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RESEARCH ARTICLE

Economic and Social Transformation through Bank Sampah Berkah in Sumbersari, Sekampung District, East Lampung.

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Abstract

Waste is a solid material that is a byproduct of human activities, which is no longer desired or needed. According to the World Health Organization (WHO), waste is defined as items from human activities that are no longer needed, used, or wanted, and thus discarded. Waste management includes all activities involved in handling waste from generation to final disposal, including waste minimization, collection, transfer and transportation, processing, and final disposal. In response to this issue, Bank Sampah Berkah in Sumbersari Village, Sekampung District, East Lampung Regency, has taken the initiative to address local waste problems. It is hoped that this waste bank can provide a solution to the existing waste issues. To date, Bank Sampah Berkah manages over 2 tons of waste per month. The research question addressed in this study is: "What is the impact of Bank Sampah Berkah (BSB) on the welfare of the community in Sumbersari Village, Sekampung District, East Lampung Regency?" This study is limited to one variable, which is community welfare, with the object of research being Bank Sampah Berkah. The study location is Sumbersari Village, Sekampung District, East Lampung Regency.The results of the study show that the calculated Chi-Square value is 320.07. Based on the 5% and 1% significance levels, the Chi-Square table values are 43.773 and 50.892, respectively. Thus, the calculated Chi-Square value is greater than the Chi-Square table values at both the 5% and 1% significance levels (43.773 < 320.07 > 50.892). This indicates that the presence of Bank Sampah Berkah in Sumbersari Village, Sekampung District, East Lampung Regency has a positive impact on improving community welfare.

Keyword: Community Welfare.

Introduction

Improving In everyday life, the term waste is certainly not unfamiliar. Waste is residual material discarded as a result of a production process, whether industrial or domestic (household). Waste can come from humans, plants, and animals, with various forms, including liquid, gas, and solid. According to Azwar (2020), waste is something that is no longer used and must be discarded, generally originating from humans. WHO defines waste as items derived from human activities that are no longer needed, used, or liked and therefore discarded. Meanwhile, Law No. 18 of 2008 on Waste Management defines waste as residual daily activities of humans or natural processes in the form of solid or semi-solid substances, consisting of organic or inorganic materials that are considered useless and discarded into the environment.

Waste comes from various places, such as residential areas that produce organic waste like food scraps, wet waste, dry waste, ash, plastic, and others. Public places and commercial areas, such as shops and markets, also have significant potential for producing waste, generally in the form of food scraps, rotten vegetables, dry waste, ash, plastic, paper, cans, and others. Based on its origin, solid waste can be classified into two types: organic waste that can be degraded by microbes (biodegradable), such as food scraps and leaves, and inorganic waste produced from non-biological materials, such as metal, plastic, paper, and glass, most of which cannot be decomposed by nature entirely (unbiodegradable) or can only be decomposed over a long period (Anies, 2016:15).

According to the Department of Public Works of Semarang City (2018), waste management can be done with the 3R principle: Reuse, Reduce, and Recycle. Efforts to reduce waste must start from upstream to downstream, by applying the 3R principles. Bank Sampah Berkah in Sumbersari Village, Sekampung District, East Lampung Regency, takes the initiative to tackle waste around the community, hoping to provide a solution to the waste problem. To date, more than 2 tons of waste per month are managed by Bank Sampah Berkah.

Waste management involves various activities, ranging from controlling waste generation, collection, transfer and transport, to processing and final disposal. With the existence of the Waste Bank, the community can more easily manage their waste, reduce negative impacts on the environment, and even utilize waste as a valuable resource. The waste handled by Bank Sampah Berkah (BSB) in Sumbersari Village includes various types, such as plastic, glass, metal, paper, and cans. The existence of this Waste Bank holds great hope for improving the community's economy through proper waste management.

Table 1. Types of Waste Managed by Bank Sampah Berkah June-December 2022

No	Month	Type of Waste and Capacity Managed (Kg) Plastic
1	July	332
2	August	291
3	September	290
4	October	301
5	November	287
6	December	300
	Total	1801

Source: Bank Sampah Berkah Sekampung District 2022

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The waste data managed by BSB from July to December 2022 shows that the total waste managed reached around 12 tons, with details: plastic 1,801 kg, metal 1,090 kg, glass 2,703 kg, paper 5,161 kg, and cans 757 kg. The waste management carried out by Bank Sampah Berkah not only helps reduce the amount of waste in the environment but also provides economic benefits to the community. Through waste collection and processing activities, the community can earn additional income. Waste management involving recycling (recycle), reusing (reuse), and reducing (reduce) also supports environmental conservation efforts.

