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Society Behavior towards Household Waste Management in Tulungagung

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Abstract The purpose of this study is to assess the behavior of society towards the household waste management in Tulungagung, thus it can be used as basic consideration for improving the efforts of Tulungagung Government to solve the problem of waste management in a more effective, efficient and environmental-friendly policy. This study used a descriptive quantitative analysis. The results showed that the behavior of society towards household waste management in Tulungagung indicates a good category, where most components that affect the behavior of society are the rule/law regarding the management of household waste. Knowledge and attitudes of society in the household waste management is at a moderate level, while the actions of society are at a high level.

Keywords Behavior, Knowledge, Attitude, Action, Waste Management, Waste Household, Quantitative Descriptive

1. Introduction

Waste is a serious environmental problem throughout the world and closely related to daily life of human, as the party that generates the waste. Then it could be considered that waste problem laid on society's behavior. To achieve the healthy and prosperous society in the future, we will need to sustain a healthy living environment. The condition of healthy living environment would be achieved if the waste is managed well (Regulation of Public Works Ministry No. 21/PRT/M/2006).

Rapid growth of urban population increased the amount of generated waste. Increased waste was not followed by appropriate refinement and enhancement of waste management facilities and infrastructure. It leads to a more complex problem of waste, such as incomplete transported trash and illegal dumping site occurrence, which cause various diseases, dirt, bad odors, reducing the capacity of the river etc. Hadi [1] explained that people with the *rubbish syndrome* is being resistant to the current waste disposal facility. The controlled landfill as the waste disposal system is maintained by the Department of Sanitation, whereas in practice, it implemented the conventional waste management system of open dumping. Impacts to the area that used as the open dumping are inconvenience due to dust, noise, vibration, and scattered litter from passes garbage truck. This can lead to a declining on property values, where the land and homes around the landfill is not salable or profitable because most people are reluctant to live near the landfill.

Waste problem is also experienced by Tulungagung Government as the award winning of Clean City from 2006 to 2011. In fact as 2012 and 2013, the city was awarded the *Adipura* (urban sanitation award) for medium city category. However, the local government is facing the waste problems with the increasing of waste in various places which is caused by the behavior of society who still manage the waste inappropriately, such as burned, littering etc. (Tulungagung Government, 2013). Department of Public Works, and Department of Human Settlements and Housing Services of Tulungagung in 2013 stated that the volume of waste as an indicator of environmental quality in Tulungagung along 2010-2012 was 144.190,82 m^3 per year, with an average increase amounted to 17.29% per year or equal to 4.777,85 m^3 per year. However, the volume of waste that can be processed is only about 22.74% which includes 2.97% composting, 14.83% recycling and 4.94% sorting for reusable waste. The data showed that the waste management is still not optimum, and if it continuously happened, it will lead to environmental damage in Tulungagung.

Trash is a solid material or objects which are not usable anymore for humans or no longer used in a human activity and then discarded [2, 3]. Many people think that all waste is dirty, disgusting and useless and should be thrown away or burned. The government started to find difficulties in finding landfills for waste because many people are not willing to

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use their environment as a garbage dumping site. This is understandable because accumulated garbage is disturbing the comfort and health, especially due to the smell and flies [4]. Nevertheless, waste management is defined as a control of landfill waste, containers, collection, removal, transportation, dumping, and waste disposal process which related to the health, economics, engineering, conservation, aesthetics, environment and attitudes. Waste management system is essentially seen as subsystem components that support and interacted each other to achieve the goal of a clean, health and in order city [5-8].

Waste problem should absolutely be jointly handled between the government, non-governmental organizations and the community itself. Therefore, it needs awareness and commitment to change the attitudes, behaviors and ethics towards environment. The behavior includes all activities that can be directly observed, as a response or reaction to outside stimuli or stimulus. The behavior is accordance to the Theory of Skinner which is called as SOR theory: Stimulus, Organism, and Response [9-14]. Baum [14], an educational psychologist, divided human behavior into three groups, i.e. cognitive, affective and psychomotor. The cognitive component consists of all cognition of a person on a particular object such as knowledge and beliefs about the object. Affective component consists of assessment and psychomotor component which consists of a person's readiness to react or inclined to act against the object [15, 16, 17].

