

Public Perception of Waste Management in Karang Anyar Urban Village, Samarinda City

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Abstract:- Waste management is a problem that will become more complex along with the increase in population and people's consumption behavior. An increase in population will increase the volume of waste, while consumption behavior will determine the diversity of waste types. It is necessary to take an actual approach to determine the waste management of an area to suit the character of the residents in the area.

The data collection method uses a survey of respondents and group discussions to determine the initial data. Descriptive methods are used to explain qualitative data. The assessment method with the Likert scale is used for quantitative analysis.

Respondents characteristics of Socio-Economic showed that the people of Karang Anyar Urban Village were mostly of productive age with an average high school education level. Respondents with adequate knowledge in categories and tending to have good knowledge showed that respondents had access to information about waste. Resonance experience in waste management in the form of transporting waste to TPS and environmental cleaning services while experience in waste utilization is the result of activities from probebaya in the form of socialization and counseling.

The role of government/community leaders in waste management was stated to be quite important where respondents saw counseling by *Pokmas*. Waste management facilities and infrastructure in Karang Anyar Urban Village are declared inadequate with the lack of waste bins both number and type (Organic-Inorganic) and the absence of waste processing facilities such as community composting tubs, waste sorting areas, etc.

The perception of the people of Karang Anyar Urban Village is categorized as very agree/know about the importance of good and appropriate waste management.

Direct community participation was categorized as less participatory where there was not enough awareness for residents to want to make waste management efforts.

Indirect community participation is in the category of lack of participation where the community considers that waste management activities must be carried out by the government.

Keywords:- Household Waste, Community Perception, Urban Village, Waste Management.

I. INTRODUCTION

Samarinda as the capital of East Kalimantan Province, is the city with the largest population on the entire island of Kalimantan with an area of only 783 km² and a population of 825,494 people (BPS, 2024). BPS data shows that population growth in Samarinda City is 1.26% per year and is accompanied by an increase in community activities after the publication of the new capital city of the archipelago has a direct impact on increasing public consumption.

Based on Law Number 18 of 2008 concerning Waste Management, waste is the remains of daily human activities and/or natural processes in solid form. Waste has always been a terrible scourge, with its negative impact not only lowering the quality of cleanliness and the environment, but also causing pollution and environmental damage, and the existence of garbage has always been very complex in various aspects and caused social problems. Waste is currently a community problem that needs to be managed proportionally, effectively, and efficiently, and from an environmental perspective, it is to minimize negative impacts on public health and the environment.

Waste management in Karang Anyar Urban Village, Samarinda City, still uses a system of collection, transportation, and disposal to the Final Disposal Site (TPA). This shows that waste management in the region is still in the form of a traditional system that is ineffective and unsustainable. This problem is caused by an increase in population activity which is directly proportional to the amount of waste produced. Waste is a serious problem that must be solved immediately, especially in Samarinda City which has dense population activities.

II. METHOD

The method used in this study is a survey method, which is intended to find out the perception of waste management carried out by the community in the research area. Survey research methods are studies that take a sample of a population and use questionnaires as the main data collection tool. This research was also conducted by Focus Group Discussion (FGD) to community leaders to complete and strengthen waste management data in Karang Anyar Urban Village, Samarinda City. The determination of the scope in this study uses the objective of.

The sampling technique in the research on community perception of waste management in Karang Anyar Urban

Village, Samarinda City uses a quota sampling method which is a sampling technique by setting a certain number as a quota that must be met by the population. Sample selection was carried out randomly and structured by taking 30 samples in each research area to represent each topographic criterion. The data needed is in the form of primary data in the form of questionnaire survey results and *Focus Group Discussion* (FGD) results and secondary data in the form of *desk study results*.

This research involves several stages of data collection, including a desk study on August 1-25, 2024, a focus group discussion on August 26, 2024, and a questionnaire distribution from August 29 to September 10, 2024, in various environments in Karang Anyar

III. RESULTS AND DISCUSSION

A. Public Knowledge about Waste Management

Table 1. Results of the Respondent's Knowledge Questionnaire

No.	Question	Score
1	What is meant by waste management with the 3R principle is.....	51%
2	What does not include the benefits of waste management with the 3R principle is...	52%
3	The garbage that has been collected should...	89%
4	Waste that can be composted is garbage...	99%
5	The following are the benefits obtained from compost, except...	59%
6	Those that fall under the category of organic waste are...	85%
7	The following types of waste are difficult to decompose, except...	70%
8	Piles of garbage left unattended and unmanaged can have adverse effects as follows, except...	89%
Middle		74%

Scale Likert:

