

Identification of Waste Management Application in Kelurahan Jambangan, Surabaya

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Abstract- Kelurahan Jambangan is one of the urban villages located in Jambangan District, Surabaya City. Residents of Jambangan Urban Village are accustomed to managing waste through garbage bank, composting, recycling and implementing 3R (Reduce, Reuse, Recycle). But there is still waste that is often found in PDU (Recycling Center) Jambangan which until now has not been recycled optimally. If the processing and segregation of garbage at the household level is maximal, then this type will already be sorted in the garbage bank and taken to collectors, not through the recycling center. Seeing this, waste management in Kelurahan Jambangan such as garbage bank, recycling of garbage, and composting in Kelurahan Jambangan need to be studied deeper and optimized handling of garbage management for better future

Keywords- Garbage, Waste Management, Kelurahan Jambangan, Optimization of Waste Management, 3R.

I. INTRODUCTION

The agenda of the SDG's (Sustainable Development Goals) one of the goals of the 12th environment pillar is 'responsible production and consumption' - ensuring sustainable consumption and production patterns. One of the indicators contained in the objective is to reduce waste production through 3 R, namely; Reduce, Reuse, and Recycle. Efficient management of shared use of natural resources, and the way communities dispose of toxic waste and pollutants are important targets for achieving this goal. In addition, encouraging industries, businesses, and consumers to recycle and reduce waste is just as important, as it also supports developing countries to move toward a more sustainable consumption pattern by 2030. (United Nation Development Programme, 2015).^[1]

Kelurahan Jambangan is one of the urban villages located in Jambangan District, Surabaya City. Residents in Kelurahan Jambangan are accustomed to managing waste through waste bank, composting, recycling and other 3R (Reuse, Reduce, Recycle) activities. However, there are 2 types of waste that are still often found in PDU Jambangan which until now has not been recycled optimally, namely plastic waste and plastic bottles that should have been sorted in the household. His side within a day still receive a large trolley for plastic crackle and half a trolley for plastic bottles. In fact, if the processing and segregation of garbage at the household level is maximal, then

this type will already be sorted in the garbage bank and taken to collectors, not through the recycling center.

Characteristics of each of these activities need to be studied in more depth and optimized if there are still not optimal handling. The intended optimization is from each of these activities that need to be improved or added facilities. He hoped the waste processing in Jambangan Village could be better. Particularly in shaping the mindset of citizens to care for the environment at home. (Coordinator of PDU Jambangan, Waskito, 2017)

Based on the above background, waste management in Kelurahan Jambangan such as garbage bank, recycling of garbage, and composting in Kelurahan Jambangan need to be studied deeper and optimized handling of waste management for better future. The expected result is Kelurahan Jambangan can be better in the future with optimization that provides benefits in terms of environmental hygiene and other positive activities.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

2.1 Waste management

Based on Law No. 18 of 2008 on Waste Management^[2], waste management is defined as a systematic, holistic and continuous activity that includes waste reduction and waste management. Management of household waste and household waste consist of:

- Waste reduction; and
- Handling garbage

In Government Regulation no. 81 of 2012 on Waste Management of Household and Garbage of Household Garbage^[3] it is said that everyone is obliged to reduce waste and waste management.

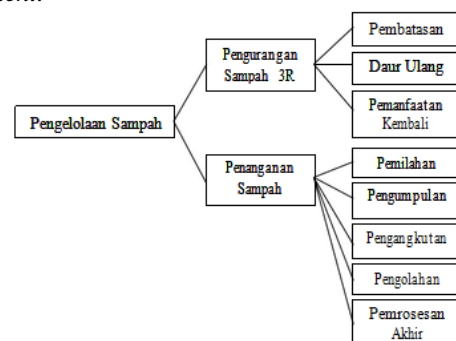


Figure 1.1 Waste Management Diagram

Source: Undang-Undang No. 18 Tahun 2008 about Waste Management

2.1.1 Waste Reduction

Principle 3R is in line with waste management which focuses on reducing waste from its source. Ministry of Public Works (2007) [4] explains that the 3R principle can be described as follows:

1. The first principle

Reduce or waste reduction, ie efforts to reduce waste generation in the source environment and can even be done before the waste is generated. Each source can make a waste reduction effort by changing the consumptive lifestyle, ie the habitual change from the wasteful and generating lots of waste to be efficient / efficient and produce little waste.

