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The Impact of Waste Bank on Waste Processing Behavior and Income

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Abstract

Waste bank is a solution to reduce waste problems because the only environmentally based waste management is done by sorting waste into something that has economic value. The purpose of this study was to determine and analyze the impact of waste bank activities and waste bank leadership on household waste processing behavior. This study used a quantitative approach. The type of data was primary data. This research was conducted with 99 waste bank customers with the respondent determination technique using Proportional Stratifed Random Sampling from the presence of customers in one month to 2 to 4 times saving waste. Regression analysis and T-test difference test using SPSS 21 were employed to analyze the data. Based on the findings, main waste bank in East Jakarta had an impact on breaking the chain of waste prices. The existence of a waste bank which is measured based on cognitive, affective, and psychomotor aspects has a positive effect on people's behavior in managing waste in their environment. This study also showed that there was a difference in the average income of the community after becoming a customer of a waste bank.

Keywords: ***Waste Bank, Waste Processing Behavior, Income***

Abstrak

Bank sampah merupakan solusi untuk mengurangi permasalahan sampah karena satu-satunya pengelolaan sampah berbasis lingkungan yang dilakukan dengan memilah sampah menjadi sesuatu yang mempunyai nilai ekonomis. Tujuan penelitian ini adalah untuk mengetahui dan menganalisis dampak kegiatan bank sampah dan kepemimpinan bank sampah terhadap perilaku pengolahan sampah rumah tangga. Penelitian ini menggunakan pendekatan kuantitatif. Jenis data adalah data primer. Penelitian ini dilakukan dengan 99 onasabah bank sampah dengan teknik penentuan responden menggunakan Proportio Stratifed Random Sampling dari kehadiran nasabah dalam satu bulan mencapai 2 sampai 4 kali menabung sampah. Metode penelitian ini analisis regresi dan uji beda T-test menggunakan SPSS 21. Bank sampah Induk di Jakarta Timur juga memberikan dampak memutus mata rantai harga sampah. Keberadaan bank sampah yang diukur berdasarkan aspek kognitif, afektif, dan psikomotorik berpengaruh positif terhadapperilaku masyarakat dalam mengelola sampah di lingkungannya. Penelitian ini juga menunjukan bahwa terdapat perbedaan rata-rata pendapatan masyarakat sesudah menjadi nasabah bank sampah.

Kata Kunci: Bank Sampah, Perilaku Pengolahan Sampah, Pendapatan

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INTRODUCTION

Environment has an important meaning for all objects, forces and conditions contained therein in which all living things exist and meet their needs. Along with the times, all kinds of environment, such as social environment, physical environment, and biological environment will continue to change. With this change, people must be able to adapt or adapt.

Increased national development cannot be separated from the use of the environment which often does not pay attention to sustainability, but tends to exploitation and optimization of the environment which of course will have negative impacts. One of the negative impacts caused by national development is an increase in environmental pollution. This makes the community enable to cope with the amount of waste which increases every day and is directly proportional to the increase in development (Hill, 2014).

Data on the amount of increased volume of waste produced by cities in Indonesia in 2019 showed that households make up contributed 75% of urban waste or equal to 0.87 per kg per capita per day or 175,000 tonnes per day or the equivalent of 64 million tonnes per year. The largest volume of waste was in the city of Surabaya and Jakarta. The common problems of municipal solid waste are the large volume of waste which exceeds the capacity of the final disposal site (TPA), narrower landfill and the distance factor.

All results in less effective transport of waste. Even more, waste management technology is not optimal, and there is a lack of government support in addressing waste management issue. The complexity of solid waste processing must of course be broken down by understanding in advance how the source of solid waste, namely the amount of pile produced by the community.

The increasing number of population and the amount of waste always has a close relationship. An increase in the amount of waste generally occurs in urban areas since it has densed population. Jakarta as the capital city of Indonesia has the most densely populated population compared to other cities. East Jakarta is one of the most densely populated in the DKI Jakarta Province.

