

The Correlation Between Perception And Behavior Of River Pollution By Communities Around Brantas Riverbank In Malang

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Abstract— Water is the most important element of the natural resources so that water pollution is a serious threat to the well-being of the earth and its inhabitants. River water as a source of important functions in the community is needed but human can cause water pollution. The purposes of this study are to determine the public perception of maintaining cleanliness, pollution behavior in the Brantas riverbasin, and the relationship between perception and behavior. The method used is a closed interview in accidental sampling technique. The respondents are people who live in the Brantas riverbank, Malang. Data were tested using Spearman correlation test because the data were not normally distributed. Spearman correlation of test results obtained significance value of 0.996 means that the public perception does not correlate with the behavior of pollution in the Brantas River basin. Conclusions of this research are that public perception agree maintaining cleanliness, communities near Brantas riverbank often behave to pollute the river, and there is no correlation between the perception and behavior of river pollution by communities around the Brantas riverbank in Malang.

Keywords— Brantas River, perception, pollution behavior

INTRODUCTION

Water is the most important element in the natural resources and it is vital to the survival of all living organisms, including human and their activities. Nowadays, there are many cities around the world are facing an acute shortage of water. Nearly 40 percent of the world's food supply is grown under irrigation and the various from industrial processes depend on water. Environment, economic growth and development are strongly influenced by water availability and seasonal regional in scope and quality of surface and ground water [1].

River as a water source has very important function in the community needs. It is a major support facility in enhancing national development [2]. It has a function as the command area. River is the area where rain water concentrates. A border areas adjoining stream called the command area boundaries [3].

The inadequacies of water and increasing pollution of natural water is a constant threat to human life [4]. In the city, river is contaminated by domestic waste, municipal sewage and household. Therefore, the fast growing city shows that the deficiencies of clean water are common increase [5].

The pollution in the river is estimated to be influenced by perceptions and behavior of the population. Water quality is affected by human activity and decreased due to the increase in urbanization, population growth, industrial production, climate change and other factors. Water pollution is a serious threat to the well-being of both the earth and its inhabitants [1]. The purposes of this study are to determine the public perception of maintaining cleanliness, pollution behavior in the Brantas riverbasin by the community, and the relationship between perception and behavior.

METHOD

In this study, researchers used quantitative approach using correlation. The correlation have aim to find whether there is a relationship with, if so, how close relationship and whether or not the relationship means that [6].

The research was conducted in December 2015, in settlements along the banks of the Brantas River in Klojen, Malang. This study used 30 residents as sample and the sampling technique used accidental sampling.

The study was conducted by interviewing local population in the Brantas riverbank Klojen, Malang used closed interview (modification of [7]). The question posed in the form of pollution and perceptions about the behavior of pollution in the Brantas river basin.

Data obtained in the form of interval data using Likert scale. For data perceptions of pollution in the Brantas

River with a range of strongly agree (4), agree (3), disagree (2), and strongly disagree (1). Whereas behavioral data pollution in the Brantas River basin with a range very often (4), often (3) sometimes (2), and never (1). Then, the data of perception and behavior of pollution in the Brantas River basin is tested their correlation based on statistical analysis using IBM's application SSPS 21. Spearman correlation analysis is used because both of data do not have normal distribution.

RESULTS

The data obtained from closed interviews is shown in Table 1. In terms of gender, male participants are 26.7% and female participants are 73.7%. Based on recent education, 16.7%, elementary school, 33.3% junior high school, 43.3% senior high school and undergraduate 6.7%. Based on the job, the teachers are 3.3%, housewives as much as 36.7%, private employees are 23.3%, students are 6.7%, shop owners are 3.3%, stall owners are 10%, waitresses are 6.7% and 10% entrepreneurs. Based on the age, the age range of 11-20 are 10%, 21-30 are 20%, 31-40 are 60%, 41-50 are 6.7%, and 51-60 are 3.3%

TABLE 1. RESPONDENT CHARACTERISTICS

Category	Frequ ency	Percen tage (%)	Cumula tive percentage
Gender			
Males	8	26.7	26.7
Females	22	73.3	100.0
Recent education			
Elementary Schools	5	16.7	16.7
Junior High Schools	10	33.3	50.0
Senior High Schools	13	43.3	93.3
Undergraduates	2	6.7	100.0
Jobs			
Teachers	1	3.3	3.3
Housewives	11	36.7	40.0
Private employees	7	23.3	63.3
Students	2	6.7	70.0
Shop owners	1	3.3	73.3
Stall owners	3	10.0	83.3
Waitresses	2	6.7	90.0
Entrepreneurs	3	10.0	100.0
Ages			
11-20	6	20.0	30.0
21-30	18	60.0	90.0

31-40	2	6.7	96.7
41-50	1	3.3	100.0
51-60			

TABLE 2. THE PERCEPTION AND ITS PERCENTAGE

No	Perception	Percentage (%)			
		Strongly Agree (4)	Agree (3)	Not Agree (2)	Strongly Not Agree (1)
1	the quality of river water is getting polluted if not prevented	10%	56.7%	33.3%	0%
2	Prohibition to throw garbage into the river	10%	56.7%	23.3%	10%
3	the cleanliness of the river should be maintained	26.7%	66.7%	6.7%	0%
4	clean water sources should be protected from pollutants	33.3%	46.7%	16.7%	3.3%
	Mean	19.83	56.70	20.00	3.33

(Modified from [7])

Based on Table 2, it can be seen that the majority people (56.70) have perception of maintaining cleanliness around the Brantas River is. Therefore majority of their perception is categorized agree.

