Study of Waste Management Place for 3R Waste Disposal in Pekalongan City 2016

Yuristha Widha Vashra[1], Nur Endah Wahyuningsih[2], dan Mursid Rahardjo[2]
1. *Graduate Program in Environmental Health Masters at Diponegoro University*
2. *Lecturer of the Environmental Health Master Program in Diponegoro University*

Abstract
This study was intended to measure the level of achievement of the 3R (Reduce, Reuse, Recycle) landfill program in Pekalongan city, including management, managerial performance, and service coverage, because in Pekalongan city, a minimum generation and garbage collection service was almost close to the Minister of Public Works Regulation No. 01 / PRT / M / 2014 . This research is a mix method (quantitative and qualitative), with a triangulation design. Observation sheets, In-depth interviews, and assessment criteria for 3R landfills (analyzed using SPSS). Random sample, with a number of 28 informants. Two informants from Environmental agency Pekalongan City (Head of Section and Head of Waste Section), 13 employees of 3R garbage dumps, and 13 residents. This shows that in terms of management, there were 46.2% of 3R waste disposal sites in the poor category and 53.28% of the 3R landfills in good category. Managing performance, there were 30.8% 3R landfills with poor categories and 69.2% good 3R categories. Constraints in management: facilities and infrastructure, operational problems, not having of operational standards, residents have not been able to sort waste, awareness of 3R landfill officers to directly process waste and awareness of citizens paying garbage fees, minimal budget, fine sanctions have not been implemented. Constraints on the manager's performance: the distance between the 3R landfill and the remote landfill, the 3R landfill officer lacks time to take out the garbage. Constraints in the service coverage of the Pekalongan municipal government do not yet have minimum service standards regulations on generation and transportation of waste.
Keywords: management, performance and service coverage of the 3R garbage disposal program

I. INTRODUCTION

Garbage is the product of human or natural activities and is still a global problem causing environmental damage. Following up on the waste management program in the 2004-2009 era, the Ministry of Environment and Forestry through the 2015-2019 Strategic Plan, continued the 3R waste management program. On the strategic plan, it is listed in the target section of pollution control and environmental damage, with a policy direction of "improving integrated waste management", with four (4) strategies, namely: (1) development of 3R efforts, (2) development of waste and composting banks , (3) the development of integrated waste management systems, both communal and national scale, and (4) increasing cooperation between the government, the private sector and the community through the "Three-Finger Movement" of waste management. The Ministry of Environment and Forestry targets to reduce the amount of waste generation at its source by 20% from 124.6 million tons or by 24.5 million tons in five (5) years in 380 cities and districts.

The Province of Central Java is one of the provinces participating in the Ministry of Environment and Forestry program, namely by implementing the 3R Waste Disposal Place program to reduce waste generation that enters the Final Disposal Place. According to Ministry of Environment and Forestry, the total estimation of solid waste generation throughout Indonesia reaches 38.5 million tons / year. Whereas for the average volume of waste per day in the District / City in Central Java in 2013 reached 33,276.50 m3, with 16,576, 55 m3 of trash transported (to be transported), with a percentage of 49.81%. Pekalongan City is one of the 3R Waste Disposal Place programs, according to previous research conducted by researchers in 2013, through interviews with the Head of Environmental Impact Monitoring and Control, the Environmental Office of Pekalongan City, Pekalongan city seen as having Places 3R Solid Waste Disposal is the most in Central Java Province.

The waste production in Pekalongan city in 2014 was 855 m3 / day, while the waste transported to Place Of End Of Disposal reached 63.6%, which was processed by a 3R Waste Disposal Place of around 7.5%, while for the percentage of waste management service coverage reached 16.5 % and others 12.4%. Based on Minister of Public Works Regulation No. 01 / PRT / M / 2014 concerning Technical Guidelines for Minimum Service Standards for General Work and Spatial Planning, Minimum Service Standards for transporting waste are 70% and waste generation is 20%, while assumptions refer to the Head of Cleanliness, The management of Waste and Waste of the Environment Agency

of Pekalongan City, in the city of Pekalongan, is still 63.6% and the generation is still 16.5%. This study is intended to measure the level of program achievement from the 3R Waste Disposal Place in Pekalongan city, including management, manager performance, and service coverage. By analyzing the criteria for waste management, Place For 3R Waste Disposal, observation sheets, in-depth interviews, and funding funds. Based on the description on the background of the researchers' objective is to study the Waste Management of 3R Waste Disposal Place in Pekalongan City.

