Technium
Education and Humanities

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

Cultural Influences on Waste Dump and Separation Behaviors in Future Capital of Indonesia (Study Case in Sepaku Regency, Indonesia)

Dafi Dinansyah Wiradimadja[1], Hisatsuna Mori[2] and Riza Rizkiah[3]

[1] Mie University, Faculty of Regional Innovation Studies, Tsu City, Japan
[2] Professor at Mie University, Faculty of Regional Innovation Studies, Tsu City, Japan
[3] Faculty of Engineering, Insan Cendekia Mandiri University, Bandung, Indonesia Jl.Banten No.11 Bandung, 40272
E-mail: dafikido@gmail.com

Abstract. Garbage in Indonesia is a serious problem that has an impact on the social, economy and culture of society. Almost all cities in Indonesia experience problems in processing waste, including in the future capital of Indonesia. The research found that many Indonesians have NIMBY syndrome, the throwing garbage anywhere when they are outside their home, when the eating on the street they usually throw their garbage onto the street or into a gutter. In some ethnic groups in Indonesia, littering is also a tradition from their ancestors. In some culture, deliberately make the floor of their houses on stilts rather sparse to make it easier for them to dispose of food waste from inside their homes, likewise, in some community, they throw food waste directly from the kitchen window to the outside of the house. According to observations, this is almost evenly done by older generations at the level of people who born in the 1940s. The current habit of waste if we look again, are the legacy and education from the previous generation where that the garbage they dumped everywhere in the past was partly organic waste, the food and the things they use including bags, cutlery and so on are mostly made from organic materials that come from the environment around them, so that whatever they throw away, if not eaten by pets, will decompose so quickly in the ground. it is even useful for soil, therefore, even though littering activities are carried out, the streets in the village in the past were still clean of garbage. This article meant to seek the cultural background behind NIMBY syndrome in Indonesia. This research used Mixed Methods approach (quantitative and qualitative) and use secondary data review, direct observation and semi semi-structured interviewing to collect the data. This research found that the main factor for the success of this program is the people who willing to be open concerning the program and its concepts, thus becoming aware about their environmental problems, they willing to work for the benefit of their village. In this village the push fac-tor are economic and re-education aspects that move the people to save their environment. The economic benefit from gar-bage bank also have helped this program. The research showed that the respondents who have lower education level have more tendency on separating their waste than the respondents who have higher education level, and the research also showed that the respondents who separating their waste showed have higher income level. The research concluded that here isn't much evidence of a causal link between education, income level and pro-environmental behavior.

Keywords. Waste, Behavior, Recycling, Cultural Influences

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

I. Introduction

Garbage is a problem that is difficult to handle in many countries, including Indonesia. Therefore, waste is one of the problems that deserves attention. Garbage is an inseparable part of human life, because basically all humans must produce garbage. Garbage is a waste that results from every human activity. The increasing level of human consumption has an impact on the increased volume of waste in the environment.

Garbage in Indonesia is a serious problem that has an impact on the social, economy and culture of society. Almost all cities in Indonesia experience problems in processing waste, including in the future capital of Indonesia. This happens because the landfill processing in this location is still inadequate. This results in people throwing trash in any place such as rivers, gutters, and other public places. The waste produced in Indonesia reaches 67 million tons per day. This was disclosed by the Minister of Environment and Forestry. The type of waste produced is dominated by organic waste which reaches 60 percent and plastic waste 15 percent. More than 1 million plastic bags are used every minute, and 50 percent of them are used only once and then thrown away immediately and only 5 percent is recycled. It cannot be denied that the existence of waste that is not managed properly will cause environmental pollution.

II. Previous Study

- Personal norm, habit, and recycling intention are three direct predictors of recycling behavior. Recycling intention is directly influenced by personal norm and behavioral skills, and indirectly influenced by personal motivation, social motivation, and ascription of responsibility. These findings suggest the importance of the normative approach in environmental campaigns to encourage recycling. (Liu, Z., Yang, J.Z, 2022)[1].
- Older, wealthier, more educated people and women have been shown to recycle more, while knowledge about environmental issues also predicts recycling behavior - particularly knowledge about recyclable materials, programs and the location of recycling facilities (Whitmarsh LE, Haggar P, Thomas M, 2018)[2].
- Environmentally aware and empowered youths are potentially the greatest agent of change for the long term protection and stewardship of the environment. Thus, environmental education which promotes such change will enable these youths to have a greater voice on environmental issue if effectively implemented in Nigeria.[3].

