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COMMUNITY BASED DOMESTIC WASTE PRODUCT MANAGEMENT IN SORAGAN NGESTIHARJO KASIHAN BANTUL YOGYAKARTA

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ABSTRACT

The problem of domestic waste in Soragan has not completely been solved by Bantul municipal government. The government has realized this problem, however, it has not found an appropriate long term solution.

The objectives of the research on community-based waste management are (1) to describe a community-based domestic waste management in Soragan Bantul municipality, (2) to identify the problems in the community-based domestic waste management, and (3) to recommend the solutions for improving the community-based domestic waste management. The research was conducted in Soragan in which a pilot project of the community-based domestic waste management has been initiated. The descriptive qualitative research was employed in this research. Data were collected with interview, questionnaire, observation, and documentation. The collected data were validated and analyzed qualitatively.

The findings of the research are as follows :. Firstly, the pilot project of the community-based domestic waste management in Soragan, Bantul municipality has successfully been carried out by using 3R (reduce, reuse, recycle) principle and has reduced the amount of waste in Temporary Waste Dumping (TPS) up to 73%. Secondly, the community-based domestic waste management using 3R principle is a paradigmatic solution. Thirdly, the main problem of carrying out the community-based domestic waste management is how to change old paradigm of "throwing out the waste" to "managing the waste". The other identified problems are : (1) the municipal government has not appreciated the people who have been sorting domestic waste; (2) there is no mechanism and person to supervises and evaluates the management; (3) the management has not been provided with supporting facilities and infrastructures; (4) sorting domestic waste has not really been completed; (5) people do not form new cadres who have capability and integrity to manage waste.

There are six recommendations to manage domestic waste. Firstly, the government, RT boards, and managers plan to facilitate people measurably how to sort domestic waste properly. Secondly, the government organizes and gives incentive and disincentive to encourage people. Thirdly, the government, RT boards, and managers make a mechanism and appoint persons to supervise and evaluate the management. Fourthly, the government provides facilities and infrastructures to support the management. Fifthly, managers and RT boards find strategies to form new cadres who have capability and integrity to manage waste. Sixthly, the community-based domestic waste management is a suitable model developed in urban areas.

Keywords : Community-Based Management, Problems of Domestic Waste Management.

Chapter I Introduction

The rapid dynamics of urban environments from time to time has made a healthy and peace living condition for people in the future is very necessary to have a clean environment and healthy neighborhoods. One aspect of the physical environment that creates settlement problem is household waste (Hartoyo, 1998). Therefore, household waste should be managed in order not to disturb and destroy neighborhoods, making it healthy and clean (Karjadi Mintaroem, 1991).

According Iswanto et al (2010), the environmental issues has been associated with three aspects: abiotic, biotic and cultural. These three environmental aspects has always been a major problem issue in almost all urban areas and its transition (rural to urban).

Increased amount of waste without balanced environment-friendly management will lead to disruption of biotic, abiotic destruction and environmental pollution (water, soil, and air) (Tuti Kustiah, 2005). Furthermore, uncomprehensive waste management will also trigger social problems, such as mass rioting, clashes between citizens, landfill blocking (TPA), and the emergence of wild Disposal (TPS) in some places and disturbing social life (Widyatmoko et al, 2002).

The purpose of this study is: to know household waste management system based on existing communities in Soragan hamlet, village Ngestiharjo, Kasihan, Bantul; the management problem and recommendation to improve the management of community-based household waste in Soragan Village Ngestiharjo, Kasihan, Bantul.

Recently, the pilot project of alternative waste management led by the Government has involve the Soragan community. Administratively, the region is a part of Ngestiharjo Village area, Sub Kasihan. This dense area is located on the border of City of Yogyakarta and Sleman regency, precisely 2 km west of Tugu.

Chapter II Literature Review

The growth of garbage in Indonesian cities has increased significantly. For example, in the city of Bandung. in 2009 the municipal volume of garbage was 8400 m3 per day, and by 2010 had reached 8900 m3 per day. In addition, in Jakarta,

in 2009 the volume of waste generated as much 26.880 m3/day, and by 2010 had reached 27,459 m3/day. (Http://walhi.or.id: 2011).

Government's ability to manage waste only reached 40.09% in urban areas and 1.02% in rural areas (Tuti Kustiah: 2005), therefore, we need a proper policy to manage residential garbage in dense and urban areas without causing environmental problems in the future.

Currently, the waste ending up in landfill will bring heavy burden for the place, besides its necessity for wider area, the environmental protection facilities are very expensive. Increased number of waste disposed to landfill is due to lack of strategy to reduce waste volume from the source (Tuti Kustiah: 2005).