Table 1. Total Population of Administrative City in Jakarta

Districts/ City	Total population		
	2015	2016	2017
Kepulauan Seribu	23.340	25.535	27.041
South Jakarta	2.185.771	2.148.084	2.184.264
East Jakarta	2.843.816	2.923.745	2.935.958
Central Jakarta	914.182	1.098.385	1.135.681
West Jakarta	2.463.560	2.304.409	2.317.181
North Jakarta	1.747.315	1.696.015	1.707.095
DKI JAKARTA	10.117.925	10.195.991	10.306.620

Source : Department of Population and Civil Registration of DKI Jakarta Province 2018

The population of this province continues to increase significantly every year. Seen from 2010, the City of East Jakarta had a population of 2,843 .816 people and continueed to increase reaching 2017 amounting to 2,935,958. In short, almost 35% of the total population of DKI Jakarta with a daily population increase of 269 people. The population density of East Jakarta even reached 15,400 km2 (Civil Registry: 2017).

The increase in waste piles in the city of Jakarta reached 7,824.4 tons/day in which the amount of waste pile in the Administrative City of East Jakarta was 4,102.1 tons/day or the greatest among the other administrative cities in Jakarta. The landfills in East Jakarta come from 10 sub-districts. The amount of waste in East Jakarta continues to increase every year plus there are 2 big markets in East Jakarta, namely, the wholesale market and the kramat teak market. Each can produce 50 tons per day.

Table 2. The Average Volume of Waste Entering TPST Bantargebang

Year	The Average Volume of Waste Entering the Bantargerbang TPST (in tonnes / day)
2014	5.664
2015	6.419
2016	6.561
2017	6.875

Source : DKI Jakarta Environment Agency 2018

A conducted by Winahyu (2018) entitled "Solid Waste Management Strategies at Bantargebang Final Disposal Site (TPST), Bekasi" states that the Bantargebang TPST is still positioned more as an asset or facility for the DKI Jakarta Provincial Government which only serves the needs of the community in terms of final waste management and does not take into account the added value that can be generated from waste. Things that need to be considered is the processing of Bantargebang TPA which still uses an open dumping system which disposes waste without processing.

The garbage that comes every day to the Bantargebang TPST makes it have limited management. Another thing that needs to be considered is that the conventional system applied to the current waste management process in Jakarta. For waste services, the management model still uses an open dumping system which is not in line with the Bantargebang TPST management model, and not a sanitary landfill system.

DKI Jakarta's landfill is increasing every year. This can be seen from the trend of the average waste entering the Bantargebang TPST. In terms of solid waste management, DKI Jakarta collects up to 7,400 tons every day transported using 1,300 trucks to Bantargebang. Based on the average, it has got an increase. The capacity of Bantargebang TPST is as much as 49 million tonnes, while the current waste volume is already 40 million tonnes, so that the lifetime of Bantargebang TPST remains 9 million tonnes and by 2021 it will be full.

Overcoming the waste problem which has always been a big obstacle for the government and society is needed so that the waste problem can be more resolved and controlled. Law Number 18 of 2009 concerning waste processing and Government Regulation Number 81 of 2012 concerning waste processing are expected by the community to handle waste management starting from the source by sorting organic and non-organic waste.

The community considers waste as an item that is only used occasionally and is not reused when it is not needed. Waste that is usually no longer used or thrown away by the community has an economic value that is of sale value (Novianti: 2013). To help solve this solid waste problem, the government has found efforts to reduce waste at the community level. In East Jakarta, community empowerment is being

carried out in managing waste to overcome waste. One of the newest waste processing systems in order to reduce the waste problem is the waste bank.

The development of waste banks in Indonesia that is based on 3R principle (Reduce, Reuse, recycle) has not been strictly applied; applying the concept of processing waste from upstream to downstream is supposed to be done so that it can provide economic and ecological benefits. By doing so, it can be one form of government responsibility to increase citizen awareness in waste processing.

Table 3. The GRDP per capita of DKI Jakarta by City/Regency 2014-2017

District/City Administration	PDRB Per Capita (million IDR/person/year)			
	2014	2015	2016	2017
Kepulauan Seribu	245	268,2	276,2	301,3
South Jakarta	182,2	202,8	219	293,1
East Jakarta	108,6	121,9	132,3	143,3
Central Jakarta	471,5	531,6	578,7	631,7
West Jakarta	120,6	133,5	142,8	155,2
North Jakarta	192,8	216,3	230,7	250,3

Source : DKI Jakarta BPS 2019

On this basis, waste banks are considered as one of the effective solutions to tackle waste and turn it into savings money that can be taken by customers. Each type of waste deposited by a customer has its own IDR value. This value is then stored in the customer's account which will be recorded in the garbage savings book. Along with its development, waste bank activities can open up jobs and finally encourage community as the main driver of the waste bank program.