State of the Art

The published literature at the intersection of waste and culture was smaller. In a 2016 review of social factors related to waste, a search for articles on “municipal solid waste” returned 26 094 publications but, of these, only 0.69% focused on social or cultural factors [4]

[1] Liu, Z., Yang, J.Z. Predicting Recycling Behavior in New York State: an integrated model. Environmental Management 70, 1023–1037 (2022). https://doi.org/10.1007/s00267-022-01708-6

[2] Whitmarsh LE, Haggar P, Thomas M. Waste Reduction Behaviors at Home, at Work, and on Holiday: What Influences Behavioral Consistency Across Contexts? Front Psychol. 2018 Dec 6;9:2447. doi: 10.3389/fpsyg.2018.02447. PMID: 30574111; PMCID: PMC6291483.

[3] Erhabor, Norris & Don, Juliet. (2016). Impact of Environmental Education On the Knowledge and Attitude of Students Towards the Environment. Tạp chí Nghiên cứu dân tộc. 11. 5367-5375. 10.25073/0866-773X/68.

[4] Ma J, Hipel KW. Exploring social dimensions of municipal solid waste management around the globe - a systematic literature review. Waste Manag. 2016;56:3–12. 10.1016/j.wasman.2016.06.041 doi: [PubMed] [Reference list]

Technium
Education and Humanities

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

III. Research Methods

A. Qualitative Data Collection

Assessment of this study lead to social and environmental factors that are descriptive terms in order to gain a complete and in-depth research. Qualitative approach, will investigate the interactions that occur between the community and the environment, in this case the waste management efforts out. The focus of this research are the behavior, expressions, and emotions that society considers their experience in environmental management.

Qualitative data analysis is an ongoing process that requires continuous reflection on the data, asking questions analytically, and writes a brief throughout the study (Cresswell, 2014). Activities and qualitative data analysis are ongoing continuously until the data and information obtained in the field are saturated or do not show anything new.

B. Qualitative Data Collection Techniques

Primary data is data collected from the object of research conducted intensively using observation techniques, semi-structured interviews and documentation. Qualitative interviews are unstructured (unstructured) and open (opened) designed to elicit views and opinions from the participants (Cresswell, 2010).

To see the conditions at the research site, non-involved observations were also carried out. Qualitative observations with this technique are observations in which researchers go directly to the field to observe the behavior and activities of individuals at the research site without being directly involved with the object of study (Cresswell, 2010).

C. Quantitative Data Collection

Seapaku Regency is the unit of analysis for the sample on quantitative data collection. The samples were selected randomly (random sample), as stated by Creswell, so each individual in the population has the same probability to be selected[5]. Thus, all the inhabitants of the Village have an equal chance to be the respondent.

Calculations were performed using the formula of Taro Yamane or Slovin as follows[6] (in Stephanie, E: Slovin's Formula Sampling Techniques. Houghton-Mifflin, New York, USA):

$$n = \frac{N}{Nd^2 + 1}$$

Where:

n = *Sample*
N = *Total Population of Sepaku Regency District (38,160 people[7])*
d = *Deviation / Sampling Error (10%) with level of confidence in the data is 90%*

The random nature of the respondents is assumed to have been represented through random techniques, thus making the questionnaire have sampling error of 10% (d = 0.1). The level of confidence or precision of the data by 90%[8]. By using this equation is obtained the total sample are **100 people.**

[5] Creswell, John W. Research design : qualitative, quantitative, and mixed methods, Sage Publication, California, 2014, p.39.
[6] E., Stephanie, Slovin's Formula Sampling Techniques. Houghton-Mifflin, New York, USA, 2003.
[7] Monografi Kecamatan Sepaku, 2021.
[8] With regard to the level of accuracy, we used a confidence level of 90% as suggested by Kothari C.R (2008) research methodology, New Delhi, Publisher New age international ltd, in

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

D. Secondary Data Collection

Secondary data is needed to accelerate understanding of field conditions. Secondary data is needed to accelerate the understanding of field conditions, population demographics, environmental management policies and other reports. Data are collected by means of collecting, recording, or quote and learn from a variety of documents obtained from Sepaku Regency government and also from publications and relevant reports related to the research conducted.