2. The second principle

Reuse means reusing materials or materials in order not to be waste (without going through the processing), such as using paper back and forth, reusing bottles for water, etc. Thus reuse will extend the life of the goods through the care and reuse of the goods directly..

3. The third principle

Recycle which means recycle a useless material into another material or new item after going through the processing. Some rubbish can be recycled directly by the community by using simple technology and tools, such as treating the remnants of patchwork into quilts, duster, doormat, etc., or kitchen waste in the form of food scraps to be used as compost.

2.1.2 Handling garbage

Based on Undang-Undang No. 18 of 2008 on Waste Management [5], waste handling activities include:

- Separation in the form of grouping and segregation of waste in accordance with the type, quantity, and / or trash nature;
- Collection in the form of taking and removing waste from waste sources to temporary shelters (TPS) or integrated waste treatment plant (TPST);
- Transportation in the form of carrying waste from the source and / or from temporary waste collection or from the integrated waste processing site to the final processing site;
- Processing in the form of changing the characteristics, composition, and amount of waste; and / or
- The final processing of waste in the form of return of waste and / or residue of previous processing to the environment media safely.

III. RESULT

In this research, the approach used is using Rationalistic approach, that is by looking at field conditions (eksisting) and see the literature from several sources. The rationalistic-qualitative method is a method with the researcher acting as the main instrument, the research is done by in-depth interview process and detailed cross and repeated to be able to know the development of area, environment and possible changes. (Moehadjir 1996) [6]

The type of research used in this study using qualitative. Qualitative method is a research procedure that produces descriptive data in the form of written words and

oral from the people and behavior observed (Moleong, 2007) [7]

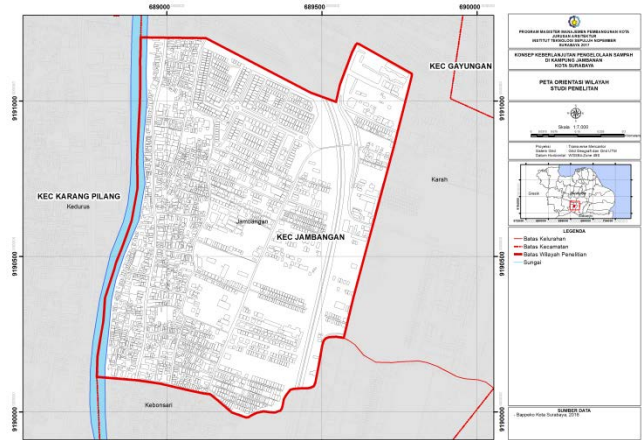


Figure 1.2 Map of Research Study Area in Kelurahan Jambangan
Source: ArcGis, 2018

Jambangan Subdistrict is divided into 4 sub-districts, namely; Pagesangan urban village, Kebonsari urban village, Kelurahan Jambangan, and Kelurahan Karah. The study area of the researcher is located in Jambangan Village which is included in one of the sub-districts in Jambangan Sub-district, Surabaya, South Surabaya, has a height of 7 meters above sea level. Area of Jambangan Village 7.8 Ha. Here are the administrative boundaries of Kelurahan Jambangan, namely:

- North : Kelurahan Karah
- East : Kelurahan Ketintang
- South : Kelurahan Kebonsari
- West : Kecamatan Karang Pilang



Figure 1.3 Environment around the house of residents in Jambangan Village
Source: Personal Document, 2018

Figure 1.3 is a neighborhood disekitr house in the Village Jambangan, there are plants and private gardens planted by residents of Jambangan Village for reforestation around the residential neighborhood. Its function is as green open spaces and aesthetics that can be used as a medicinal plant. Then, there are also various types of bins that have been distinguished according to each type that is placed in front of residents around the house. The types are blue barrels, organic waste; red barrels are residual waste (food waste), yellow barrels are recycled waste, green barrels are residual waste; and the black barrel is B3 waste (Hazardous Toxic Material).