Based on the above description, it is necessary to discuss household waste management issues. This is due to the production of daily household waste increases along with the increasing number of products and patterns of consumption. It is necessary to reduce the volume of the waste through community empowerment and improve people's behavior to manage the household waste. The purpose of this study is to assess the behavior of society on household waste management in Tulungagung. This study were expected to be considered as basis for decision making of Tulungagung Government in more effective, efficient and environmental friendly waste management.

2. Research Method

This study used a quantitative approach with data collection method of field observation and questionnaires. The method of analysis is quantitative descriptive analysis.

2.1. Study Site

This study conducted in three villages, Ketanon, Tamanan and Beji (Figure 1). All three study sites are a densely populated area and have the characteristics to be achieved in this study, which represents the area of the city.

2.2. Data Collection

Data collection is conducted using a questionnaire for respondents who are housewives at the study site. According to Solimun [18], the amount of sample equals to 5 to 10 times the number of manifest variables (indicators) of the overall latent variables. This study uses 18 indicators so that the sample size is 5 x 18 = 90 respondents. Because the study is conducted at three sites, so this study is using 270 respondents (housewives in the city of Tulungagung) as research subjects.

2.3. Data Analysis

This study used a quantitative descriptive approach to assess and describe the characteristics of each assessed variables. The numerical data used the value of mean (average), median, standard deviation, etc. Otherwise, categorical data explain the number or value and percentage of each group.

The answer instruments are scored, graded on a Likert scale from very positive to very negative scoring. The Likert Scale indicates: strongly agree is scored 5, agree is scored 4, fair is scored 3, disagree is scored 2, and strongly disagree is scored 1 [19]. The frequency distribution of scores obtained from the tabulation of respondents' answers. Riduan and Kuncoro [20] classify the interpretation of scores into five criterias (Table 1).

Table 1. The Score of Interpretation Criteria

No.	Average of score value	Criteria
1	1.00-1.80	very low
2	1.81-2.60	Low
3	2.61-3.40	Medium
4	3.41-4.20	High
5	4.21-5.00	very high