Category	Scores
Well Knowledgeable	75% - 100%
Quite knowledgeable	50% - 75%
Less knowledgeable	25% - 50%
Uneducated	0 - 25%

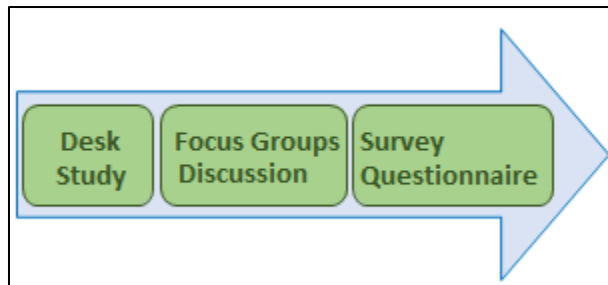


Fig 1. Data Capture Scheme

The results of the questionnaire showed that the level of knowledge of residents of Karang Anyar Urban Village, Samarinda City regarding waste management with the 3R principle was in the "adequate" category with an average score of 74%. The question with the highest score (99%) was about the introduction of types of waste that can be composted. In contrast, the understanding of the basic principles of the 3Rs scored the lowest, at 51%.

Knowledge is the main foundation in changing people's behavior towards waste management. However, as seen in the low scores related to the 3R, knowledge is not always evenly distributed in all aspects. This shows the importance of comprehensive education so that the public not only understands certain aspects, but also the holistic principles of waste management.

Knowledge about waste management is greatly influenced by the level of education and access to literacy resources. With the increase in information technology and citizens' ownership of gadgets such as smartphones, it should be able to increase citizens' knowledge, but it is still uneven.

Knowledge improvement can be done through community-based socialization and interactive media that educate, especially regarding the benefits of implementing the 3R principles. Based on behavioral theory, increased understanding can strengthen an individual's intention to be actively involved in waste management.

B. Community Experience in Waste Management

Table 2. Results of the Respondent Experience Questionnaire

Questionnaire Experience	Scores	Ranking
Processing waste into compost	1	10%
Reuse waste as used containers or reuse	2	17%
Utilizing as animal feed	1	3%
Making crafts from scraps	3	24%
Sorting organic and inorganic waste	1	5%
Saving waste in a waste bank	2	19%
Moving garbage to the TPS	5	96%
Community service work to clean up the environment	4	78%
Participating in activities/training organized by institutions that manage household waste	2	13%
Participating in socialization/counseling on household waste management	3	25%
Tengah		74%

Information:

Information	Scores
>1 times a week	5
>1 time per month	4
>1 times a year	3
Ever in 1 year	2
Ever in 3 years	1

The level of community experience in waste management is also included in the "adequate" category with an average score of 74%. The most frequently carried out activities are moving waste to temporary landfills (96%) and environmental service work (78%). On the other hand, the experience of processing waste into compost (10%) and utilizing waste as animal feed (3%) is at a very low level.

Direct involvement in value-added activities, such as recycling and composting, is often hampered by limited facilities and technical knowledge. The data also showed high participation in simple activities but low in processing-based activities. Community-based training programs that provide tools and materials can be a solution to improve the community experience. This is in line with a sustainable waste management approach that prioritizes local-based creative practices.

C. The Role of the Government/Community Leaders in Waste Management

Table 3. Results of the Questionnaire on the Role of Government/Community Leaders According to Respondents

No	Question	Scores
1	In the last three years, has there been counseling by the government regarding household waste sorting in your area?	59%
2	In the last three years, has there been counseling by the government regarding the manufacture of compost in your area?	20%
3	In the last three years, has there been counseling by the government regarding making handicrafts from used goods in your area?	81%
4	In the last three years, has there been any training on composting in your area?	30%
5	In the last three years, has there been any training on making crafts from used goods in your area?	70%
6	Do you see community leaders moving household waste to the waste bank?	70%
7	Do you see community leaders carrying out compost production?	60%
8	Have you seen community leaders making crafts from scraps?	60%
9	Do you see community leaders appealing to the public to move household waste to the waste bank?	59%
10	Do you see community leaders appealing to the community to participate in compost making activities?	29%
11	Do you see community leaders appealing to the community to participate in activities to make crafts from used goods?	52%
12	Do you see community leaders inviting you to discuss waste problems?	80%
	Average	56%

Scale Likert:

Category	Scores
Playing an Active Role	75%-100%
Enough to play a role	50%-75%
Less Involved	25%-50%
No Role	0-25%

The role of the government and community leaders in supporting waste management is considered sufficient with an average score of 56%. Counseling related to handicraft making received the highest score (81%), while counseling on compost making had the lowest score (20%). This shows that there is an imbalance in the focus of counseling. Government support is essential to strengthen local initiatives, especially through the provision of facilities and training. Lack of counseling on composting can be an obstacle to effective organic management efforts.