II.   METHOD

Is a type of qualitative and quantitative mixed research. with a triangulation design. The social situation (population) based on the informants who were sampled were thirteen (13) Places Of The 3R Waste Disposal In Pekalongan City, residents who participated in the garbage collection fees in the thirteen (13) 3R Waste Disposal Places, consisting of: One (1) Mr / Mrs neighborhood Association / citizens Association or housewives who are in the thirteenth place of the 3R Waste Disposal, with a total of 1 x 13 = 13 people, Thirteen (13) managers or officers Place Of 3r Waste Disposal, One (1) Head Field of Hygiene, Waste Management and Waste & Environmental Agency of Pekalongan City and one (1) Head of Environmental Agency for Waste and Waste Management of Pekalongan City. With a total of 13 + 13 + 2 = 28 informants. The researcher interviewed all of these samples, totaling a total of 28 informants, with the help of in-depth interviews and observing every 13 Places Of 3R Waste Disposal and residents' homes taken by the managers or officers of the 3R Waste Disposal Places with assessment criteria 3R Waste Disposal Places.

This research was conducted by random sampling, with a random sample, researchers took 13 places of 3R Waste Disposal. Informants were taken randomly, namely 13 managers or officers of 3R Waste Disposal Places, and 13 residents who participated in the garbage collection in each of the 13 Places Of 3R Waste Disposal. Secondary data includes monographic data from Pekalogan city profile in Figures 2014, Pekalongan City Daily Waste Voume Report obtained from environmental agency in Pekalongan city, Solid Waste Master Plann in Pekalongan City which was obtained from environmental agency in Pekalongan city, supporting books for this research, national journals and international, and other secondary data that support this research. The primary data in this study include data when researchers examine the field, such as in-depth interview interview sheets, observation sheets, documentation, and assessment criteria for 3R Waste Disposal Places in Pekalongan City. Whereas the processed data from the assessment criteria Place For 3R Waste Disposal are processed using SPSS, then the results are analyzed.

III.   RESULT

The following results from the assessment criteria are 3R Waste Disposal Places. The following is the description

table: Table. Results Criteria for Assessment of 3R Waste Disposal Sites

Criteria for Evaluation of 3R Waste Disposal Sites	Good		Less		Total	
	f	%	f	%	f	%
a) Management	7	53,8	6	46,2	13	100
b) Management Performance	9	69,2	4	30,8	13	100

a.   Service Coverage

The researcher adds up the total per aspect of the service coverage (aspects of generation and aspects of transport). After obtaining the total score on each 3R landfill, then the researcher gives a coding value or value label. The total score category of service coverage, code 1 and code 2 for the score will be explained in paragraph two. Then the researcher made a coding assessment of service coverage categories, code 1 for lacking and code 2 for good. There is n = 13, 100% good all because it meets the total score category, there will still be some obstacles, such as the distance of the 3R landfill with the remote landfill, sometimes on the way to the final dump is not always smooth.

1. *Financing 3R landfills*
   The following are funding budget funds in 13 samples of 3R landfills:

Fund Budget Financing 13 3R landfills

No.	Place OF 3R Waste Disposal	Income					
		Funds from the Environmental Agency			Funds from Citizens Contribution		
		Wages Per Month	Fuel oil	Compost Purchase	Funds from Citizens Contribution per home	Number of houses	additional wages for 3R landfill employees obtained by residents
1	Trash Disposal Site 3R Tegalrejo	400000	200000	200000	10000	405	4050000
2	Trash Disposal Site 3R Rusun Indah	400000	200000	200000	5000	225	1125000
3	Garbage Disposal Site 3R Blessing (Beard)	400000	200000	200000	5000	845	4225000
4	Waste Disposal Site 3R Cipta Mandiri (Long Cage)	400000	200000	200000	8000	428	3424000
5	Garbage Disposal Site 3R Rejo Lestari (Yosorejo)	400000	200000	200000	5000	468	2340000
6	Garbage Disposal Site 3R Maju Mulya (Klego)	400000	200000	200000	3000	923	2769000
7	Sokorejo 3R Waste Disposal Site	400000	200000	200000	10000	224	2240000
8	Trash Disposal Site 3R Medono	400000	200000	200000	5000	793	3965000
9	Sapuro 3R Waste Disposal Site	400000	200000	200000	5000	336	1680000
10	Trash Disposal Site 3R Kramatsari	400000	200000	200000	7000	483	3381000

