

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

Optimization of Waste Management Performance in Palangka Raya City

Evy Triani¹, Haryo Sulistyarso², Eko Budi Santoso³

Student of Post Graduate Program of City Development Management, Department of Architecture, Faculty of Civil
Engineering, Institute of Technology, Sepuluh, Nopember, Surabaya¹

Lecturer, Department of Urban and Regional Planning, Institute of Technology, Nopember, Surabaya^{2&3}

ABSTRACT: The development of Palangka Raya City as the centre of growth in the province of Central Kalimantan has an impact on increasing in number of residents thus increasing the amount of waste generated. Meanwhile, the problems that arise are still the pattern of garbage disposal into rivers, irrigation channels, and the disposal and burning of garbage in the yard or on vacant land, limited human resources, insufficient infrastructure and financing, the limited waste that is transported to the landfill and Limited service coverage and final process in landfill still use open dumping system. This shows an indication of waste management performance in Palangka Raya City and the factors that influence it.

This research methodology used qualitative and quantitative descriptive approach, with analysis technique using sequel analysis. Sampling technique using apurposeful sampling method that is the technique of sampling data source with a certain consideration.

This research was conducted to assess the garbage service by analysing the quality of waste service to the performance of the work agency, spatial and residential office of Palangka Raya City. The result of the research shows that the performance of solid waste service is related to various factors that influence the performance of waste management such as the number of personnel and infrastructure facilities is still very limited, transportation operations are not optimal yet, the lack of clear division of tasks, especially in the collection and transportation system, and the lack of public awareness in support of waste management. The recommendation of this research is that the government needs to increase the reach of garbage service, personnel, equipment and to provide socialization about waste management to the community. The results of this study is expected that to improve the optimization of waste management performance in the city of Palangka Raya need to improve the performance of the work of copyrighted works, layout and housing Palangka Raya more real and active role in helping to provide facilities and infrastructure waste.

KEYWORDS: Waste, Performance, Management, Optimization.

I. INTRODUCTION

Development of a city has not only a positive impact on urban economic activities but also has a negative impact. One of the negative impacts of urban development is the increase of a complex problem on city waste management. The environmental problems that commonly happen in urban areas is that urban waste management has not been optimally provided by the city government to fulfill the needs of its citizens. The increasing of the amount of waste is not balanced by the increase of community's awareness on a clean and healthy environment. In addition, the government's ability in waste management has not yet achieved optimal results, it can be seen from the impact of waste that increasingly accumulates. Therefore, if not handled properly then in the future garbage will become a serious problem because of many factors that causing waste generation such as population, socioeconomic condition, and technological progress.

Based on the above background, the purpose of this study is to formulate the efforts to optimize the performance of garbage services in Palangka Raya City.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