In analyzing the characteristics affecting waste management in Jambangan used Content Analysis analysis techniques. Content Analysis Technique in this research is conducted based on the activities and related roles in influencing the optimization of waste management in Jambangan. To know each opinion from each public figure then conducted interview to respondent related by using Snowballing Sampling.

The process of this analysis is:

1. Unitizing or publishing steps. Leveraging is an attempt to retrieve proper data with research interests that include text, images, and other data that can be further observed.

2. Stages Sampling or simplifying the research by limiting the observations that summarize all types of existing units.

3. Stages of coding or encoding where bridging between text that has been diunitkan with researchers, between the different images and what people see in it, or between a separate observation and the situation of stakeholders' understanding.

4. Reducing Stages and simplification of data. In this stage the coding procedure used is semantical content analysis that is classify the signs based on the meaning they have.

5. Inferring stages or understanding of each unit of analysis, to see the tendency of influence, whether influential or otherwise. So it can bridge in the characterization of unit characteristics, so it can be concluded the consensus.

6. Narrating stages of abstraction from the analysis. At this stage will generate answers from research questions, understanding the data against each analysis, to see the tendency of its influence.

Table 1.1 Variable Coding in Interview Transcript Performance that affects the Optimization of Waste Management in the Jambangan

No.	Indikator	Variabel	Kelompok Responden					
			(R-6) Ibu Yustinah (Kader Lingkungan RW 3)	(R-7) Pak Lurah Jambangan (Lurah Jambangan)	(R-8) Bu Yulia (Ketua Bank Sampah 7)	(R-9) Bu Retno (Tumas BSES (Bank Sampah Induk Surabaya))	(R-10) Pak Aris (CSR PLN Kota Surabaya)	
1.	Pemisahan Sampah	Pemilahan Sampah	(T6-2)	(T7-1)	(T8-1)			
		Pewadahan Sampah						
		Pengumpulan Sampah						
2.	Kinerja Bank Sampah	Pengangkutan Sampah		(T7-5)	(T8-43); (T8-44); (T8-45); (T8-46); (T8-48)			
		Pelaksanaan Bank Sampah	(T6-1)		(T8-16)	(T9-12); (T9-20)	(T10-17)	
		Cara Kerja Bank Sampah	(T6-1)	(T7-1); (T7-11)	(T8-1); (T8-4); (T8-5); (T8-17); (T8-18); (T8-22); (T8-24)	(T9-1); (T9-2); (T9-3); (T9-4); (T9-5); (T9-6); (T9-7); (T9-8); (T9-9); (T9-10); (T9-11); (T9-18)	(T10-8); (T10-9)	
3.	Kinerja Composting	Potensi Ekonomi	(T6-5)	(T7-7); (T7-14)	(T8-3); (T8-19); (T8-20); (T8-21)	(T9-21); (T9-22); (T9-30)	(T10-7); (T10-8); (T10-9)	
		Komitmen atau kerjasama antar bank sampah						
4.	Kinerja Daur Ulang	Mekanisme proses pengomposan di TPS1	(T6-6)	(T7-12)	(T8-1); (T8-2); (T8-8); (T8-35); (T8-36); (T8-37); (T8-38); (T8-39); (T8-40); (T8-41); (T8-42)			
		Bentuk pengelolaan sampah pada skala rumah tangga						
5.	Keterlibatan Masyarakat	Metode daur ulang		(T7-3)	(T8-57)			
		Efektivitas daur ulang Sampah				(T8-55); (T8-56); (T8-57)		
6.	Peran Manajemen Organisasi dalam Pengelolaan Sampah	Potensi Ekonomi	(T6-7)	(T7-7); (T7-14)	(T8-3); (T8-19); (T8-20); (T8-21)	(T9-21); (T9-22); (T9-30)	(T10-7); (T10-8); (T10-9)	
		Partisipasi secara langsung	(T6-8)	(T7-9); (T7-10); (T7-19); (T7-25)	(T8-11); (T8-12); (T8-14); (T8-15); (T8-16); (T8-18); (T8-21); (T8-22); (T8-23); (T8-24); (T8-25); (T8-26); (T8-27); (T8-28); (T8-29); (T8-30); (T8-31); (T8-32); (T8-33)	(T9-23); (T9-24); (T9-33); (T9-34)	(T10-14); (T10-15)	
6.	Peran Serta Pemerintah	Peran Serta Pemerintah	(T6-8)	(T7-9); (T7-10); (T7-20)	(T8-34); (T8-36)	(T9-23); (T9-24); (T9-33); (T9-34)	(T10-14); (T10-15)	
		Peran Serta Swasta	(T6-9)	(T7-16); (T7-17); (T7-18); (T7-20); (T7-21); (T7-22); (T7-23); (T7-24)	(T8-25); (T8-26); (T8-27); (T8-28); (T8-29); (T8-30); (T8-31); (T8-32); (T8-33)	(T9-13); (T9-14); (T9-15); (T9-16); (T9-17); (T9-18); (T9-19); (T9-20); (T9-21); (T9-22); (T9-23); (T9-24); (T9-25); (T9-26); (T9-27); (T9-28)	(T10-1); (T10-3); (T10-4); (T10-5); (T10-16); (T10-18); (T10-19)	