Literature Review

E. Weak Social Constructionism

Weak Social constructionism relies on “brute facts” (which are facts that are so fundamental that they are difficult to explain, such as elementary particles) in addition to “institutional facts” — facts that have been constructed through social interaction[9]. The idea (in this case recycling behavior), to these people, becomes an objective truth. And finally, in the last stage, the idea becomes “internalized” in the consciousness of the society, and future generations more or less take the idea for granted as an objective truth, as the idea already exists in the world they were born into[10].

F. Norm Activation Model

The Norm Activation Model is a vested model that explains altruistic and environmentally friendly behaviour. Although research states that anticipated pride and guilt are associated with the NAM, these associations are not yet fully understood[11]. The results of the literature review found the factors that cause the behavior of throwing garbage in rivers based on three aspects of the Norm Activation Model. Contributing factors are a lack of awareness of personal norms, awareness of consequences, and a sense of responsibility towards the environment. To overcome this problem, there are two solutions that can be used. First, there is law enforcement. Second, the provision of quality services. The implementation of these two solutions needs to be preceded by counseling and outreach to the community. This is so that the good intentions and goals of the two solutions can be conveyed to the public.

G. NIMBY Syndrome

NIMBY (Not in My Back Yard) means that people thinks that garbage is not his business anymore if he is outside his house. An attitude that does not care about the existence of garbage. Garbage is left to be dumped into vacant land or into rivers. The term "NIMBY" was first written about by Emilie Travel Livezey, who used it to refer to opponents of hazardous waste material sites such as landfills.[12]

(THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT Effect of Credit Management System on Financial Performance of Development Bank in Rwanda: Case Study of Development Bank of Rwanda) this means that there are 90 chances in 100 (or .90 in 1) that the sample results represent the true condition of the population within a specified precision range against 5 chances in 100 (or .05 in 1) that it does not.

[9] Smith-Lovin, Lynn and David R. Heise. “Analyzing Social Interaction: Advances in Affect Control Theory.” (1988).

[10] Burr, V. (2015). Social Constructionism (3rd ed.). Routledge.

[11] Marleen C. Onwezen, Gerrit Antonides, Jos Bartels, The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour, Journal of Economic Psychology,Volume 39, 2013, Pages 141-153

[12] The Home News (New Brunswick, New Jersey) of Thursday 10th March 1983.

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

IV. Results and Discussions

Socio Economic
I. Components
A. Number and Macro Population Growth

1. North Penajam Paser Regency population for the last five years (2015-2019) has not experienced significant growth. In 2015 the total population of 154,234 people with a composition of 80,609 people and male population 73,625 female inhabitants. In 2019 total the population has increased to 160,912 people with a composition of 84,018 of the male population and 76,894 female residents. To find out in more detail the population by type gender can be seen in the following table.

Table 4.1. Amount Resident According to Type Gender in the District Sharpener North Paser Year 2020

No.	Subdistrict	Resident Amount		Sex Ratio
		Men	Women	
1	Babulu	17,362	15,376	113
2	Waru	9,174	9,289	99
3	Penajam	39,437	38,811	102
4	Sepaku	18,045	13,418	134
	Total	8,018	76,894	109

Source : North Penajam Paser Regency in Figures, 2020

To find out in more detail the population and the population growth for 2015-2019 can be seen in the following table.

Table 4.2. Total Population and Population Growth of Kutai Kartanegara Regency in 2015-2019

No	Year	Total Amount	Population Growth (%)
1	**2015**	717,789	
2	**2016**	735,016	2.40%
3	**2017**	735,016	0.00%
4	**2018**	769,337	4.67%
5	**2019**	786,123	2.18%

Source : Kutai Kartanegara Regency in Numbers, 2020

B. Macro Resident Density

North Penajam Paser Regency has relatively low density. The resident density detail presented in table below.