II. LITERATURE REVIEW

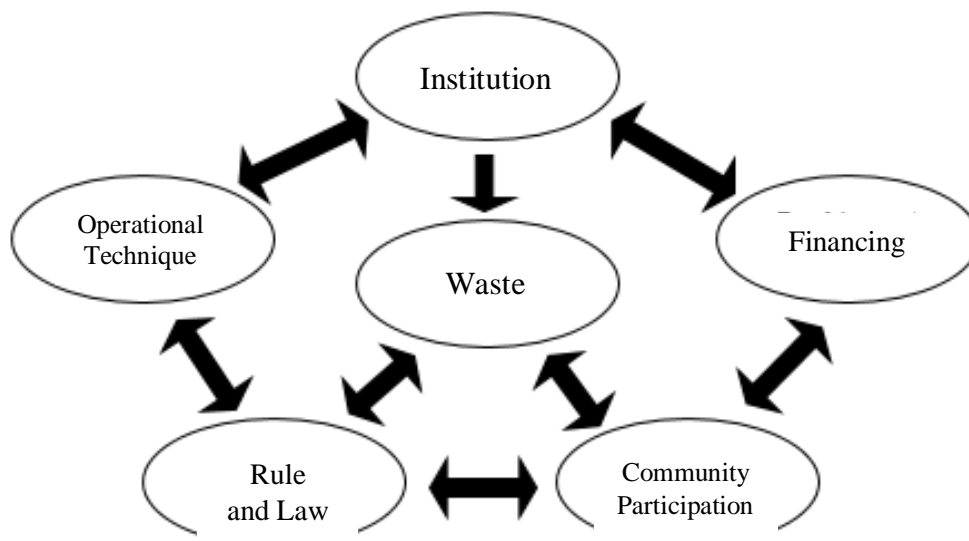
1. Definition of Waste

According to (Azwar, 1990), rubbish is something that is not used again or something that can't be used anymore, which is unpopular and must be thrown away, then the garbage has to be managed properly, in such a way that the negative things in life will be avoided.

2. Waste Management System

Waste management is an effort to organize or to manage waste from the collecting, separating, transferring to processing and final disposal (Cipta Karya, 1993). Waste management consists of 2 (two) types of local management (individual) and centralized management for the environment or urban.

According to SK SNI T-13-1990-F, urban waste management system basically, is seen as the components of subsystems that mutually supporting, interacting, and interconnecting with each other, such as Figure 2.1 Waste Management System Scheme.



Source: SK-SNI T-13-1990-F

Figure 2.1. Urban Waste Management System Scheme

3. Waste Management Performance

Waste management performance can be measured by comparing real performance with expected results or targets, performance is also strongly related to the level of efficiency and effectiveness. The performance of waste management is a comparison between the real results with the targets to be achieved in the waste management system which includes technical aspects, institutions, financing, law and community participation. Conducting a performance assessment in waste management is closely related to the quality of service and satisfaction enjoyed by the community. According to Horton and Chaster in Hartiningtyas, 2005, the perception of society is formed because of individual perceptions where the information process will have differences between a person and another individual, as well as the perception of the actions of various desires. The factors that influence the perception of individuals in creating public perception are:

1. The observed objects will be different for each person based on sensory stimulation of the object
2. The depth of observation of the observed object based on the performance of the object.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

3. Personal factors such as experience, the level of intelligence, ability to remember etc.

4. Servqual Concept

The Servqual model is modeled based on the assumption that the community compares the performance of service attributes with ideal/perfect standards for each of these attributes. When attribute performance exceeds the standard, then the perception of overall service quality will increase. The Servqual concept is used to calculate the gap between consumers' perceptions of services and expectations or expectations. Here's the equation (Wijaya, 2011):

$$Q = P (\text{Perceived Service}) - E (\text{Expected Service})$$

Information :

Q = Quality of Service

P = Perceived Service or perception of service

These five gaps can be explained as follows (Parasuraman, 1985):

1. The gap between customer expectations and management perceptions. The gap is created as the result of a misunderstanding of the company's management on what is expected, customers.
2. The gap between corporate management perceptions on customer expectations and service quality specifications; The gap is due to misinterpretation of the correct corporate management perceptions on the expectations of corporate customers into the form of benchmark quality of service.
3. The gap between service quality specifications and service delivery to customers; The existence of such a gap is more due to the inability of human sources to reach established service quality standards.
4. The gap between service providers to customers and external communications; The gap is created because the company was not able to fulfil its promises that communicated externally through various forms of promotion.
5. The gap between customer expectations and the reality of service received; The gap exists as the result of unfulfilled expectations of the customers.

III. RESEARCH METHODS

1. Sample Population

A sampling of sample population on the research of Optimization of Waste Management Performance in Palangka Raya City focuses on waste transportation management in Pahandut and Jekan Raya Sub-districts. The number of population in the district of Pahandut is 88,304 people and the subdistrict of Jekan Raya is 131,019 people, so the total population in the research is 88,304 people + 131,019 people = 219,323 people. In general, the number of required sample sizes can be calculated using the Slovin formula (Sevilla in Umar Husein 2003) as follows:

$$n = \frac{N}{Nd^2 + 1}$$

where:

n = sample size

N = population size

d = degree of precision (level of significant) determined 10%

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

In order for the selection of respondents to represent the entire sample, the technique used to select respondents is the Stratified Random Sampling technique (stratified random sampling).