Government through the Department of Hygiene, Environment Agency, and other related agencies aimed to organize and manage waste in every area including Bantul that still using open dumping, to dispose garbage in the open field (the Environment Agency / BLH Bantul, 2009). The consequences of such systems require large land and cause bad odor due to deposit waste water due to the reaction of waste. Conflict often occurs vertically as in Bojong (Bogor) and Bantargebang (Bekasi) due to people's rejection around to accommodate the waste. Therefore, open dumping system is no longer appropriate to the needs of today's condition (Siti Arieta, 2008).

The problems of urban waste in almost all major cities in Indonesia are increasing with the population. Similarly, it is also experienced in Soragan, Ngestiharjo, Pity, including one Bantul dense residential areas in Bantul. Based on BPS data, it is known that the population Soragan in 2010 as 2134 people and 559 households (BPS Bantul, 2010). Increased population will lead to increased production amount of household waste generated (LP3B-Clean Up Bali Buleleng, 2003).

According Syafrudin (2004), he said that in addressing the waste problem necessitate a shift in approach from the end-of-pipe solution (downstream) to upstream. Furthermore, for the source level management approach, the waste should be treated / managed at the upstream level before it gets to downstream (Syafrudin, 2004). In principle, this approach requires source reduction of waste

products to be delivered to the final processing (TPA). The method to reduce the waste dumped in TPS i.e., waste sorting and application of the principle of 3R (Reduce, Reuse, Recycle) (Syafrudin, 2004).

Urban settlements are the biggest waste producers, approximately 60-70% of the total waste generation (Tuti Kustiah, 2005). Similarly in Soragan, Ngestiharjo, Kasihan, Bantul, the dominant source of waste derived from household waste (residential), ie nearly 65% of the total amount of waste generated (BLH Bantul, 2009).

Law of the Republic of Indonesia Number. 18 of 2008 on Waste Management mandates that public has responsibility on their waste. Much previous research on environmental science suggests that people as a source of pollutants generation, should participate in the waste management system (Syafrudin, 2004).

Strategic efforts undertaken by the Government in addressing the waste problem in Bantul is to encourage public participation in waste management by reducing waste at source (household). In order to implement this policy, the Bantul Government established an alternative pilot project in form of community-based communal waste management. The goal is to make people directly involved in independent communal waste management to get input how household waste to be managed independently by the society at the source, thereby reducing the amount of waste that must be managed at the Piyungan landfill (DLH Bantul, 2009).

Chapter III Research Methodology

3.1 Research Sites

The research site lies in Soragan village, Bantul, an of 2 km west of Tugu, consisting of 7 Neighborhood (RT). The Establishing and determining the location for the study was based on the consideration that: Soragan and its people to be pilot project alternative models of community-based waste management in Bantul as modeled by BLH Bantul, and its presence in waste management activities began in 1996 and since 2007 has conducted community-based waste management.

3.2 Source Data Research

In this study, the data source has three sources, (1) Personal, (2) Place, and (3) Paper (Sanapiah F, 1995) Personal data source, that is, those who have the competence to provide information relevant to the theme of the study. As a Personal information, the Soragan community supported by information from several components from the RT, business waste, Village Officers, District Officers, and Officers of the Environment Agency. The data is collected through interviews by using interview guide. The data collected through observation, e.g., field observation, taking pictures, and phenomenon recording under investigation. While the Paper data sources collected from reports, records, files, or other written materials that are relevant to the theme and reference.

3.3 Data Analysis Techniques

This study used a qualitative descriptive analysis, the analytical method using observer perspective . In this analysis method the results presented or described to answer the problem formulation. Data analysis will be complemented with other data to obtain comprehensive results (Moleong, 2002).

Chapter IV Results and Discussion

4.1 Household Waste Management System In Soragan

Household waste management system in Soragan from 1993 to 2006 used a system of gathering, transport and dispose from polling station and then to the landfill, but since 2007, it has been using a system of waste management with the principles of community-based sorting 3R (Reuse, Reduce and Recycling). As a follow-up of community-based management systems is then carried out some strategic steps that affect the management of system include:

a. Institutional (Public Organization)

Institutional Soragan contained in household waste management is a group of community-based activities (Pokgiat) DPKL (Pilot Village Environmental Cleanliness), Working Group (WG) Net Soragan consisting

of community leaders, governing RT and a cadre of public health and environment from Soragan community. Assurance household waste management community based Soragan orderly, regular and scalable and sustainable is the Soragan themselves through WG Soragan Net. Routinely clean Soragan Working Group meets once each month on the 12th to perform program planning, socialization programs, monitoring and evaluation, as well as making regulations related to the management of such waste.

b. Operation method

Based on the area of waste management services to community-based household in Soragan has reached ± 37.5 ha, the service is divided into 7 (seven) sector distributed on the area of RT 01 to RT 07.