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

Table 4.3. Population, Area, and Residents Density North Penajam Paser Regency 2019

Subdistrict	Area (Km²)	The amount of Resident	Average Population Every /km ²
Babulu	355.71	32,738	92.04
Waru	496.05	18,463	37.22
Penajam	1036.7	78,248	75.48
Sepaku	1172.36	31,463	26.84
Penajam Paser Utara	3060.82	160,912	52.57

Source : North Penajam Paser Regency in Figures, 2020

From the table above it can conclude that from fourth districts in the regency, District Babulu is a sub-district with highest density.

C. Population Based on Group Age

1. To see more details about the population picture by age group and sex, can be seen in following table:

Table 4.4. Population by Age Group and Gender in North Penajam Paser Regency

Group	Male	Female	Amount
0 – 4	7,791	7,367	15.148
5 – 9	7,660	7,367	15027
10 – 14	7,636	7,038	14,674
15 – 19	6,909	6,251	13.160
20 – 24	5,701	5,372	11073
25 – 29	6,403	5,951	12,354
30 – 34	6,704	6,269	12,973
35 – 39	6,692	6,335	13027
40 – 44	6,591	6,254	12,845
45 – 49	6,260	5,231	11,491
50 – 54	4,980	4,225	9.205
55 – 59	3,921	3,393	7,314
60-64	2,688	2,311	4,999
65-69	1884	1,535	3,419
70-75	1,129	1011	2,140
75+	1,069	984	2053
Amount / Total	**84,018**	**76,894**	**160,912**

Source : North Penajam Paser Regency Figures, 2020

From the data above could is known that more of 70 percent resident North Penajam Paser Regency is within productive group, that is ages 15-64 years.

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

D. Education

The level of education attained by the majority of the population in the study area are also reflected in the availability of educational infrastructure.

Table 4.5. Number of Educational Facilities in the Sepaku District, North Penajam Paser Regency

No.	Educational Facilities	North Penajam Paser Regency	Distance (km)to the nearest school	Ease of Reach
		Sepaku District		
1.	kindergarten	0	3	Very easy
2.	Elementary School	1		Easy
3.	Junior High School	0	3	Easy
4.	Senior High School	0	7	Very easy
5.	SMK	0	3	Easy
6.	Madrasa Ibtidaiyah/Islamic Elementary School	0	72	Very difficult
7.	Madrasah Tsanawiyah/ Islamic Junior High School	0	14	Easy
8.	senior High School	0	14	Easy

Source: Sepaku District , 2020

Educational facilities and infrastructure in the study area, namely in Sepaku District, North Penajam Paser Regency, can be said to be very minimal or incomplete. In this district there is only 1 (one) school, namely 1 (one) elementary school. For other levels of education, it has not yet been recorded in Sepaku District, North Penajen Paser Regency. However, there are several nearby schools with distances ranging from 3 km to 72 km from Sepaku District, according to the data presented in table above.

E. Age

Workforce Potential

In the area of Kutai Kartanegara Regency which consists of 23 sub-districts, the productive age group is 511,563 out of a total population of 786,122. This means that every 100 people of working age (considered productive) have more than 53 dependents who are not yet productive and are considered no longer productive.

Table 4.6 Total Population by Age Group in the Kutai Kartanegara Regency

No.	Group Age	Total Population of Kutai Regency Kartanegara
1.	0-14	216,504
2.	15-64	511,563
3.	65+	58 ,055
Amount		**786,122**
Dependencies Ratio		**53.67**

Source: Central Statistics Agency for Kutai Kartanegara Regency, 2020

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

F. Culture

Religion

From a religious standpoint, both in North Penajam Paser Regency and Kutai Kartanegara Regency, the majority of the population is Muslim. With facilities for places of worship scattered in every village.