11	Waste Disposal Site 3R Watujoyo (Kertoharjo)	400000	200000	200000	10000	840	8400000
12	Bendan 3R Waste Disposal Site	400000	200000	200000	5000	450	2250000
13	Godog Ijo Trash Disposal Site 3R (Kuripan Kidul)	400000	200000	200000	5000	410	2050000
	Total Wages of Managers of 13 Garbage Disposal Places 3R	5200000	2600000	2600000	83000	Total house 6830	37674000

2. *Result In-Depth Interview*

The following are the results of the data from the Assessment Criteria for the 3R garbage disposal site in Pekalongan city :

a. Management

As for the results of in-depth management interviews, the following are the descriptions:

Table 4.7 Institution of 3R Waste Disposal Site in Pekalongan City

No.	Name of 3R Waste Disposal Site	Number of Managers	Number of Officers
1.	Bendan 3R Waste Disposal Site	1	3
2.	3R Berkah Lestari (Beard) Waste Disposal Site	1	2
3.	Garbage Disposal Site 3R Cipta Mandiri (Long Cage)	1	4
4.	The 3R Godog Ijo / Bersih Indah Waste Disposal Site (Kuripan Kidul)	1	1
5.	Kramatsari 3R Waste Disposal Site	1	2
6.	3R Maju Mulya (Klego) Garbage Disposal Site	1	2
7.	3R Medono Waste Disposal Site	1	3
8.	3R Rejo Lestari Waste Disposal Site (Yosorejo)	1	2
9.	Rusun Indah 3R Waste Disposal Site	1	1
10.	3R Sapuro Kebulen (Sapuro) Garbage Disposal Site	1	2
11.	3RR Waste Disposal Site Sokorejo	1	5
12.	Trash Disposal Site 3 minutes down	1	1
13.	3R Rejo Lestari Waste Disposal Site (Yosorejo)	1	1

1) Operational techniques

The constraints of operational techniques, along with their descriptions:

Table 4.8 Constraints to Operational Techniques

No	Obstacles	f (n)	percentage (%)
1	The operational standart for 3R Waste Disposal Site has not been determined	13	100
2	Manager of 3R Waste Disposal Site lacks personnel and fleet	13	100
3	Residents have not been able to sort garbage	11	84.6
4	There is no health insurance for officers and waste management from the city government of Pekalongan	10	76.9
5	Some employees / officers of the 3R Waste Disposal Site do not use safety	10	76.9
6	Overwhelmed Officer In Sorting Waste	9	69.2
7	Operational (Vehicle) Sometimes Minim	9	69.2
8	Damage To The Tool Or Fleet	8	61.5
9	Human Resources Are Invited By Collaboration By The Lesser Government	5	38.5
10	The Trash Is Missing, Damaged, Unkempt	4	30.8
11	There Are Trash Jamming Machines	4	30.8
12	Difficulty In Placing Garbage Containers, Because The Community Complains Of Smell	2	15.4
13	There Are A Portion Of 3R Solid Waste Disposal	1	7.7

As for the positive activities of operational techniques, such as: the environmental agency provides trash cans from acceleration activities (community-based development), namely the procurement of trash cans for urban villages, the environmental agency provides each trash can, each of 50 pairs in each village around the disposal site garbage 3R x 13 landfills 3R = 1,150 garbage cans, environmental agencies provide facilities for landfills 3R, tosa / viar 1 complete package with safety waste equipment, such as: masks, boots, gloves, helmets, trash covers, shovels , hoes, compost processing aids (organic waste counting machines, compost filters), the environmental agency conducts meetings once a month, to recheck whether there are problems in the operation of each 3R landfill, while providing wages for gasoline and compost purchases, environmental agency provides socialization, training, ru workshops every year.

2) *Regulation*

Pekalongan city government regulation regarding solid waste such as: Pekalongan Mayor Regulation Number 34 of 2012 concerning Procedures for Temporary Storage Licensing and / or Collection of Hazardous and Toxic Waste Materials in Pekalongan City, Pekalongan City Local Regulation Number 16 of 2012 concerning Waste Management, Pekalongan City Regional Regulation No. 1 of 2011 concerning the Organization and Work Procedure of Regional Devices in Pekalongan City, Pekalongan City Regional Regulation Number 32 of 2011 concerning Waste / Hygiene Service Levies, Decree of the Head of the Environmental Office of Pekalongan City Number 660 / 106.2 concerning the Establishment of Garbage and Sodaqoh Garbage Banks in Pekalongan City, Pekalongan City Regional Regulation Number 3 of 2010 concerning Environmental Protection and Management of Pekalongan City, Pekalongan Regional Level II Regional Regulation No. 2 of 1993 concerning Hygiene, Beauty, Tidiness and Order of the Intermediate City of Pekalongan Level II Region. in-depth interview, along with its elaboration, Sanctions paying a fine of Rp. 50,000,000 in accordance with the Regional Regulation have not yet been implemented (residents still have littering), Residents to collect garbage are still difficult, there are some residents who pay as much as possible (IDR 1,500 per month).

