number of officers, and TPA capacity with the level of community empowerment were carried out using Fisher's contingency test as presented in Table 4.

TABLE 4 : Fisher contingency coefficient test results (Chi-Square) relationship between environmental hygiene management policies and programs and community empowerment

Environmental hygiene management policies and programs with community empowerment	χ^2 count	χ^2 table
Availability of facilities and infrastructure	777,273	14,684
Number of cleaners	674,783	14,684
Landfill capacity	675,482	14,684

To see the relationship between environmental sanitation management policies and programs in Makassar City, which can be seen from the availability of facilities and infrastructure, the number of cleaners, and the capacity of the TPA capacity with community empowerment, we used the SPSS for windows program and obtained the following contingency coefficient calculation results:

- 1) the availability of infrastructure with the level of community empowerment, with a calculated chi-square greater than the chi-square table, it can be concluded that there is a significant relationship between the availability of infrastructure facilities and the level of community empowerment
- 2) the number of janitors with the level of community empowerment with a calculated chi-square is greater than the chi-square table, it can be concluded that there is a significant or real relationship between the number of officers and the level of community empowerment.
- 3) TPA capacity with the level of community empowerment, with the calculated chi-square being greater than the chi-square table, it can be concluded that there is a significant relationship between the capacity of TPA capacity and the level of community empowerment.

The results of statistical tests using the Fisher contingency table can be concluded that there is a significant or real relationship between environmental hygiene management policies and programs and the level of empowerment of the people of Makassar city. The level of community empowerment is highly dependent on the availability of facilities and infrastructure, the number of cleaners, and the capacity of the TPA.

7. Content analysis aspect of Law Number 18 of 2008 concerning Waste Management

The initial analysis is set forth in the form of a tabulation of key questions regarding the contents of the Waste Management Law. These questions concern the relationship between the contents of the law and community empowerment in waste management programs.

The first key question concerns management (management) and manager (manager) most related to waste management in community empowerment. The key questions are then divided into several keywords, namely: (1) principles, (2) goals, (3) waste reduction, (4) waste handling, (5) specific waste management, (6) rights, (7) obligations, (8) financing, (9) compensation, and (10) supervision. For details, the number of related articles can be seen in Figure 1.

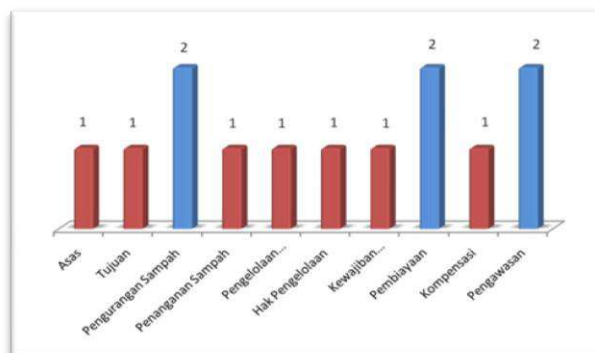


Figure 1: number of articles related to key waste management questions in law number 18 of 2008

Based on the results of the analysis of the first key question regarding waste management, there are 13 (thirteen) related articles in the Law of the Republic of Indonesia Number 18 of 2008 which are divided into one article on management principles, one article on management objectives, two articles on waste reduction

keywords, one article related to waste handling, one article related to specific waste management keywords, one article related to waste management rights keywords, one article related to management obligations, two articles related to waste management financing keywords, one article related to compensation keywords, and two articles related to supervision keywords.

The second key question concerns managers or stakeholders who have the most influence/ role in achieving a sustainable waste management program. This key question is divided into several keywords, namely (1) central government, (2) local government, (3) provincial government, (4) city/district government, (5) community, and (6) business world. For details, the number of related articles can be seen in Figure 2.

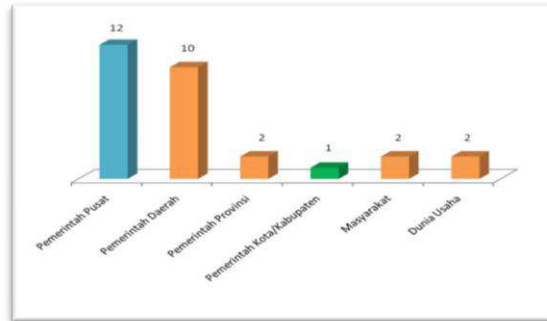


Figure 2: number of articles related to key questions regarding the role of stakeholders in waste management in law number 18 of 2008

Based on the results of the analysis of the second key question, there are 12 articles containing the keywords the role of the central government, 10 (ten) articles containing the keywords the role of local government, two articles containing the keywords the role of the provincial government, one article containing the keywords the role of city/regency government, two articles contains the keyword role of the community, and two articles contain the keyword role of the business world. Until the time of the preparation of this research report, there were no government regulations and/or regional regulations regarding the forms and procedures for community participation, even though the forms and procedures for community participation as mentioned above must refer to government policies. This shows that basically, efforts need to be made to immediately draft PP and/or local regulations related to provisions on forms and procedures for community participation in waste management, so that community participation can be accommodated.

To see the relationship between aspects of waste management and stakeholders can be seen in table 5 below.