3. Result and Discussion

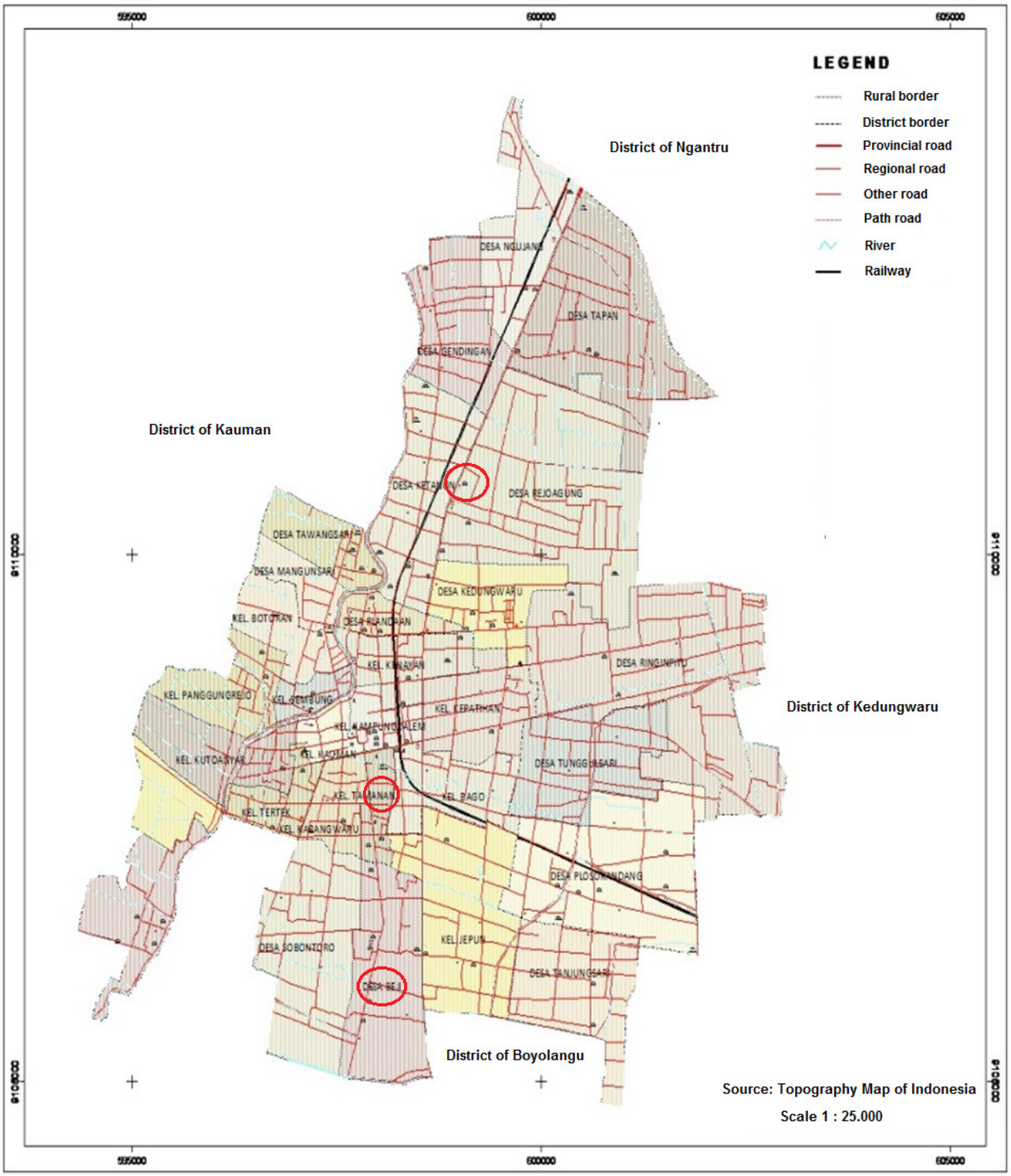
3.1. Knowledge (K)

Knowledge (K) variable consists of six indicators which are knowing (K), understanding (K2), application (K3), analysis (K4), synthesis (K5), and evaluation (K6). The results of the analysis on the description of knowledge variable (K) are summarized in Table 2.

The average value of knowledge variable is 3.12 (medium category). This indicates that the respondents' knowledge about the household waste management is at a medium level. Knowledge is the result of *knowing* and it occurs after sensing a particular object. Sensing occurs in a person through their human senses, i.e. sight, smell, taste and touch. Most human knowledge acquired through the eyes and ears. Before a person adopts a new behavior, the person must know the importance or benefit of attitude for themselves or their family [12, 15, 21].

The knowledge of society towards household waste management in Tulungagung is at a moderate level, meaning that knowledge has a positive effect on the behavior of a person in the household waste management although the effect is not significant. This is consistent with Tobin and

Roth [22] that explained knowledge of the person's behavior influence their attitude; the higher level of public knowledge enable them to absorb and understand the messages conveyed by others and government. Assessment on the level of knowledge is based on the understanding of the housewife in the waste dumping site, litter sources, waste characteristics, the factors that affect the amount of produced waste, waste management phase, and use of waste. Generally, the assessment showed good knowledge of housewife on waste management. However, the observation showed that not all respondents have a good level of knowledge would be followed by good attitude and behavior in waste management. Knowledge or cognitive is a domain that is very important to build one's behavior.