The positive impacts felt by the Sumbersari community with the existence of Bank Sampah Berkah include economic improvement through additional income from waste collection and processing, increased environmental awareness, reduced improperly managed waste, and improved health with a cleaner environment and reduced disease risk. The existence of Bank Sampah Berkah (BSB) in Sumbersari Village significantly positively impacts community welfare. Through good waste management, not only can environmental problems be addressed, but economic benefits can also be provided to the community. Therefore, initiatives like Bank Sampah Berkah need to be continuously supported and developed to achieve a cleaner environment and more prosperous society.

Method

Research methodology encompasses the methods and procedures used to achieve predetermined objectives. According to Hadi (2018), current research methodologies provide rigorous guidelines to ensure that research findings contribute to high-quality scientific work. Consequently, research methodology is defined as a set of operational procedures aimed at achieving specific goals. In this study, a descriptive qualitative method was employed, integrating theoretical foundations with quantitative data analysis to realize the research objectives.

Validity and Reliability of Research Instruments

1) Validity

refers to the accuracy of a measurement tool in assessing what it is intended to measure. Arikunto (2020) explains that the product-moment correlation formula is used to determine validity:

$$rxy = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{(n\sum x^2 - (\sum x)^2 - (\sum y^2 - (\sum y)^2)}}$$

Where :

rxy : correlation index between two halves of the instrument

x : Skor item X

y : Skor item Y

2) ***Reliability***

measures the consistency of a tool, indicating whether it produces similar results across different instances. The Spearman-Brown formula is used to determine reliability:

$$r11 = \frac{2xr\,½\,½}{(1 + r\,½\,½)}$$

Where :

r11 : reliability of the instrument

r ½ ½ : rxy is the correlation index between two halves of the instrument.

Data Collection Techniques

Effective research requires specific methods for data collection:

Documentation involves gathering data from various sources such as records, transcripts, books, newspapers, magazines, and meeting minutes. In this study, documentation focused on data related to brand influence on purchasing decisions.

Interviews are face-to-face verbal exchanges used to collect detailed information from respondents. Interviews help in exploring preliminary issues and gathering insights directly from the management of Bank Sampah and local residents.

Questionnaires involve written surveys containing questions on specific issues. This method collects data by posing questions to respondents in writing and receiving written answers.

Population, Sample, and Sampling Techniques

Population is the entire group targeted by the research. For this study, the population consists of 330 customers of Bank Sampah Berkah in Desa Sumbersari, Kecamatan Sekampung, Kabupaten Lampung Timur.

Sample is a subset of the population selected for the study. Following Suharsimi Arikunto's guidance, if the population is fewer than 100, it is preferable to include the entire population. For larger populations, a sample of 10-25% is appropriate. This study selected a sample of 33 respondents, representing 10% of the population.

Sampling Techniques used in this study include:

Random Sampling: Samples are selected randomly, giving every population member an equal chance of inclusion without bias.Cluster Sampling: This technique is used for large populations, selecting samples in stages from broad areas (e.g., districts) to smaller units (e.g., villages) before random selection within the smallest units.Incidental Sampling: Samples are chosen based on chance encounters with individuals who meet the research criteria.

Data Analysis Techniques

Qualitative Analysis involves using theoretical approaches to interpret data and identify patterns.

Quantitative Analysis employs statistical methods, such as the Chi-Square formula, to test hypotheses and analyze data patterns:

$$x^2 = \Sigma \frac{(f_o - f_h)^2}{f_h}$$

Where:

x^2 = chi-square statistic

f_o = is the observed frequency

f_h = is the expected frequency.

Results And Discussion

Waste

Waste is defined as the by-product of production processes, whether industrial or domestic, as stipulated in Law No. 18 of 2018, which refers to residuals from human activities or natural processes in solid or semi-solid forms, either organic or inorganic, considered useless and discarded into the environment (Ambang Suwerda, 2014). Waste is categorized into organic, which decomposes naturally like food scraps, and inorganic, such as plastic and metal, which are difficult to decompose (Gelbert et al., 2016). The negative impacts of improperly managed waste include health issues, environmental pollution, and additional costs for management (Ari Nugroho, 2016). Waste management involves controlling waste generation, collection, transfer, processing, and final

disposal , Kreith, F., & Williams, P. (2014). The 3R concept—Reuse, Reduce, and Recycle—is a primary strategy for mitigating waste impacts (Department of Public Works Semarang City, 2018).

Waste Bank

A Waste Bank is a waste management system that applies banking principles, where 'deposits' are dry waste that has been sorted. In this system, residents or account holders deposit their sorted waste, which is then weighed, valued, and recorded in a savings book. The waste is then sold to factories that partner with the waste bank to provide direct economic benefits and raise public awareness about waste management (KBBI, 2017; Wayan Permana, 2012). This system also integrates the 3R principles to support a clean, green, and healthy environment (Firman Irawan, 2016). The management of a waste bank includes sorting waste, recording and accounting, recycling processing, and converting waste into cash (Firman Irawan, 2016).