Now waste bank is also an alternative source of income for households. Income will have an impact on increasing community participation in the waste bank program. This success will also have an impact on per capita income which in this research location is the area with the largest population and the smallest per capita income in Jakarta.

The income per capita in East Jakarta was relatively small compared to other administrative city areas in Jakarta. This can be seen from the total population of East Jakarta that was 28 percent of the total population in Jakarta. East Jakarta's per capita income from year to year has increased. It can be seen from 2014 amounting to 108.6 million/capita, 2015 121.9 million/capita, 2016 132.3 million/capita, and 2017 amounting to 143.3 million/capita The factor that caused the income of the population in East Jakarta to be the smallest was the almost 3 million population with low quality of Human Resources (HR).

Table 4. The Annual Recapitulation Report of Waste Bank for East Jakarta City Administration for 2016-2019

Year	Waste Bank		
	amount	customer	Turnover(IDR)
2016	131	9034	IDR 2.659.981.900
2017	131	8930	IDR 2.659.450.500
2018	190	10.555	IDR 2.659.327.500
2019	278	8540	IDR 2.703.948.000

Source : East Jakarta Administrative City Environmental Agency

The Main Waste Bank (BSI) as the main waste bank in East Jakarta covers every waste bank unit of depots located in each sub-district in East Jakarta. It aims to collect waste that has been collected by the unit waste bank management throughout East Jakarta. The unit waste bank fosters public awareness of the

environment and helps increase community income. East Jakarta has the most depots or waste bank units and the largest number of customer members in Jakarta which are scattered in every sub-district in East Jakarta. East Jakarta has 131 waste banks and the number of customers is 10,945 members or customers.

The number of waste banks in East Jakarta has increased annually due to an increase in the amount of waste and community participation in participating in waste banks. To recapitulate, the turnover of waste banks in East Jakarta reached IDR 2,703,948,000 in 2019. It was not a small amount of economic results obtained from waste management. The data above also shows that most of the people in East Jakarta have mostly participated in the waste bank program activities that have already existed in every sub-district throughout East Jakarta.

This is true because in the study "Analysis of the Effect of the Waste Bank Program on the Income of Waste Bank Customers in Denpasar City" Prayanti (2018) states that the participation of waste bank customers, the amount of waste savings, and sales results greatly impact the income of waste bank customers in Denpasar City. In other words, if waste savings are increased, the income of waste bank customers in Denpasar City will also increase.

Along with its development, waste bank activities started to involve community participation as the main driver of the waste bank program until now it becomes an alternative source of income for households. For those who can use their resources to become household coffers through a waste bank, this can be a potential additional household income. It is observable in the activities of Waste Banks throughout East Jakarta. The formation of the East Jakarta waste bank comes from the condition of the people in East Jakarta who are still low awareness of waste management and income levels. The waste bank then becomes one of the solutions to help the community's economy starting from small things that are easily found in the surrounding environment, namely garbage.

RESEARCH METHODS

This study used quantitative methods and data collection techniques in achieving scientific truth from data obtained through primary data of survey method. The survey method was divided into two parts, namely the interview and the questionnaire. The questionnaire is a data collection technique that does not require the presence of a researcher, but is sufficiently represented by a carefully compiled list of questions. It was presented in the form of questions or a scale to respondents according to the variable category studied, namely waste bank activities, leadership of the head of the waste bank, waste processing behavior, customer income.

Research using a questionnaire list is mostly carried out in qualitative research type since it requires the opinion of other people or respondents. Once the data were collected, those were converted into quantitative based on the weight (score) of each alternative answer chosen (Sunyoto, 2011: 30). In analyzing and knowing the impact of waste banks on waste processing behavior and customer income, multiple regression analysis and t-test using the SPSS 21 application were used. Regression analysis aims to examine the effect of two independent variables on the dependent variable. The dependent variable in this study

was the behavior of waste processing, while the independent variables were the activities of the waste bank and the leadership of the head of the waste bank.