Source: Analysis Result, 2018

No.	Penjelasan	Hasil Wawancara
1.	(Bu Nisa Teknis Pemanfaatan Sampah)	Pemisahan Sampah Pemilahan Sampah
	(T1-7)	"keban agung 3 dari RT 7 RW 3 dari RT 03 RW 3"
	(T1-9)	"intinya kayak kita-tika makanan yang organik kita."
	(Bapak & Ibu Komaji Pengurus Bank Sampah Bintang RW 5 / Ketua RT 5)	
	(T3-44)	"ya tetap kita pilah, tapi paling ya di tas bresek kita bedakan, tapi 2 tempat sih, yang punya komposter bisa dimasukkan tapi yang nda punya kan terpaksa mesti di bresek sendiri tapi kan masih tetap dicampur gitu... satu wadah."
	(T3-45)	"makanya kalau bisa tempurnya seperti kerang gitu, tapi jauh lebih mahal lagi kalau seperti itu harganya lebih mahal, yang kita unta-kan bresek aja nda akan mau apalagi kalau diluar seperti kerang gitu, ya kendalanya sih seperti itu jadi kalau sudah dipilah kan di PDU nda mau susah jadi lebih gampang itu aja sih."
	(Pak Adi Motivator Masyarakat)	
	(T4-1)	"sementara ini yang mereka pilah itu sampah kering terlebih dahulu, nah tetangga-tetangga di sebelahnya akhirnya berantara-tanpa ada apa itu kumpul-kumpul kemulian yang sampah kering itu hasil pemilahan mereka seminggu sekali dua minggu sekali itu mereka jual ke pelapak mereka, jual ke pengepul ya usung-pengusung masuk ke mereka sendiri"
	(T4-14)	"samping beneran itu memang RT 7 sama RT 5, itu dari semen-temen PDU kan menyediakan ember, jadi kalau setiap hari Senin Rabu Jumat kalo ngga salahnya, mereka sudah ngapak barang-barangnya organik di ember itu, supaya nanti petugas PDU ngambil untuk diproses menjadi kompos, ini masih pilot project gitu, tapi kalau secara general mereka sudah melakukan pemilahan, buktinya apa mereka melakukan pemilahan? Mereka masing-masing di setiap rumah sudah punya simpunan sampah kering yang sampah basah-basahnya kalau mereka sudah punya komposter mereka akan masukkan ke komposter kalau belum punya mereka akan buang ke tukang geobak ya mungkin akan dicampur ya sama sampah-sampah RT lain tapi tetap nanti larinya ke PDU kalo di Jambangan, nah di PDU sama petugas kita akan dipilah lagi."
	(T4-21)	"Kita menghambat bagaimana sampah organik ini tidak langsung terjualnya ke TPS dan ke TPA, itu harus kita hambat, cara menghambatnya bagaimana? Ya kita reduksi di skala rumah tangga di tempat sumber asal muasal sampah rumah tangga itu berasal darimana? Dari rumah tangganya berarti awalnya RT 18 tahun 2008 dan PP 81 itu kan juga sudah menjelaskan bahwa masyarakat juga diminta untuk lebih aktif dalam upaya pengurangan sampah rumah tangga dengan cara memilah dan mengolah sampah."
(Ibu Yustinah Kader Lingkungan RW 3)		
(T6-2)	"di Jambangan kesadaran mereka itu sudah luar biasa, dari dapur itu sudah dipilah, seperti itu, kecuali yang di depan itu yang sudah benar-benar ngga dipakai."	
(Pak Lurah Jambangan)		
(T7-1)	"aturannya kita semua sepakat harus memilah sampah dari sumber sampah itu sendiri, sumber sampah itu mana? Rumah tangga, makanya tidak memilah, itu bukan ada sanksi, itu sanksi-sanksi sosial, karena kita sudah sepakat Jambangan ini Kampung Lingkungan, seperti itu ya, cuma yang bahan bucatnya kayak BS itu jadi kayak lampu neon."	