In 2011 the number of generation / production waste in Soragan reach 3 to 3.5 m3/day. the waste is managed by the system of together - transport - waste to landfill, while the system of community-based management is disposing to landfill only a 1.5 to 2 m3/day therefore, it can be pressed waste disposed to landfill stay 27% or 73 % from total volume of waste organic and inorganic, and then managed to be useful by the residents Soragan.

Operational techniques in waste management services that built on Soragan includes several stages: container and collection, sorting, Transportation, final disposal. the operational process is not independent of the financing factor, but funds derived from household waste levy . Table 1 shows the operational capacity to implement the program, from the revenues of levy compared to the cost of operations.

From Table 1 it clearly shows the community participation in providing funds to support the operating costs of community-based waste management program can be satisfied, even they prepare allocation of funds to develop the further program.

The levies and charges were regulated and established by the Soragan Working Group DPKL Net with community leaders and heads of RT to entire Soragan as published in the Joint Agreement No..

34/DPKL/2009 on Fees Garbage in Soragan. Changes to levies also made based on consultation and consensus after consideration of various aspects.

Table 1 Operational Cost compared with income from waste management levy in Soragan Year 1997 to 2011

Year	Number of Customers (KK)	Income of retribution Trash (Rp)	Operating Costs (Rp)	Difference Revenue and Expenses (3 – 4)	Balance
1	2	3	4	5	6
1996	237	10.680.000	10.224.000	456.000	456.000
1997 - 1999	284	12.348.000	10.872.000	1.476.000	1.932000
2000 - 2003	302	13.440.000	12.552.000	888.000	2.820.000
2004 - 2007	315	15.000.000	13.040.000	1.960.000	4.780.000
2008 - 2011	337	19.500.000	15.580.000	3.920.000	8.700.000

Sources: DPKL and Documentation Working Group net Soragan, 2012

c. Regulation

Waste management system in Soragan in Joint Agreement (SKB) No. 33/DPKL/V/2009 on the management of waste in the Region III Soragan between Pokgiat DPKL through with Workgroup Pokja Soragan Bersih with heads of RT and community leaders . SKB also refer to the applicable national legislation such as Law. 18 of 2008 on Waste Management.

d. Financing

Waste management system in Soragan financed from collection of community funds by SKB No. retribution. 34/DPKL/2009 on Fees Garbage in Soragan.

e. Community Participation

The community Participation in building the waste management system is very supportive, as proved by program implementation that is still

running, as factually the Soragan community has 559 heads of household (HH) and 337 families that subscribed to waste levy and it means about 60% have supported this program. In addition with the 473 families (85%) had been involved in the program by sorting waste at household level which is one of the activities. It proves that this program gets full support to tackle waste in Soragan society.

Waste management program is to be delivered well in the community through the planning, dissemination, implementation, management, monitoring and evaluation as well as on an ongoing basis. The planning stages by Pokja Soragan Bersih is conducted through socialization and meetings on dasawisma, RT, Pengajian, LPMD, PKK and others. Implementation phase program begins with the sorting organic, and inorganic waste from the source . Organic waste is processed into compost both individual and communal scale, while inorganic waste is sold through craft stalls or economic value while the remainder / residue from waste sorting to be directly discharged into TPS that accommodated in containers.

Table 2 Classification of Waste Composition in Soragan

No.	Waste Type	Description
1.	Organic	garbage, fruit peels, leftover vegetables, leaves, twigs, etc.
2.	Plastic	bottle, plastic bag, plastic wrap, used buckets, etc.
3.	paper	scraps, newspaper, wrapping paper, used books, etc.
4.	Glass and metal	cutlery, pot scrap, broken glass, etc.
5.	Mix	secondhand clothes, used shoes, carcasses, soiled paper and plastic, tree trunks, used bandages, etc..

Source: Research Data (Observations), 2012

While, the composition of household waste in Soragan listed in Table 3.