As for the constraints of financing, such as: Environmental Agency sometimes lack of budget to facilitate place 3R waste disposal, place of 3R waste disposal, sometimes lack of funds, Costs available, with damage that occurs, more damage than the costs.

3) *Community participation*

The constraints of community participation, such as: lack of awareness of the community in sorting trash, residents who provide garbage dues are not in accordance with the neighborhood Association/ citizens Association (due to financial conditions), There are still residents who littering

b. *Waste management performance*

The constraints of the performance of the waste manager, such as: There are officers who have good performance in the 3R waste disposal, some are lacking, the most diligent at this time are the officers from the waste disposal 3R Sapuro, the waste workers lack the time to collect the garbage, the distance between the 3R waste disposal places with the far end of the site, limited facilities provided by environmental agency in pekalongan city.

c. *Service coverage waste disposal 3R city of Pekalongan*

The constraints of the coverage of the 3R waste disposal service in Pekalongan City, such as: Nationally Minimum service standards is already in place, but the Pekalongan city government has not made Minimum service standards waste generation, the Pekalongan city government has not made waste transportation Minimum service standards, every year garbage generation in the end disposal distribution is always increasing

IV. DISCUSSION

1. *Management*

There was a score of less than 6 in management, including 3R Tegalrejo landfills, 3R Beautiful 3R landfills, Sokorejo 3R landfills, 3R Medono landfills, 3R kramatsari landfills, left-handed 3R landfills. In the management, there were 7 good scores, including 3R blessings (beard), 3R cipta Mandiri (long cage), 3R Rejo Lestari landfill (yosorejo), 3R advanced Mulya (klego) landfills, 3R Sapuro landfill, 3R Watujoyo (kertoharjo) landfill, and 3R Bend landfill. The discussion of the results of the assessment criteria for 3R landfills for management, get frequency 6 with the category "less", with a valid percentage of 46.2% and obtained frequency 7 with the category "good", with a valid percentage

of 53.28% of cumulative percentage 100 %. Compared with the research from Andi Nur Asyifa Baso (2017), the title of the Waste Management System Planning for Kaligending Final Disposal Services in Kebumen Regency in 2017: The research was conducted at the Kebumen Regency research location, with research subjects in Kaligending final disposal sites, which focused on management at the Kaligending final disposal site, Kebumen Regency. The research focuses on management aspects only, with the results of waste management in Kebumen, especially the Kebumen, Kutowinangun, and Prembun Technical Implementation Units, which are still based on the old pattern, namely garbage collected from the source, transported to landfills (Temporary Shelter), and disposed of to the final disposal site.

2. Performance

Discussion of the results of the assessment criteria for 3R landfills on performance, obtained frequency 4 with the category "less", with a valid percentage of 30.8% and obtained frequency 9 with the category of "good", with a valid percentage of 69.2% of the cumulative percentage of 100%. There was a score of less than 4, including 3R Berkah Lestari (Jenggot) landfill, 3R Medono landfill, Kramatsari 3R landfill, and 3R Watujoyo (Kertoharjo) landfill. In the manager's performance, there were 9 good scores, including 3R Tegalrejo landfills, 3RR Indah 3R landfills, 3R Cipta Mandiri (Kandang Panjang) landfills, 3R Rejo Lestari landfill (Yosorejo), 3R Maju Mulya landfills (Klego), 3R Sokorejo landfill, 3R Sapuro landfill, 3R Bendan landfill, Kuripan Kidul 3R landfill. Discussion of the results of the assessment criteria for 3R landfills on manager performance, obtained frequency 4 with the category "less", with a valid percentage of 30.8% and obtained frequency 9 with the category of "good", with a valid percentage of 69.2% of cumulative percentage 100 %.