In this study, researchers used the analytical method to determine the effect of waste bank activities and leadership of the waste bank chairman on cognitive aspects of waste processing behavior, the effect of waste management activities, and the leadership of the head of the waste bank on affective aspects of waste processing behavior. The general equation for simple linear regression is :

$$Y = a_0 + \beta_1 X_1 + \beta_2 X_2 + e \quad \text{.....(1)}$$

Information :

Y : Waste processing behavior
a_0 : Constant
X_1 : Waste Bank Activities
X_2 : Leadership of The Head of Waste Bank
e : Error

Widiyanto (2013) argues that paired sample t-test is one of the testing methods used to assess the effectiveness of treatment marked by differences in the average before and after treatment. The income of the customer here had two categories, namely before becoming a customer of a waste bank and after becoming a customer of a waste bank and receiving income from it. Therefore, the test was carried out using the mean difference test method for two paired samples (Paired sample t-Test). This different test model was used to analyze the pre-post or before and after research models. Different tests were used to evaluate certain treatments in the same sample at two different observation periods (Pranama: 2012).

RESULTS AND DISCUSSION

This East Jakarta Main Waste Bank was founded in 2018 due to a lot of scattered waste bank units throughout East Jakarta. Each waste bank unit is independent and sells the savings collected by the managers of each waste bank to collectors. The main waste bank here accommodates almost all waste banks spread across 10 sub-districts to deposit sorted waste to the main waste bank. The waste bank in East Jakarta that is managed by the community has actually been around since 2010 according to Law No. 18 of 2008 concerning waste management.

As time goes by, the Parent Garbage Bank has developed and continues to develop garbage banks throughout East Jakarta. The main waste bank also aims to break the price chain for sorted waste because before the main waste bank existed, the other waste banks were sold to collectors. The Parent Waste Bank also got a high selling price because it directly cooperates with large factories such as Unilever Company, Community Development Officer and others. Until now, the East Jakarta Main Waste Bank continues to survive and is active in counseling waste banks to all places in East Jakarta that have not started this waste bank program.

To become a customer of a Garbage Bank in East Jakarta, a person needs to submit a photocopy of the original ID card or other proof of identity that is still valid and is not subject to other fees. The number of waste bank customers in East Jakarta, according to the latest data from the main waste bank, is 10,950 people. This number will continue to increase in line with counseling and outreach to places or

neighborhoods that have not started this waste bank program.

The East Jakarta Main Waste Bank operational mechanism refers to the Regulation of the Minister of the Environment No. 13 of 2017 concerning guidelines for implementing 3Rs through waste banks. Upon the prior description, the researchers interviewed Mr. Syarifuddin as the staff of the PSM section and the legal arrangement of the East Jakarta Environmental Agency and Mrs. Wahyuningsih as the Administration of the Main Waste Bank.

Garbage Banks located throughout East Jakarta manage organic waste into organic fertilizer. Organic waste management is carried out uncertainly, depending on the request of the community or sellers with fertilizers available at the waste bank. If the demand is high and the compost plant is ready, the organic waste processing process can be carried out. The first step is to collect organic waste, be it leaves, fruit, or leftovers and vegetables.

The rubbish is usually provided by the surrounding community voluntarily and is not included in the customer's savings. However, if the amount of waste collected from the community is small, the Main Trash Bank will collect vegetable waste from markets scattered in East Jakarta. In one time making organic fertilizer, around 700 kg of organic waste is needed. Later, after the waste is sufficient, then the waste is ready to be processed into organic compost.

The non-organic waste management mechanism has two channels, namely non-organic waste suitable for recycling and non-organic waste that is feasible for sale. In non-organic waste suitable for recycling, the waste will later become a new product that has been sorted and recycled into a new product. Meanwhile, non-organic waste is suitable for sale. The East Jakarta Main Waste Bank will sell the waste products from large companies or recycling companies with a profit difference from the sale and purchase price of the waste. In practice, the main waste bank cooperates with recycling companies or other stakeholders that have influence in East Jakarta.

Customers are required to sort their waste before depositing it into the waste bank. Waste sorting is carried out based on the agreed waste category. Based on the type, non-organic waste is grouped into paper, plastic, metal, glass, and so on. Waste grouping by customers will facilitate the process of distributing or grouping waste in the waste bank. In addition, the selling price of sorted and unsorted waste is certainly different.