Strengthening collaboration between the government and community leaders can increase the effectiveness of the program. For example, involving community leaders as facilitators of local needs-based training can help increase public trust.

D. Waste Management Infrastructure

Table 4. Results of the Infrastructure Questionnaire According to Respondents

No	Question	Scores
1	Is there a trash can in your neighborhood that separates organic and inorganic waste?	30%
2	Is the number of bins available in your neighborhood sufficient?	60%
3	Is there a facility in your neighborhood to process household waste into compost?	10%
4	Is there a regular household waste transportation service in your neighborhood?	99%
5	Is there an integrated waste disposal site in your neighborhood?	19%
6	Is there an institution/administrator in your neighborhood that specializes in household waste management?	71%
	Average	48%

Scale Likert:

Category	Scores
Very adequate	75%-100%
Adequate	50%-75%
Inadequate	25%-50%
Adequate	0-25%

Waste management infrastructure is considered inadequate with an average score of 48%. The most adequate infrastructure is routine waste transportation (99%), while waste processing facilities into compost only reach a score of 10%. This shows that there is a dependence on the collection approach rather than processing. The absence of facilities such as integrated landfills (19%) and separate bins (30%) hampers efforts to sort waste from its source. Recommendations include increased investment in recycling and composting facilities as well as raising awareness through local campaigns on the importance of sorting waste early.

E. Public Perception of Waste Management

Table 5. Public Perception of Household Waste Management

No .	Statement	Scores
1	Household waste needs to be managed every day	3,8
2	Household waste that is allowed to accumulate can have a bad impact on the environment	3,9
3	Garbage should be sorted before being disposed of in the trash	3,9
4	Processing household waste into compost provides benefits for you	3,9
5	Processing household waste into a new craft provides benefits for you	3,8
6	The use of plastic should be reduced because it is difficult for plastic to decompose naturally	3,9
7	Waste that can still be used should be reused	3,8
8	Moving waste to temporary disposal sites is important so that household waste does not accumulate	3,9
9	Making compost is easy to do	3,1
10	Making crafts from used goods is easy to do	3,4
11	Waste management with the principle of reducing the amount of waste is an efficient way to overcome the problem of household waste	3,7
12	Waste management with the principle of reusing waste that can still be used is an efficient way to overcome the problem of household waste	3,7
13	Waste management with the principle of recycling waste is an efficient way to overcome the problem of household waste	3,7
14	Payment of levy fees for waste management facilities needs to be made every month	3,9
	Average	3,7

Scale Likert:

Category	Scores
Strongly Agree/Know	4
Simply Agree/Know	3
Lack of Consent/Ignorance	2
Disagree/Know	1

The public's perception of waste management is considered quite positive with an average score of 3.7. Respondents tend to agree that daily waste management is necessary to reduce adverse impacts on the environment. This perception shows that people with higher levels of education tend to have a better understanding of the importance of waste sorting and environmentally friendly waste management. People who are more concerned about environmental issues show readiness to participate in better waste management programs. People who are involved in hygiene programs or waste management training are more aware of the importance of effective waste management.

F. Community Participation in Waste Management

Table 6. Community Participation in Direct Waste Management

No.	Statement	Scores
1	I sort organic and inorganic waste before throwing it in the trash	1,5
2	I bring my own container when shopping	3,1
3	I save on plastic use by using it repeatedly	2,6
4	I used paper on both sides	2,2
5	I use napkins made of cloth instead of using tissues	2,8
6	I use a rechargeable product	2,2
7	I repurpose used bottles that can still be used (for detergent containers, fragrances, cooking oil, etc.)	2,4
8	I take the sorted garbage to a temporary disposal site (garbage bank)	1,9
9	I was involved in making crafts (bags, wallets, etc.) from used goods with other residents	1,4
10	I am involved in recycling waste into compost with other residents	1,5
11	I participated in community service activities	3,1
	Average	2,2

Table 7. Community Participation in Indirect Waste Management

No.	Statement	Scores
1	I give suggestions/criticisms regarding household waste management to RT/RW administrators	1,86
2	I discussed household waste management with other residents	2,58
3	I participated in counseling on making crafts from used goods	1,67
4	I participated in counseling on making compost	1,73
5	I took training to make compost	1,68
6	I took training to make crafts from used materials	2,09
7	I pay a levy fee to improve the waste management facility every month	2,89
	Average	2,1

Scale Likert:

Category	Score
Highly Participatory	4
Quite Participatory	3
Less Participatory	2
Non-Participatory	1

Direct participation (average score 2.2) and indirect (2.1) participation are still relatively low, especially in activities such as making crafts from waste (1.4) and composting together (1.5). The gap between positive perceptions of waste management and real participation is often caused by a lack of practical support from relevant parties.