TABLE 5 : Analysis of the contents of the relationship between the waste management aspect and stakeholders

Management Aspect	Stakeholders					
	Central Government	Local Government	Provincial Government	City/District Government	Community	Entrepreneur
Principle	x	x				
Objective	x	x	x			
Waste reduction	x	x			x	x
Garbage handling	x	x		x		x
Specific waste management	x	x				x
Authorization	x	x			x	
Responsibility	x	x			x	
Financing	x	x		x	x	
Compensation	x	x				
Supervision	x	x	x	x		

The third key question concerns the rules of cooperation and partnership between stakeholders in waste management. The key questions are divided into several keywords, namely (1) inter-regional cooperation, and (2) partnerships.

The results of the analysis of the third key question concerning cooperation and partnership between stakeholders in waste management, there are at least two related articles in the Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management. Based on these two articles, it consists of one article containing the keyword inter-regional cooperation, and one article containing the keyword partnership. For details, the number of related articles can be seen in Figure 3.

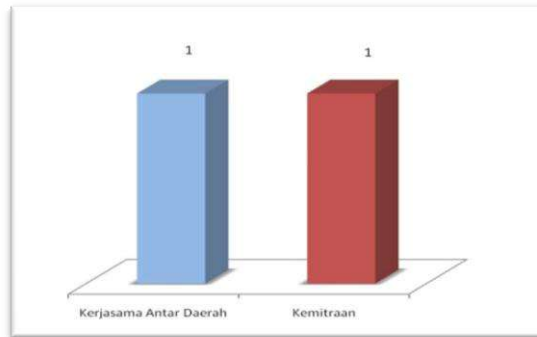


Figure 3: number of articles related to key questions of cooperation and partnership between waste management stakeholders in law number 18 of 2008

To see the relationship between aspects of cooperation with stakeholders can be seen in Table 6.

TABLE 6 : Analysis of the contents of the relationship between aspects of cooperation with stakeholders in waste management

Cooperation Aspect	Stakeholders					
	Central Government	Local Government	Provincial Government	City/District Government	Community	Entrepreneur
Inter-regions	x	x		x		x
Partnership		x	x	x		x

Article 26 paragraphs 1 and 2 of the Law of the Republic of Indonesia Number 18 of 2008 states that cooperation in waste management can be carried out between regional governments in the form of establishing a joint waste management business. It further states that guidelines for cooperation and forms of inter-regional joint ventures are further regulated in ministerial regulations administering domestic government affairs (Article 26 paragraph 3). Regarding partnerships, district/city regional governments can partner with waste management business entities in managing waste (Article 27 paragraph 1). The procedure for implementing partnerships is carried out in accordance with statutory regulations (Article 27 paragraph 3).

In general, at the level of the law, most of the content accommodates various aspects of waste management (principles, objectives, waste reduction, waste handling, specific waste management, rights and obligations of stakeholders, financing, compensation, and supervision). Stakeholders (central government, local government, community, entrepreneur), and cooperation and partnerships in waste management. However, the Law of the Republic of Indonesia Number 18 of 2008, specifically for its relation to community empowerment, does not contain implicit forms of community empowerment in waste management. This situation is in line with the results of Alfian and Arlina's research [11] which states that having an informal sector at a TPA can help reduce the amount of waste being stockpiled, but it needs to be organized so that the system is tidier and more orderly. Likewise, what was revealed by Juniartini[12] that collaboration or synergy of all parties is needed so that actions that care for the environment through waste management run well, so that supervision is needed from all parties based on their scope, for example in households supervised by mothers or fathers, at the village level supervised by the apparatus or organization in the village concerned, and in the end, the government's role is needed in the supervision of a larger scope. Then the active role of all components of society is to sort waste in facilitating the next process in waste management by implementing 5R and continuing to provide an understanding that waste is a shared responsibility. Therefore, this partnership matter needs to be followed up.

This law also accommodates a lot of regulations related to local government and society. However, relatively few provide regulations for policymakers in the regions, such as governors, regents/mayors, and other stakeholders. This is an important record for the preparation of derivative regulations (Government Regulations and Regional Regulations). Until the time this research was carried out, there were no regulations derived from the Law of the Republic of Indonesia Number 18 of 2008, so it is hoped that the results of this research will be used as input for making government regulations as derivatives of the Law of the Republic of Indonesia Number 18 of 2008. Because government regulations are a reference implementation, and further in Article 47 paragraph 1 states that government regulations and ministerial regulations mandated by this law shall be finalized no later than 1 (one) year from the enactment of the law.

IV. CONCLUSION

The results of the research show that the current waste management policies and programs in the city of Makassar, carried out by the Sanitation and Landscaping Office of Makassar City are not yet effective. Facilities and infrastructure for collection, transportation, and processing are still limited, both in quantity and quality. The Antang landfill is still able to accommodate Makassar city waste for 15-20 years if the level of community empowerment can be carried out optimally, if not then in 2028 the Antang landfill must be closed. Based on the results of statistical tests using the Fisher contingency table, it can be concluded that there is a significant or real relationship between environmental hygiene management policies and programs and the empowerment of the people of Makassar city. The level of community empowerment is highly dependent on the availability of facilities and infrastructure, the number of cleaners, and the capacity of the TPA.

From the results of content analysis on Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management, it can be concluded that in general, the law has accommodated various aspects of waste management (principles, objectives, waste reduction, waste handling, specific waste management, rights and stakeholder obligations, financing, compensation, and supervision), the role of stakeholders (government, local government, community, business world), and cooperation and partnerships in waste management. However, the link with community empowerment does not clearly include forms of community empowerment in waste management.

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