According to the agreed upon time for depositing waste, the waste bank opens a schedule for depositing waste from Monday to Friday from 09.00-15.00 WIB. The day is adjusted according to each waste bank in East Jakarta, while at the mean time the implementing unit for each sub-district and village will collect the waste according to the hour earlier.

The Parent Garbage Bank here has advantages, namely picking up the ball or picking garbage by the Parent Garbage Bank to the unit waste bank. Individual customers whose waste volume is not too large are collected at each waste bank and there will be garbage pick-up due to the large volume of waste and requires using a truck. This makes it easier for waste bank managers or customers to bring their waste to the main waste bank.

The waste that has been deposited into the waste bank is then weighed and converted into money. The minimum weight of waste that can be deposited at a waste bank is generally determined in the previous agreement. However, at the main waste bank there is no minimum weight of waste deposited, so the community or unit waste bank is more flexible and lighter if they want to bring their waste to the main waste bank. Besides, all waste bank customers feel comfortable because the garbage is collected in their homes. -Each is not too pile up.

The determination of the price for each type of waste is an agreement by the waste bank management. The price given by the Parent Garbage Bank depends on the value of the selling price to the recycling company. The difference in price or profit is taken by the waste bank as an operational cost. There are also some who do not have a difference in selling to collectors or stalls because the listed price is already small.

The Parent Garbage Bank is here to break the chain of the selling price of this waste because the selling price is uncertain and each collector or stall has a different price. The selling price of waste and buying waste offered by stakeholders or recycling companies is supposed to be higher than the price for collectors or stalls. The selling price of the Parent Garbage Bank already has an appropriate price list at that time and all the waste bank unit management here must be aware of periodic price updates.

The waste bank is a dry waste management system that encourages the public to play an active role in it. In this study, researchers used several variables and made a questionnaire used in making an analysis related to the impact of waste banks on waste management behavior and customer income of waste banks in East Jakarta. This research questionnaire consisted of several indicators grouped into each variable.

The data from the questionnaire results included, 1) Respondents' data on waste bank activities; 2) Respondent data on the leadership of the head of the waste bank; 3) Respondent data on waste management behavior; and 4) Respondent income data before and after becoming a customer of a waste bank in the neighborhood. The data source obtained was primary data from 99 respondents whose environment has (active) waste bank activities both administratively and in the local waste bank waste processing process. Table 5 are some of the data on the research obtained by researchers.

Based on the table 5, the waste bank activity variable (X1) with 7 indicators gained minimum value of 26, while the maximum value is 35. This meant that there were respondents who gave a maximum score of 5 on each indicator. Meanwhile, the tendency to focus data which referred to the middle value (median) got 33 with an average (mean) of 32.45, meaning that the median was higher than the average (mean) or the respondent's assessment of the waste bank activities (X1) still did not meet maximum expectations. Then, with a standard deviation of 2.6 which was smaller than the average (mean), it indicated that the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low.

The leadership of the head of the waste bank (X2) with 8 indicators had a minimum value of 29, while the maximum value was 35. Meanwhile, the tendency to focus data which referred to the middle value

(median) got 32 with an average (mean) of 32.10. Since the median was lower than the average (mean), the respondent's assessment of the leadership of the head of the waste bank (X2) has met the maximum expectation. Then, with a standard deviation of 1.42 or smaller than the average (mean), the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low.

Table 5. Descriptive Statistics of Research Data

Variable	N	Number of Indicators	Linkert Scale	Min	Max	Mean	Median	Std. Deviation
Waste Bank Activities (X1)	99	7	(1 – 5)	26	35	32.45	33	2.60
Leadership of Head of Waste Bank	99	8	(1 – 5)	29	35	32.10	32	1.42
Waste Management Behavior in Cognitive Aspects (Y1)	99	6	(1 – 3)	11	18	15.93	16	1.64
Waste Management Behavior in Affective Aspects (Y2)	99	5	(1 – 5)	14	20	16.99	17	1.56
Waste Management Behavior in Psychomotor Aspects (Before joining/ becoming a waste bank customer)	99	8	(1 – 2) and (1 – 5)	11	20	14.72	14	1.83
Psychomotor Aspects of Waste Management Behavior (After joining/ becoming a waste bank customer)	99	8	(1 – 2) and (1 – 5)	20	25	23.96	24	1.25
Customer's Income from the Waste Bank	99	1	-	30,000	1,000,000	255,303	250,000	115,336
Total Income After Becoming a Waste Bank Customer	99	1	-	900,000	7,040,000	3,760,859	3,880,000	1,011,330