Compared with Tasrin's (2014) study, the study was conducted at the Bandung Raya research location, with the formulation of the problem of the existing condition of waste management services in the Regency / City in the Metropolitan Area of Bandung Raya seen from the point of view of the service provider (solid waste service performance evaluation). Tasrin Krismiyanti research focuses only on aspects of solid waste service performance evaluation, with the results seen from the input side, solid waste service performance in Bandung City and Cimahi City is considered better compared to Bandung Regency and West Bandung Regency. This further affects the output performance, where the output performance of solid waste services in Bandung City and Cimahi City looks better than the other two districts, especially in terms of transporting waste generation to landfills and waste management.

3. Service coverage

The discussion of the results of the 3R landfill assessment criteria on service coverage, obtained a frequency of 100% all good in the thirteen (13) 3R landfills, but even though 100% is good there are still obstacles to services due to the distance away from the homes of residents who take part , also from the final disposal site, also on the way does not always go according to the wishes because the tire is leaking or the fuel runs out, even though the officers every day until working hours have taken out the garbage. Compared with Tasrin's (2014) study, the research entitled "Integrated Planning for Solid Waste Management Case Study in Jabungan Urban Village, Banyumanik Subdistrict, Semarang City in 2017: The research was conducted at the research site in Jabungan Village, Banyumanik District, Semarang City. Cicilia Kartika KI's research focuses on aspects of service coverage only, with the results of the level of service in the Kelurahan Jabung is still very low at 6%.

4. Discussion of the results of financing the landfill

The total number of employees is 23 3R landfills, there are 56 employees, while the total number of employees in 13 samples is 3R 3R landfills. Fund Budget For 23 3R waste dumps = Rp. 320,000,000. Total Wages for Managers 23 3R landfills = Rp. 320,000,000 / 56 = Rp. 5,714,286. Total Wages for Managers 13 3R landfills = Rp. 400,000 x 13 = Rp. 5,200,000. Remaining Budget for Wage Management 13 3R garbage disposal = Rp. 5,714,285 - Rp. 5,200,000 = Rp. 514,285. Each wage in 13 3R per month landfills is Rp. 400,000, with details of Rp. 200,000 for fuel and Rp. 200,000 for the purchase of compost by the environmental agency of Pekalongan City..

5. Discussion of results in-depth interview

The following is a discussion of the results of in-depth interviews from a study entitled Study of Waste Management in Pekalongan City: There are 42 employees in 13 3R landfills. Most of the management there are obstacles in the part of facilities and infrastructure in the 3R landfills, especially in the trash facility, operational problems, the operational standards of the 3R landfill have not yet been made, most of the residents have not been able to sort

garbage, the awareness of each place officer 3R garbage disposal to use safety equipment and use garbage nets / cover, difficulty in placing garbage containers, no health insurance for 3R landfill officers, minimal budget, fine sanctions for littering have not yet been carried out, residents are aware of waste collection. Most of the manager's performance there are obstacles in the distance between the 3R landfill and the remote landfill, the actual damage to take waste in the homes of the participating residents in the garbage collection. Most of the service coverage there are constraints on the minimum service standards, both minimum service standards for waste transportation and minimum service standards for solid waste generation, because they have not been made available.

V.   CONCLUSIONS AND RECOMMENDATIONS

A.   Conclusion

Based on the results of research and discussion, conclusions can be drawn:

In management, get frequency 6 with the category "less", with a valid percentage of 46.2% and obtained frequency 7 with the category "good", with a valid percentage of 53.28% of the cumulative percentage of 100%.

Management performance, there are 30.8% 3R landfills with less categories and 69.2% 3R landfills with good categories.

The service coverage of 3R landfills is 100% good. The monthly residual total is 1,277 m3. Monthly waste that can be processed by a 3R landfill is 273.8 m3. But there are still obstacles to service due to the long distance from the homes of residents who take part in contributions, also from final disposal sites, also because the tires leak or fuel runs out, even though the officers every day up to work hours have taken out the garbage, besides the Pekalongan city government do not have special regulations regarding minimum service standards for generation and transportation of waste.

B.   Recomendations

Management, Environmental Agency conducts performance evaluation on 3R landfills, especially in the four lacking 3R landfills, the environmental agency immediately makes soup 3R garbage disposal sites, each employee should instill a sense of awareness using safety equipment and garbage cover, each citizen should instill a sense of self-awareness towards the environment, the government makes 3R landfills become independent 3R landfills (so do not depend on the environmental agency).

Management performance, Pekalongan city government to repair damaged roads to facilitate the path of each 3R landfill to landfills, the environmental agency adds personnel budget to increase the number of employees and operations.

Coverage of services, the Pekalongan city government immediately makes a regulation that regulates minimum service standards for generation and transportation of waste, and adds personal members.

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