TABLE 3. THE POLLUTION BEHAVIOR AND ITS PERCENTAGE

No	Pollution behavior	Percentage (%)			
		Very Often (4)	Often (3)	Sometimes (2)	Never (1)
1	do activities bathing, washing, and toilet in the river	30%	16.7%	40%	13.3%
2	throw food scraps into the river	50%	36.7%	10%	3.3%
3	throw garbage into the river	40%	40%	16.7%	3.3%
4	using water river to wash the vehicle	16.7%	56.7%	26.7%	0%
	Mean	34.17	37.53	23.35	4.97

(Modified from [7])

Based on Table 3, it can be seen that the majority pollution behavior of people around the Brantas River is owned by 37.53%. Therefore majority of their perception is categorized often.

Both data about the perception and the pollution are shown in table 2 and table 3. Data from closed interviews is tested its normality and homogeneity to determine what type of statistics used parametric or non-parametric. The samples used were 30 people, so normality test used is the Kolmogorov-Smirnov test. Based on test for normality using the Kolmogorov-Smirnov, is obtained significance value for the perception of the public to maintain cleanliness Brantas river bank is 0.003 and behavioral data about pollution in the Brantas Riverbasin is 0,011. Both of these results the value is less than 0.05, so it can be concluded that both the data are not normally distributed. Normality test results can be seen in Table 4.

TABLE 4. NORMALITY TEST

	Kolmogorov-Smirnov ^a		Shapiro-Wilk		Sig.
	Statistic	df	Statistic	df	
Perception	.197	31	.003	.808	.000
Pollution Behavior	.181	31	.011	.767	.000

a. Lilliefors Significance Correction

The obtained data is not normally distributed and then performed the non-parametric statistical analysis using

Spearman correlation test. Spearman correlation test results can be seen in Table 5.

TABEL 5. SPEARMAN CORRELATION TEST RESULT

		Percepti on	Pollution Behavior
Spearman's rho	Correlation Coefficient	1.000	.001
	Sig. (2-tailed)	.	.996
	N	31	31
Pollution Behavior	Correlation Coefficient	.001	1.000
	Sig. (2-tailed)	.996	.
	N	31	31

Spearman correlation of both test results obtained p is 0.996 that greater than 0.05, it means that the null hypothesis (H0) is received and the hypothesis 1 (H1) was rejected, so the public perception does not correlate with the communities behavior of pollution in the Brantas River basin.

DISCUSSION

Perception is a process that is preceded by the senses. Sensing is a process of acceptance of the stimulus by individual through a receiver that the stimuli senses are passed by nerves to the brain as central nervous system and the next process is the perception. Therefore, the process of perception cannot be separated from the process of sensing [8].

Perception maintaining cleanliness is a positive perception that owned the majority of the Klojen districts, Malang. 89% of respondents have perception that the quality of river water is getting polluted if not prevented. Prohibition to throw garbage into the river is also translated as a positive perception owned 66.7% of respondents. Even amounted to 93.14% respondent stated that the cleanliness of the river should be maintained and the perception of clean water sources should be protected from pollutants is owned by 76.7% respondents.

The positive perception is in accordance with states that one of the ways of prevention that is to not dispose of domestic waste into the river because it would worsen the water quality of the river [9]. Contamination will reduce the economic value and the beauty of the river. Pollution will have a negative effect on human health and aquatic life [10].

High positive perception is also in line with the majority of high school education level which is owned by 43.3% of respondents. Education will increase the knowledge that influences perception. Sufficient knowledge will form a positive perception on an individual [1].

Behavior is the result of the relationship between stimulus and responses. Human behavior is the result of experience as well as all human interactions with the environment is manifested in the form of knowledge, attitudes and actions. In other words, the individual behaviors as response to the stimulus are coming from outside or from within. These responses can be passive (no action) and active (with measures)[11]

Waste in the river caused by human behavior polluting the river. Based on the results of the study, as many as 50% of respondents very often throw food scraps into the river, 40% of respondents very often throw garbage into the river, even as much as 40% of the population often do activities bathing, washing, and toilet in the river. Bathing and washing will cause pollution because of the use of soaps and detergents used in the river.

Therefore is no correlation between perception and behavior of river pollution by communities around the banks of the Brantas River in Malang also in mutual accord through psychological theory. Theory of Cognitive Dissonance New Vision which outlines that nonconforming attitudes and behavior of people due to

lack of awareness and the role of personal responsibility in her. Freedom of choice with regard to compulsion performs a behavior [8].

If a person is forced by circumstances or conditions to perform the behavior that is incompatible with his attitude he will not feel any responsibility [8]. The forced by circumstances in this condition can be assumed from economical factor. The economic factor is the main reason of these behaviors because local residents are difficult to buy clean water from taps. It can be seen from the 36% of the population who do not work or as a housewife. In addition, the close proximity to the Brantas river bank also makes people take advantage of the river flow without thinking long its consequences.

CONCLUSION

Conclusions of this research are that public perceptions agree maintaining cleanliness, communities near Brantas riverbank often behave to pollute the river, and there is no correlation between the perception and behavior of river pollution by communities around the Brantas riverbank in Malang.

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