Source : Processed research data, 2020

Waste management behavior in the cognitive aspect (Y1) with 6 indicators obtained a minimum value of 11, while the maximum value was 18. This proved that there were respondents who gave a maximum value of 3 on each indicator. Meanwhile, the tendency to

focus data which referred to the middle value (median) got 16 with an average (mean) of 15.93. Sincethe median was higher than the average (mean), it proved the respondent's assessment of waste management behavior on the cognitive aspect. (Y1) still did not meet the maximum expectation.

Then, with a standard deviation of 1.64 or smaller than the average (mean), it meant that the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low. Waste management behavior in the cognitive aspect (Y1) with 6 indicators obtained a minimum value of 11, while the maximum value was 18. This proved that there were respondents who gave a maximum value of 3 on each indicator.

Meanwhile, the tendency to focus data which referred to the middle value (median) got 16 with an average (mean) of 15.93. Since the median was higher than the average (mean), it proved the respondent's assessment of waste management behavior on the cognitive aspect. (Y1) still did not meet the maximum expectation. Then, with a standard deviation of 1.64 or smaller than the average (mean), it meant that the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low.

The behavior of waste management in the affective aspect (Y2) with 5 indicators had a minimum value of 14, while the maximum value was 20. Meanwhile, the tendency to focus data which referred to the middle value (median) was 17 with an average (mean) of 16, 99. Since the median was higher than the average (mean), it meant that the respondent's assessment of waste management behavior in the cognitive aspect (Y1) still did not meet the maximum expectation. Then, with a standard deviation of 1.56 smaller than the average (mean), it confirmed that the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low.

Waste management behavior in the psychomotor aspect (before becoming a member/customer of a waste bank) with 8 indicators achieved a minimum avlue of 11, while a maximum value of 20. Meanwhile, the tendency to focus data which referred to the middle value (median) was 14 with an average (mean) of 14.72. Since the median was lower than the average (mean), the respondent's assessment of waste management behavior in the psychomotor aspect (before becoming a member/customer of a waste bank) has met the maximum expectation.

Then, with a standard deviation of 1.83 smaller than the average (mean), it meant that the distribution of scores on waste bank activities by these respondents was evenly distributed and the data deviation that occurred was low. The behavior of waste management in the psychomotor aspect (after becoming a member/customer of a waste bank) with 8 indicators gained a minimum value of 20, while the maximum value was 25.

Meanwhile, the tendency to focus data which referred to the middle value (median) was 24 with an average (mean) of 23.96. Since the median was higher than the average (mean), the respondent's assessment of waste management behavior in the psychomotor aspect (after becoming a member/customer of a waste bank) has not met the maximum expectation. Then, with a standard deviation of 1.25 smaller than the average (mean), it meant that the distribution of scores on waste bank activities by

these respondents was evenly distributed and the data deviation that occurred was low.

In terms of customer income from a waste bank, the researchers found the minimum income of its member was IDR 30,000 and a maximum income was IDR 1,000,000. This significant difference indicated that the income that customers got from the waste collected was very varied; in other words, each customer had a significant difference in terms of income. Meanwhile, the tendency to focus a data which referred to the middle value (median) was IDR 250,000 with an average (mean) of IDR 255.303.

Here, the median was lower than the average (mean), meaning that the respondent's assessment of waste management behavior in the psychomotor aspect (before becoming a member / customer of a waste bank) has met the expectations of the tendency to center a data. Then, with a standard deviation of IDR 115.336 smaller than the average (mean), it proved that the distribution of the total income of the waste bank customers was evenly distributed and the data deviation was low.

Total income after becoming a waste bank customer had the minimum amount of IDR 900,000 and the maximum amount of income of IDR 7,040,000. The difference between the two amounts of income was quite far, indicating that the income that customers got from the waste plus the household income (monthly) of each respondent was very varied; in other words, each customer had a difference in terms of the total amount of income.