Stratified Random Sampling technique is a technique of sampling by dividing the heterogeneous population into relatively homogeneous groups called strata. The population of Pahandut and Jekan Raya sub-districts in Palangka Raya is 219,323 people. Based on the formula, then the number of respondents can be calculated as follows:

$$n = \frac{219323}{219323 * 0.1^2 + 1}$$

$$= 100$$

Based on that formula of 208,866 people, there are 100 respondents.

Based on the result of Slovin formula above, from the population of Pahandut and Jekan Raya sub-districts in Palangka Raya city, there are 219,323 people, obtained sample of 100 people. Therefore, the sample used in this study as many as 100 residents in Pahandut and Jekan Raya sub-districts in Palangka Raya City.

Table 3.1.Number of samples

Districts	Population	Sample	Rounding
Pahandut	88304	40.26	40
Jekan Raya	131019	59.74	60
Total	219,323	100	100

The analysis technique used in this research is servqual analysis technique. Servqual is a model design of service quality services in waste management to measure society satisfaction based on the disconfirmation between perceptions and expectations of the society as the use of public works services on waste management performance in Palangka Raya City.

IV. RESULT ANALYSIS OF WASTE MANAGEMENT CONDITION

1. Formulating Efforts to Optimize Performance of Waste Management In Palangkaraya City

The analysis of IPA (Importance Performance Analysis) which aims to measure the extent of the society satisfaction level in the District of Pahandut and Major of Palangka Raya City as measured from SERVQUAL Dinas Perumahan and Settlement Area of Palangka Raya City. The society response was done by obtaining the average score for each SERVQUAL variable in the perception group and society expectations, which refers to Lovelock, C., Patterson, P & Walker, R. (2001), namely:

1. Perception < Expectation = Not Satisfied
2. Expectation = Perception = Satisfied
3. Perceptions > Expectations = Very Satisfied

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

Analysis of IPA (Importance Performance Analysis) in this study can be seen in table 4.1 as follows: • • • •

Table 4. 1 Analysis of IPA (*Importance Performance Analysis*) Per Item SERVQUAL

Dimension SERVQUAL	Item	Data GAP		Difference	Category
		Experctation	Reality		
Tangible	Tangible1	3.61	4.25	0.64	Very Satisfied
	Tangible2	3.31	4.46	1.15	Very Satisfied
	Tangible3	3.12	4.52	1.40	Very Satisfied
	Tangible4	3.22	4.47	1.25	Very Satisfied
Emphaty	Emphaty1	4.48	3.71	-0.77	Not Satisfied
	Emphaty2	4.40	3.64	-0.76	Not Satisfied
	Emphaty3	4.45	3.05	-1.40	Not Satisfied
	Emphaty4	4.23	3.48	-0.75	Not Satisfied
Responsiveness	Responsiveness1	3.42	3.90	0.48	Very Satisfied
	Responsiveness2	4.25	4.16	-0.09	Not Satisfied
	Responsiveness3	4.06	4.06	0.00	Satisfied
	Responsiveness4	4.13	4.13	0.00	Satisfied
Reliability	Reliability1	4.39	3.59	-0.80	Not Satisfied
	Reliability2	4.26	3.43	-0.83	Not Satisfied
	Reliability3	4.06	3.09	-0.97	Not Satisfied
	Reliability4	4.52	3.08	-1.44	Not Satisfied
Assurance	Assurance1	4.69	3.69	-1.00	Not Satisfied
	Assurance2	3.92	3.62	-0.30	Not Satisfied
	Assurance3	4.04	3.72	-0.32	Not Satisfied
	Assurance4	4.61	2.85	-1.76	Not Satisfied
Mean		4.06	3.75	1.40	