Although most residents are aware of the importance of good waste management, they feel that they do not have enough tools or resources to actively participate in these activities. Therefore, practical incentives such as waste bank

programs or skills training for residents are needed so that they feel motivated to be directly involved in recycling activities or reusing waste.

This incentive-based program can be an effective solution to bridge the gap between positive perceptions and real actions on the ground. Ongoing education on the benefits of active participation is also essential so that residents remain motivated to contribute to waste management efforts in their neighborhoods.

Local governments need to provide supporting facilities such as temporary dumps or recycling centers so that residents have easy access to these facilities when they want to actively participate. Thus, citizen participation in waste management activities will increase along with the availability of practical support from related parties.

Although the positive perception of waste management is evident among respondents, the main challenge lies in their real participation. Through practical incentives and continuous education about the importance of real action in waste management, it will greatly help encourage positive behavior change among the residents of Karang Anyar Urban Village, Samarinda City.

IV. CONCLUSION

The level of public knowledge about the 3R (Reduce, Reuse, Recycle) principle is quite good with an average score of 74%, but the understanding of the basic principles of 3R is still low (51%). This shows the need for more comprehensive education so that the public understands all aspects of waste management.

The community has enough experience in waste management, with simple activities such as moving waste to a temporary landfill. However, the involvement in processing waste into compost is very low (10%). Community-based training programs are needed to enhance this experience.

Support from the government and community leaders is considered sufficient with an average score of 56%. Counseling on making handicrafts is high (81%), but low in making compost (20%). Collaboration between the government and community leaders can increase the effectiveness of waste management programs.

Existing facilities are considered inadequate (score 48%), with a reliance on waste collection rather than processing. The absence of facilities such as integrated dumps and separate bins hampers waste sorting efforts. The recommendations include increased investment in processing facilities.

The public's perception of waste management is quite positive (score 3.7), but direct and indirect participation is still low (average score 2.2). To increase participation, practical incentives and ongoing education are needed to bridge the gap between positive perceptions and real action.

Efforts to increase perception and participation are carried out by increasing education, government support, improving facilities, and incentives to encourage active community participation in more effective waste management.

REFERENCES

- [1]. Brown L, Davis A. Community involvement and participation in waste management programs. *Int J Sustain Res.* 2020; 14(1):45–58.
- [2]. Davisson A, Lee H. Government support as a catalyst for community-led initiatives on sustainable development goals. *Sustainability Sci Res J.* 2018; 14(1):45–58.
- [3]. Johnson M, Brown T. The role of education in shaping attitudes towards waste management practices among urban residents. *Int Rev Environ Strateg.* 2019; 20(2):123–35.
- [4]. Kimura Y, Nakamura R. Collaborative governance model enhances local capacity building through integrated solid waste management programs. *J Environ Econ Asia Bus Stud.* 2020; 12(3):123–36.
- [5]. Lee E, Kim J. Increasing public knowledge of recycling practices through interactive media campaigns. *Educ Environment Res J.* 2019; 25(11):173–86.
- [6]. Patel V, Shah R. Assessing the need for infrastructure for an effective solid waste management system. *Int J Eng Sci Technol Solut.* 2022; 16(3):123–35.
- [7]. Rahma NE. Behavior in waste management and conditions of waste management services in Malinau City. *Poltanesa Bulletin.* 2019.
- [8]. Smith J, Johnson K. Impact of education on environmental awareness. *J Sustain Dev.* 2018; 12(3):123–35.
- [9]. Smithson I, Taylor S. Public perception and participation in environmental conservation efforts. *J Appl Soc Psychol.* 2017; 47(11):2313–26.
- [10]. National Standards Agency (SNI). Method of taking and measuring examples of urban waste generation and composition (SNI 19-3964-1994). Jakarta: National Standards Agency; 1994.
- [11]. Thompson G, Wilson L. Evaluating the effectiveness of community-based reward programs to increase participation in sustainable behavior. *J. Sustainability Stud* 2021; Thompson, G., & Wilson, L. (2021). Evaluate the effectiveness of community-based rewards programs to increase participation in sustainable behavior. *Journal of Sustainability Studies*, 15(2), 45–58.