Meanwhile, the tendency to focus a data which referred to the middle value (median) was IDR 3,880,000 with an average (mean) of IDR 3,760,859. It meant that the median was greater than the average (mean) or the respondent's assessment of waste management behavior in the psychomotor aspect (before becoming a member/customer of a waste bank) has not met the expectations of the tendency to center a data. Then, with a standard deviation of IDR 1,011,330 smaller than the average (mean), the distribution of the total income of the waste bank customers was evenly distributed and the data deviation was low.

Based on the SPSS output, the waste bank activities and the leadership of the waste bank partially influenced the cognitive aspects of waste processing behavior. Based on the significance level of T-count of 0.000 with α (0.05), the waste bank activity variable (X1) had a significance value/p-value of 0.000 (significant) and a regression coefficient of 0.372 (positive). Furthermore, the leadership variable for the head of the waste bank (X2) had a significance value of 0.000 (significant) and a regression coefficient of 0.534 (positive).

Those two independent/independent variables were significant to the cognitive aspect of waste management behavior (Y1), with a regression constant value of -13.283. It confirmed that the cognitive aspect of waste processing behavior in East Jakarta was influenced by the activities of the waste bank and the leadership of the head of the waste bank.

The waste bank activity variable (X1) gained a significance value of 0.000 (significant) and a regression coefficient of 0.451 (positive). Furthermore, the leadership variable for the head of the waste bank (X2) obtained a significance value of 0.019 (significant) and a regression coefficient of 0.165 (positive). It showed that the two independent/independent variables were significant to the affective aspect

of waste management behavior (Y2) with a regression constant value of -2.926. This meant that the affective aspect of waste processing behavior in East Jakarta was influenced by the activities of the waste bank and the leadership of the head of the waste bank.

After it was known that there was a significant influence between the activities of the waste bank (X1) and the leadership of the head of the waste bank (X2) on each of the dependent variables, namely the behavior of waste management in the cognitive aspect (Y1) and the behavior of waste management in the affective aspect (Y2), the researchers conducted an analysis to see whether there were differences in the behavior of waste management in the psychomotor aspects before and after becoming a waste bank customer.

Table 6. The Results of Different T-test for Waste Management Behavior

Pair 1	Std. Error Mean	T	df	Sig. (2-tailed)
Behavior Before and After	0.179	-51.690	98	0.000

Source : Processed research data, 2020

Based on the results of the t-test, the significance value was 0.000 or smaller than the significance level α (0,05), so the hypothesis H_0 was be accepted. It indicated that there was a significant average difference between waste management behavior before and after becoming a member/customer of a waste bank. The next analysis was to find out any differences in people's income before and after becoming a waste bank customer. To test the hypotheses the researchers used a paired sample t-test difference test. The t-test difference test is used to determine whether there is a difference in the mean of the two related samples.

Table 7. The Different Test Results of Waste Bank Customer t-test Income

Pair 1	Std. Error Mean	T	df	Sig. (2-tailed)
Behavior Before and After	1591.733	-22.025	98	0.000

Source : Processed research data, 2020

Based on the analysis results, the obtained significance value was 0.000 or smaller than the significance level α (0,05), so the hypothesis H_0 was be accepted. In other words, there was a significant average difference between people's income before and after becoming a member/customer of a waste bank. In this study, researchers concentrated on waste management carried out by waste banks as a breakthrough in the present era where waste has become a major problem in almost all regions in Indonesia. East Jakarta main waste bank is part of a local government program launched to take control of the existing waste management system in the city of East Jakarta.

This main waste bank has been established since 2018 to accommodate garbage in the garbage bank and trash in the dashbin (green trash cans that are often on the side of the main road). In addition, the main waste bank in East Jakarta also aims to break the price chain for segregated waste because before the main waste bank existed, other waste banks were sold to collectors. Waste management system is expected to continue to run well and be the best solution for waste management in the city of East Jakarta.