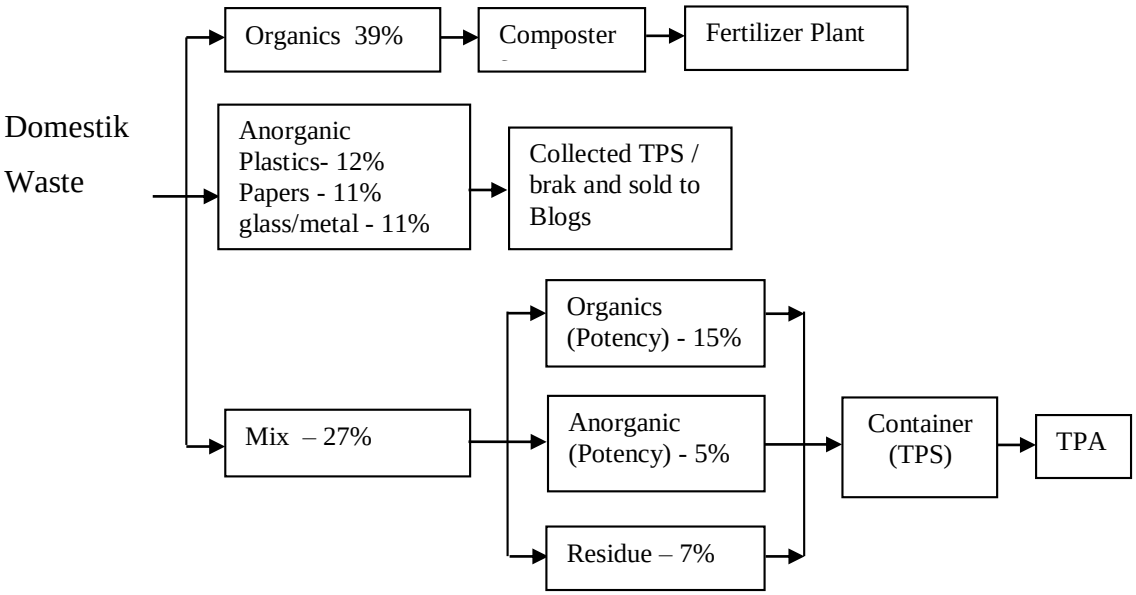
Table 3 Average Household Waste in Soragan

No.	Waste Type	Average Number of Garbage per day (m3)	Composition (%)
1.	Organic	1,41	48
2.	Inorganic	0,82	28
3.	Mix	0,73	24
Total		2,96	100

Source: Report "Soragan Bersih" in 2007 – 2012

From Table 3 it can be seen the average waste generation in Soragan is 2.96 m3 per day, with the composition of each 1.41 m3 (48%) is organic waste, 0.82 m3 (28%) is inorganic waste and the remaining 0.73 m3 (24%) are mixed rubbish. The composition shows that household waste is the greatest number organic waste.
After the community-based waste management is implemented, it is proved to be usefulness, as shown in the diagram of household waste composition in Soragan . From the diagram it shown from households waste (100%), about 39% has been utilized as organic compost, 12% plastic, 11% paper, and 11% metal and glass housed in a shed next Inorganic sold, while 27% mixed garbage dumped in containers.

From 27% waste mixed it evidently contains 15% organic potential, 5%, inorganic while actually residue (unused) only 9%. the diagram shows clearly that the process of waste segregation can substantially reduce households waste dumped in landfills.



Source: Research Data (Observations), 2010

Figure 1 Diagram of Household Waste Composition and Utilization in Soragan

Viewing the aspect of economic value, the household waste in Table 4 show that the waste has been disaggregated by type of economic value each. This is a new business opportunity and benefit to the community as well as themselves if able to manage it well.

Based on Table 4, it obtained from the potential economic value of waste generated by Soragan community is Rp 160,000, -/day. Such Potential has a tract Soragan community to implement and continue this ongoing program management.

Table 4 Economic Potential Value (Rp) Waste Component in Soragan

No.	Composition	Percentage (%)	Volume (kg / day)	Price Rp/kg	Potential Value Economics (Rp)
1.	Organic Waste	39	137	100	13.700
	Inorganic Waste				
2.	Plastic	12	42	1.500	63.000
3.	Paper	11	39	1.000	39.000
4.	Glass Metal	4	14	300	4.200

		7	25	600	15.000
5.	Mix	27	95		
	a. Organic	15	53	100	5.300
	b. Inorganic	5	18	1.100	19.800
	c. Residue	7	25		
Overall Total		100	352		160.000

Source: Research Data (Observations), 2012

Chapter V Conclusions, Suggestions and Reference

5.1 Conclusion

From these results, it concluded as follows :

1. Household waste community-based management in Soragan have managed well with the principles of 3R (Reduce, Reuse, Recycle) through the process of sorting of waste, that can reduce the volume of disposed waste by 73%.
2. Management systems with 3 R principle become a solution to manage the waste, from the paradigm of "garbage" to "waste management" to reduce the disposal of waste.
3. The main problem of the application of management is how to change the paradigm of throwing garbage into a trash to waste management. The role of heads of RT is huge in helping to realize the implementation of the program and facilitate communication between local government and the community.

5.2 Suggestions

This research suggested that :

1. All elements of Soragan community should be more involved in the waste management
2. government with a The heads of RT and community leaders should sustainably educate in planned and measurable manner for the management
3. Preparing cadres and making strategic moves in the management.

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