(Regional Development Planning Agency of Tulungagung, 2012)

Figure 1. Study Site; **O**: sampling villages

Table 2. Respondent Answer in Variable of Knowledge (K)

Indicator	Distribution of Respondents answer										Mean
	Strongly disagree		Disagree		Fair		Agree		Strongly agree		
	F	%	F	%	F	%	F	%	F	%	
K1	0	0.00	2	0.74	155	57.41	113	41.85	0	0.00	3.41
K2	0	0.00	100	37.04	63	23.33	107	39.63	0	0.00	3.03
K3	0	0.00	19	7.04	146	54.07	105	38.89	0	0.00	3.32
K4	11	4.07	138	51.11	31	11.48	90	33.33	0	0.00	2.74
K5	0	0.00	170	62.96	100	37.04	0	0.00	0	0.00	2.37
K6	0	0.00	9	3.33	23	8.52	238	88.15	0	0.00	3.85
average											3.12

Table 3. Respondent Answer in Variable of Attitude (A)

Indicator	Distribution of Respondent answers										Mean
	Strongly disagree		Disagree		Fair		Agree		Strongly agree		
	F	%	F	%	F	%	F	%	F	%	
A1	167	61.85	23	8.52	41	15.19	28	10.37	11	4.07	1.86
A2	0	0.00	0	0.00	182	67.41	88	32.59	0	0.00	3.33
A3	0	0.00	0	0.00	87	32.22	183	67.78	0	0.00	3.68
A4	0	0.00	0	0.00	245	90.74	25	9.26	0	0.00	3.09
average											2.99

Table 4. Respondent Answer in Variable of Action (Ac)

Indicator	Distribution of Respondents Answer										Mean
	Strongly disagree		Disagree		Fair		Agree		Strongly agree		
	F	%	F	%	F	%	F	%	F	%	
Ac1	0	0.00	0	0.00	71	26.30	181	67.04	18	6.67	3.80
Ac2	0	0.00	0	0.00	65	24.07	205	75.93	0	0.00	3.76
Ac3	0	0.00	72	26.67	91	33.70	107	39.63	0	0.00	3.13
Ac4	2	0.74	73	27.04	15	5.56	169	62.59	11	4.07	3.42
average											3.48

Table 5. Respondent Answer in Variable of Waste Management (WM)

Indicator	Distribution of Respondents answer										Mean
	Strongly disagree		Disagree		Fair		Agree		Strongly agree		
	F	%	F	%	F	%	F	%	F	%	
WM1	0	0.00	0	0.00	23	8.52	233	86.30	14	5.19	3.97
WM2	0	0.00	12	4.44	27	10.00	231	85.56	0	0.00	3.81
WM3	0	0.00	76	28.15	39	14.44	155	57.41	0	0.00	3.29
WM4	0	0.00	8	2.96	221	81.85	41	15.19	0	0.00	3.12
WM5	0	0.00	13	4.81	34	12.59	221	81.85	2	0.74	3.79
average											3.60

Knowledge as a cognitive component in behavior, accordance with the functional theory proposed by Katz; to understand good or bad behavior must depart from the behavior of basic motivation itself. Katz implied the motivational basis as the individual behavior. The function for human behavior is formulated into four types, which one of it is a function of knowledge. According to the function of knowledge, humans have motivation to know, to look for reasoning and to organize experience. The existence of the original experience elements is not consistent with the knowledge known by the individual, which will be arranged, rearranged, or changed in such way to reach a consistency [17, 23, 24, 25].

3.2. Attitude (A)

Attitude (A) variable consisted of four indicators, namely

receiving (A1), respond (A2), respect (A3), and responsible (A4). The analysis on attitude variable (A) are summarized in Table 3.

Average value of the attitude variable is 2.99, included in the medium category. This indicates that the respondents' attitude towards waste management in Tulungagung is at the medium level. Attitude is a closed reaction or response from someone to a stimulus or object. Attitude has three main components, i.e. (1) belief (faith), the idea, the concept of an object; (2) emotional life or evaluation of an object; and (3) the tendency to act [15, 17, 26-29].