Table 8. The Significance Results for each Independent Variable

Independent Variable	Dependent Variable	Koef. Regression	p-value	>/<	α (0.05)	Significance
Waste Bank Activities (X1)	Waste Management Behavior Cognitive Aspects (Y1)	0.372	0.000	<	0.05	Significant Positive
Leadership of Head of Waste Bank (X2)		0.534	0.000	<	0.05	Significant Positive
Waste Bank Activities (X1)	Waste Management Behavior Affective Aspects (Y2)	0.451	0.000	<	0.05	Significant Positive
Leadership of Head of Waste Bank (X2)		0.165	0.019	<	0.05	Significant Positive

Source : Processed research data, 2020

According to the results of interviews conducted by researchers with the East Jakarta Administration City Environmental Agency, the respondent said "we hope that in the future the Main Waste Bank (BSI) will be present to unify prices or cut price distribution channels that previously sold community waste banks to stalls at low prices. The price of garbage is very volatile and the stalls can play the price so that it can be bought at a price that is always cheap. Currently the Parent Waste Bank is working with various large companies for the waste needed in the production process." (October 16, 2020).

This is what made the community more aware of the presence of the main waste bank, or garbage bank in the neighborhood. Because in addition to waste management, this bank can make waste less and less well managed, and provide profit for waste bank customers. Based on the results above, it can be seen that all the relationships between the independent and dependent variables were significant. In the first regression model, the waste bank activity variable (X1) had a regression coefficient value of 0.372 (positive).

This regression coefficient value meant there was an unidirectional or proportional influence. In short, if the waste bank activities were better carried out, it would further improve people's behavior in good waste management from the cognitive aspect. Each increase in the value/indicator of waste bank activity by 1% could have an effect on improving waste management behavior in the cognitive aspect of 37.2%. The leadership variable of the head of the waste bank (X2) gained a regression coefficient of 0.534 (positive).

This regression coefficient value meant that there was a directional or proportional influence, particularly if the waste bank activities were better carried out, it would further improve people's behavior in good waste management from the affective aspect. Each increase in the value/indicator of waste bank activity by 1%, could have an effect on improving waste management behavior in the cognitive aspect of 53.4%. Based on the results of the

regression analysis on this model, the two independent variables had significant influence on the dependent variable.

In details, the existence of a waste bank measured based on the activities and management of the waste bank (in this case the leadership of the head of the local waste bank) had an impact on people's behavior in managing waste in their environment. This behavior came from a cognitive perspective which could enrich people's insight of the importance of the impact of waste on humans and the environment.

For the second regression model, the waste bank activity variable (X1) obtained a regression coefficient value of 0.451 (positive). This regression coefficient value meant a directional or proportional influence. Specifically, if the waste bank activities were better carried out, it would further improve people's behavior in good waste management from the affective aspect. Each increase in the score/indicator of waste bank activity by 1% could influence to improve waste management behavior in the affective aspect of 45.1%.

Next, the leadership variable of the head of the waste bank (X2) gained a regression coefficient of 0.165 (positive). This regression coefficient value meant a directional or proportional influence. Particularly, if the waste bank activities were better carried out, it would further improve people's behavior in good waste management from the affective aspect. Each increase in the score/indicator of waste bank activity by 1% could have an influence to improve waste management behavior in the affective aspect of 16.5%.

In researching the impact of waste banks on the income of waste bank customers, the researchers referred to the test results using the different t-test. The results showed that there was a difference in the average income of the community before becoming a member/customer of a waste bank and the income of the community after becoming a member/customer of a waste bank.

This result meant that the presence of waste banks in the community was considered good from an economic perspective because it could increase people's income by a percentage of 7.28% from the collection and sorting of household waste carried out. In addition, the community also gained more knowledge about how to process household waste so that it can be used as a craft or new item that has a selling value (from waste that previously had no selling value).

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The results of the regression analysis show that the waste bank activity variable and the leadership variable for the head of the waste bank have a positive significance on waste processing behavior. Furthermore, from testing the psychomotor aspects using the t-test difference, the existence of a waste bank has a significant effect on the significance value of 0.000. This smaller value than the significance level α (0.05) means that there is a significant average difference between waste management behavior before and after becoming a member/customer of a waste bank.

The next test to determine the impact of the presence of a waste bank on the income of waste bank customers was using the t-test difference. The results show that there is an average difference with a significance of 0.000, meaning that there is a significant average difference between people's income before and after becoming a member/customer of a waste

bank. The average income of the community before becoming a member/customer of a waste bank was IDR 3,505,555 while the average income of the community after becoming a member/customer of a waste bank was IDR 3,760,858, so the percentage increase in income was 7.28%.

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