Welfare

Welfare refers to the condition of individuals and communities living up to the perceived standards of life, encompassing the fulfillment of material, spiritual, and social needs (Riyanto, 2013; Law No. 11 of 2009). Welfare is assessed by the ability of individuals or groups to meet needs such as food, clothing, shelter, health, education, safety, and peace of mind. Welfare can be measured through both monetary and non-monetary dimensions, including per capita income, income distribution inequality, and socio-economic vulnerability (Kuncoro, 2009). Indicators of family welfare include income, consumption, housing conditions and facilities, health, access to health services, and education (Badan Pusat Statistik, 2019). Measuring welfare based solely on per capita income often does not fully reflect welfare comprehensively, thus various indicators are needed for a more accurate picture (Kuncoro, 2009).

Hypothesis

Sugiono (2019) states that a hypothesis is a provisional answer to a problem that needs to be verified for its truth. Based on the problem description and theoretical framework above, the hypothesis proposed in this study is: "There is an Impact of the Existence of Bank Sampah Berkah (BSB) on the Welfare of the Community in Sumbersari Village, Sekampung District."

Validity and Reliability Testing

Table 2. Results of Validity Test for Welfare

No Sampel	ITEM VALUES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
	1	2	1	1	2	1	1	1	1	1	12
	1	2	1	1	2	1	2	2	3	1	16
	2	2	1	1	3	1	2	3	2	3	20
	1	2	3	2	2	1	3	3	3	2	22
	1	3	3	2	3	1	3	3	3	3	25
	3	3	3	2	3	3	3	3	3	3	29
	3	3	2	3	2	2	3	3	3	3	27
	3	3	3	3	3	2	3	2	3	3	28
	2	3	3	3	3	3	3	3	3	2	28
	3	3	3	3	3	3	3	3	3	3	30
	20	26	31	26	28	16	26	26	27	24	

Source: Processed Questionnaire

Table 3. Results of Validity Test for Community Welfare

Item	R Calculated	R Critical	Description
1	0.758	0.300	Valid
2	0.881	0.300	Valid
3	0.829	0.300	Valid
4	0.865	0.300	Valid
5	0.632	0.300	Valid
6	0.786	0.300	Valid
7	0.913	0.300	Valid
8	0.703	0.300	Valid
9	0.736	0.300	Valid
10	0.787	0.300	Valid

If the R Calculated value is greater than R Critical or R Calculated > 0.30, the instrument can be considered valid and used as a research tool. R Critical is the minimal threshold for the value of the data source.

Table 4. Results of Reliability Test for Welfare

No Sampel	ITEM VALUES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
	1	2	1	1	2	1	1	1	1	1	12
	1	2	1	1	2	1	2	2	3	1	16
	2	2	1	1	3	1	2	3	2	3	20
	1	2	3	2	2	1	3	3	3	2	22
	1	3	3	2	3	1	3	3	3	3	25
	3	3	3	2	3	3	3	3	3	3	29
	3	3	2	3	2	2	3	3	3	3	27
	3	3	3	3	3	2	3	2	3	3	28
	2	3	3	3	3	3	3	3	3	2	28
	3	3	3	3	3	3	3	3	3	3	30
	20	26	31	26	28	16	26	26	27	24	

Source: Processed Questionnaire

Table 5. Results of Reliability Test for Social Welfare

Item	R Calculated	R Table	Description
1	0.904	0.632	Reliable
2	0.915	0.632	Reliable
3	0.909	0.632	Reliable
4	0.893	0.632	Reliable
5	0.901	0.632	Reliable
6	0.904	0.632	Reliable
7	0.913	0.632	Reliable
8	0.904	0.632	Reliable
9	0.898	0.632	Reliable
10	0.898	0.632	Reliable

If the R Calculated value is greater than R Table or R Calculated > 0.632, the instrument is considered reliable and can be used as a research tool. R Table is the basis for determining the minimal threshold value of the processed data.