In Table 4.1 we can see that the SERVQUAL attribute item of waste management perceived by the people of Sub-district: Pahandut and Jangka Raya Palangka Raya City, which has negative IPA (Importance Performance Analysis) value is the attribute of Responsiveness. This indicates that the low level of public satisfaction indicated that the expected public expectations of the SERVQUAL attribute item provided by the Service is very high. This is evidenced by the average public response for each item of the SERVQUAL attribute above the value of 4 which means very high. Meanwhile, if viewed from the reality the performance of management services by related agencies is still very minimal on the dimensions of responsiveness that is about the timeliness of garbage collection, and all indicators of dimensions empathy, reliability, and assurance. Therefore, the management should improve the quality of service on the dimensions of the responsiveness regarding the timeliness of waste collection, as well as for empathy dimensions requiring improvement on the officer attitude indicator when picking up the waste.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 7, July 2017

V. CONCLUSION

1. Conclusion

The existing garbage facilities and infrastructure in Palangkaraya City, for the warehousing system that can support performance, is abarrel (Bin). As for garbage collection facilities, the use of garbage pedicab is more efficient compared to the garbage cart. The use of containers as a means of removal is more precise than the brick TPS because it has many advantages. For garbage hauling systems, arm roll trucks are more efficient than dump trucks. The condition of existing solid waste facilities and infrastructure is still considered inadequate, such as the use of brick bins and brick TPS, which has been discontinued so that waste management becomes less efficient. The use of infrastructure facilities that have high effectiveness, can improve waste management performance.

The results of waste management performance in Palangkaraya City only discuss 2 (two) aspects, namely technical and institutional aspects. Some of the things that affect the performance of waste management are:

The results of waste management performance in Palangka Raya City only discuss 2 (two) aspects, they are technical and institutional aspects. Things that influence the waste management performance are:

1. The number of personnel and infrastructure facilities is still very limited, the transportation pattern is still not adequate.
2. The division of works is still not clear, especially on the collection and transport system, UPT duty which does not only manage about garbage.
3. People have not seriously supported the waste management.

From those factors, it can be concluded that waste management performance is low in Palangka Raya City due to the less optimal waste management system.

REFERENCES

- (1) Azwar, Azrul, (1990), *Pengantar Ilmu Lingkungan*, Mutiara Sumber Widya, Jakarta.
- (2) Dinas Cipta Karya Departemen Pekerjaan Umum. (1993). *Penyusunan Pedoman Teknik Operasi dan Pemeliharaan Pembangunan Prasarana Perkotaan (Komponen Persampahan)*. Jakarta.
- (3) Hartingtyas EP, (2005), *Persepsi Masyarakat Terhadap Tingkat Pelayanan Fasilitas Pasar, Studi Kasus Pasar Kutoarjo Kabupaten Purworejo*, Tugas Akhir, Jurusan Perencanaan Wilayah, UNDIP, Semarang.
- (4) Lovelock, C., Patterson, P & Walker, R. (2001). *Service Marketing: An Asia Pasific Perspective*. Australia: Pearson Education Australia.
- (5) Parasuraman et.al., (1985). "Quality Counts in Services, too," *Business Horizons*, May June, pp.44-52.
- (6) SK SNI T-13-1990-F. *Tentang Tata Cara Pengelolaan Teknik Sampah*. Perkotaan. Badan Standarisasi Nasional.
- (7) Umar, Husein. (2003). *Metodologi Penelitian: Aplikasi dalam pemasaran*. Jakarta: Gramedia Pustaka Utama.
- (8) Wijaya, Tony. (2011). *Manajemen Kualitas Jasa*. Cetakan ke-1. Krebangan Jakarta Barat: PT. Indeks.