Moderate attitude of society in Tulungagung towards household waste management implied a positive effect on a person's behavior in the management of household waste although the effect is not significant. This is in line with several studies that explained the attitudes affect on one's behavior, but will not always automatically manifested in an action. This is due to the realization of attitude that requires supporting factors, e.g. support from other parties, experience and surround environment motivation [6, 30, 31, 32]. Society attitude at this level is estimated to be affected by the level of public knowledge. Based on the field observations, attitudes of some people have influenced the lack of waste transportation infrastructure in their areas, thus most of them burned the garbage and others dispose waste in landfills around the market area. Nevertheless, as an effort of waste management, peoples sorting cans or bottles for resale although it is infrequent.

Attitude is an evaluative response that would only arise if individuals are exposed to a stimulus that calls for individual reactions. Evaluative response means that the reaction expressed as attitude arise due to the evaluation process within the individual that gives a conclusion to the stimulus in the form of either positive or negative, pleasant -unpleasant, which is then formed as a potential reaction to the object. Most studies showed a strong indication between attitudes and behavior [33-37], while others showed the evidence of weak relationship between attitudes to behavior [26, 38, 39]. Social attitudes were formed from the social interaction experienced by the individual. Social interaction implies more than just the existence of social contacts and relationships between individuals as members of a social group. Social interactions issued interrelationships that influence the behavior patterns of each individual as a member of society.

3.3. Action (Ac)

Action (Ac) variable consisted of four indicators of perception (Ac1), guided response (Ac2), the mechanism (Ac3), and adaptation (Ac4). The results of the analysis on action variable (Ac) are summarized in Table 4.

Average value of action variable is 3.48, which included in high category. This indicates that the action of respondents to waste management in Tulungagung is at a high level. Action is performed in rule, conduct rules or overcome something or act. There is a close relationship between attitudes and actions which is supported by knowledge [40-43].

High level of community action towards household waste management in Tulungagung means that the action has a very positive influence on the behavior of a person in the household waste management. This is in line with several studies which claim that positive action is strongly influenced by someone's knowledge and attitude in accepting the changes and requires a supporting factor or a condition that allows it, which are facilitated and supported by other parties [44-46].

3.4. Waste Management (WM)

Waste management variable (WM) consisted of five indicators, namely rule/law aspect (WM1), institutional and organizational aspects (WM2), operational technique aspects (WM3), financial aspects (WM4), and aspects of community participation (WM5). The results of the analysis on the waste management variables (WM) are summarized in Table 5.

The average value of waste management variable is 3.60 (high category). This indicates that the respondent's behavior towards waste management in Tulungagung is at a high level. Behavioral component in the structure of attitude showed the tendencies of a person are related to the object that being faced. This relation is based on the assumption that beliefs and feelings strongly influence the behavior. How people behave in a given situation will be largely determined by the person’s beliefs and feelings toward the stimulus [47, 48].

The behavior of people in the household waste management in Tulungagung indicated good results; where most component that affecting the behavior of society is the rule/law regarding the management of household waste. Based on the observations, the process of adopting a new behavior to the community on waste management of Tulungagung has experienced a sequential process on consciousness, interest, and effort to weigh, to try and adapt. However, changes in a person's behavior is not always through this process, thus make the new behavior is generally unsustainable. The new behavior change of a person will sustainable if it goes through the stages of the process and based on the knowledge, awareness and positive attitude.

4. Conclusions

The behavior of society on the household waste management in Tulungagung indicates good results, where the most affecting component on the behavior of society is the rule/law regarding the management of household waste. Although the knowledge and attitude of people in household waste management is at a moderate level, but people's actions are at a high level. This study suggests that if the government wants to change people's behavior in waste management, the government should strive to sustainably improve the knowledge and awareness in waste management, so it will be able to change a person's attitude and formed it in a positive action.

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