Source: Analysis Result, 2018

The results of the Content Analysis process found that activities that affect the optimization of waste management in Kelurahan Jambangan based on the results of stakeholder interviews are as follows:

A. Bank Garbage Activities

• Implementation of Garbage Bank

The way stakeholders invite the community is to socialize to the community through PKK in each RW. After that formed the board, then there are parts treasurer, weighing, sorting, recording. So far, the community's response is quite good in depositing its waste into Waste Bank. Bank Trashes deposited by the residents to the Bank Garbage parent and there is also directly to the collectors.

B. Composting Activities

• Mechanism of the composting process

Compost process so far, good .. according to DKRTH not match it between its input-output, because every day nerima raw materials, because compost scientifically 3-4 months new so, but the demand in society is very high sometimes not nyampe perfect already distributed because it is constrained by the demand of the community, people ask for free and it is not in charge of any fees, and many people we have to serve, because the demand is high, such as agencies that have a large area has 4 drums to 5 drum trucks direct, even though the compost of raw goods so it lives 25% shrink, we have the goods enter raw goods, will be only a quarter of its course, so the compost will shrink 75% loss, so if it adjusts the importance level, if the urgent yes prioritized first and if the others can still wait, because that's what we were when the material entered how much drum trucks enter but it s bit.

C. Recycling Activities

• Economic Potential

From an economic point of view if recycling in PDU Jambangan megurangi entering the landfill, processed itself automatically dimensiana darisana if in terms of the seller is not there because it is free to serve the community. The advantage of it is not paid to the landfill. If in terms of recycling house required assistance facilities such as workshops that have training places and parking to accommodate many guests.

IV. CONCLUSION

Characteristics of each activity that need to be improved is the need for the addition of garbage and composting facilities (green barrels for organic waste, compost baskets or Takakura baskets per Dasa Wisma) in the respective houses in the house or in front of the house. Then, for the Trash Bank the need to conduct a healthy cooperation by equating prices that are not proportional to the price they offer to the public and the bookkeeping routine to be well recorded. For the Recycling site, a workshop is needed to enable the public to learn about recycling techniques and be able to capture wider partners in the future. For community participation is to invite and provide training to the RW that has not been active and forming environmental cadres as the driving force of its citizens, and establish good relationships with private parties that become CSR. The role of the Government as a community facilitator contributes to providing assistance such as waste facilities that are still lacking and needed by the community.

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