Results of measuring the welfare of the Sumbersari community after the existence of the Berkah Waste Bank (BSB):

Table 6. Community Welfare Calculation Results

No	ANSWER										TOTAL
	1	2	3	4	5	6	7	8	9	10	
1	3	3	3	3	3	3	3	3	3	3	30
2	3	2	3	3	3	3	2	2	2	3	26
3	3	3	2	3	3	3	3	3	2	2	27
4	3	3	3	3	3	3	3	3	3	2	29
5	3	2	3	3	3	3	3	3	2	3	28
6	3	3	3	2	3	3	3	3	3	2	28
7	3	3	3	3	2	2	2	2	2	3	25
8	3	3	3	3	3	3	2	3	3	3	29
9	3	3	3	3	3	3	2	2	2	3	27
10	3	3	3	3	2	3	3	2	2	2	26
11	3	3	3	3	3	3	3	2	3	3	29
12	3	3	3	3	3	3	3	3	2	2	28

13	3	3	3	3	3	3	3	2	2	2	27
14	3	3	3	3	3	3	3	3	2	2	28
15	3	3	3	3	3	2	2	2	2	2	25
16	3	3	3	2	2	2	2	2	2	2	23
17	3	3	3	3	3	3	2	2	2	2	26
18	3	3	3	3	3	3	3	3	2	2	28
19	3	3	3	3	3	3	3	3	2	3	29
20	3	3	3	3	3	3	3	3	3	2	29
21	3	3	3	3	3	3	2	2	3	3	28
22	3	3	3	3	3	3	2	2	2	3	27
23	3	3	3	3	3	3	2	2	2	2	26
24	3	3	3	3	3	3	3	2	3	3	29
25	3	3	3	3	3	3	3	2	2	2	27
26	3	3	3	3	3	3	3	2	2	2	27
27	3	3	3	3	3	3	3	2	2	2	27
28	3	3	3	3	3	2	2	2	2	2	25
29	3	3	2	3	3	2	2	2	2	2	24
30	3	3	3	3	3	3	2	2	3	3	28
31	3	3	3	3	3	3	2	2	2	2	26
32	3	3	3	3	3	3	2	2	2	2	26
33	3	3	3	3	3	3	2	2	3	3	28

Source: Processed Questionnaire

Table 7. Table work for calculating Chi Square (X2)

Question	Agree	Disagree	Strongly Disagree	Total Respondents
	33	0	0	33
	31	2	0	33
	31	2	0	33
	31	2	0	33
	30	3	0	33
	28	5	0	33
	17	16	0	33
	11	22	0	33
	10	23	0	33
	12	21	0	33
TOTAL	234	96	0	330

Table 8. Table Chi Square Calculation Table (X2)

Forecast	F_o	F_h	(F_o-F_h)	$(F_o-F_h)^2$	$\frac{(F_o-F_h)^2}{F_o}$
Agree	234	3	231	53361	228.03
Disagree	96	2	94	8836	92.04
Strongly Disagree	-	1	-1	1	0
Total	330	6	294	22798	320.07

Based on the above calculation, the Chi-Square value obtained is 320.07. At a 5% significance level, the Chi-Square critical value is 43.773 with n=30 n=30, and at a 1% significance level, it is 50.892. Since the Chi-Square value obtained (320.07) is greater than the Chi-Square critical values at both 5% and 1% significance levels (43.773 < 320.07 > 50.892), it indicates that the existence of Bank Sampah Berkah in Sumbersari Village, Sekampung District, East Lampung Regency has a positive impact on improving community welfare.

Discussion

Based on the data in Table 4, it can be concluded that one factor contributing to the increased welfare in Sumbersari Village is the presence of Bank Sampah Berkah in Sumbersari Village, Sekampung District, East Lampung Regency. Welfare can be measured in three aspects:

1. Income: The greater the income obtained, the higher the ability to cover expenses and activities. An increase in income leads to an improved standard of living for the household.
2. Education: Higher and better-quality education positively impacts economic growth by producing skilled and educated labor, which is beneficial for economic development. Education indicators include the education level of household members, the availability of educational services, and the use of these services.
3. Health Quality: To improve health and the standard of living, four indicators are used: nutritional status, disease status, availability of health services, and the utilization of these health services.

Conclusions And Suggestions

Based on the findings from the study, it can be concluded that the presence of Bank Sampah Berkah (BSB) has significantly improved waste management practices in the community. The study reveals that the implementation of BSB has led to a decrease in indiscriminate waste disposal and has fostered a savings-oriented mindset among its participants. The Chi-Square test results indicate a calculated value of 320.07, which is substantially higher than the critical values of 43.773 at the 5% significance level and 50.892 at the 1% significance level, affirming that BSB has a positive impact on enhancing community welfare. To further improve the effectiveness of BSB, it is recommended to increase efforts in socialization and education regarding the importance of waste segregation and the advantages of the waste savings system. This could be achieved through comprehensive awareness campaigns utilizing various media and community activities. Additionally, upgrading the infrastructure of the bank, including better facilities for waste sorting and processing, should be prioritized to streamline operations and enhance efficiency. Regular monitoring and evaluation are also essential to identify and address any issues, ensuring the continued success and improvement of the program. Engaging the community with incentives and support could further boost participation and reinforce sustainable waste management practices.

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