Table 4.7 Total Population According to Religion Followed in North Penajam Paser Regency and Kutai Kartanegara Regency

No	District name	Religion						
		Islam	Protestant	Catholic	Hindu	Buddha	Confucius	Other
1	Penajam Paser Utara	164,924	6,488	2,151	87	19	1	1
2	Kutai Kartanegara	644,254	38,047	11,720	2,447	222	11	83

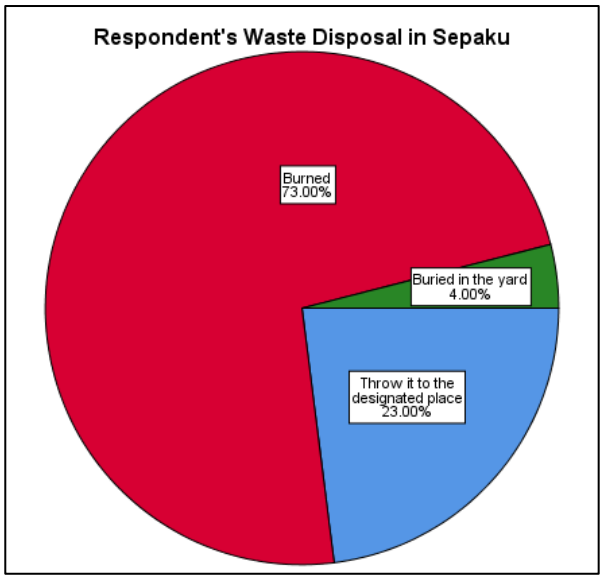
Source: Central Bureau of Statistics for East Kalimantan Province, 2020

4.2. Waste Management in North Penajam Paser Regency

4.2.1. Garbage Disposal System at the Household Level

Garbage is part of something that is not used. Domestic waste or waste from household activities is disposed of in various ways, thrown into designated place, buried and burned. From the results of the interviews, data was obtained that most waste handling at the household level was burned, this was stated by 73% of respondents. Then, 23% of the other respondents disposed of their garbage in the yard of the house, while 14.7% of the respondents disposed of their garbage by burning it. Respondents reasoned that they burned their garbage by burning it directly in the yard of the respondent's house / back of the house so that the garbage was destroyed quickly and more quickly and practically, followed by 4.8% of respondents who threw their garbage directly into the sea/rivers and finally 4.8% of respondents who buried their garbage. The data is shown in the following Figure.

Fig 4.1. Respondent's Waste Disposal in Sepaku



Source: Primary Data

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

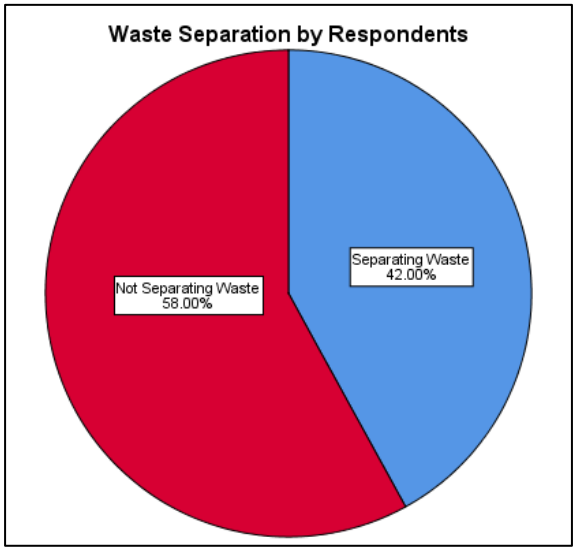
Fig 4.2. Household Waste Disposal on the Location

Source: Primary Data

4.2.2. Waste Sorting System (Organic & Non-Organic)

Domestic waste from the rest of household activities is not completely disposed of, there are some respondents who do segregation between organic waste (derived from the remains of decomposing living things, such as: leaves, wood, egg shells and others) and non-organic waste (derived from materials that are difficult for bacteria to decompose, such as plastic, drink bottles, cans and others). In the study location, there were 42% of respondents who sorted waste based on the type. Some of the other respondents, namely 58%, did not sort their waste but disposed of it directly either by throwing it in a trash can, throwing it into the sea/river, burning it or just throwing it away. The data is shown in the following Figure**.**

Fig 4.3. Waste Separation by Respondents



Source: Primary Data

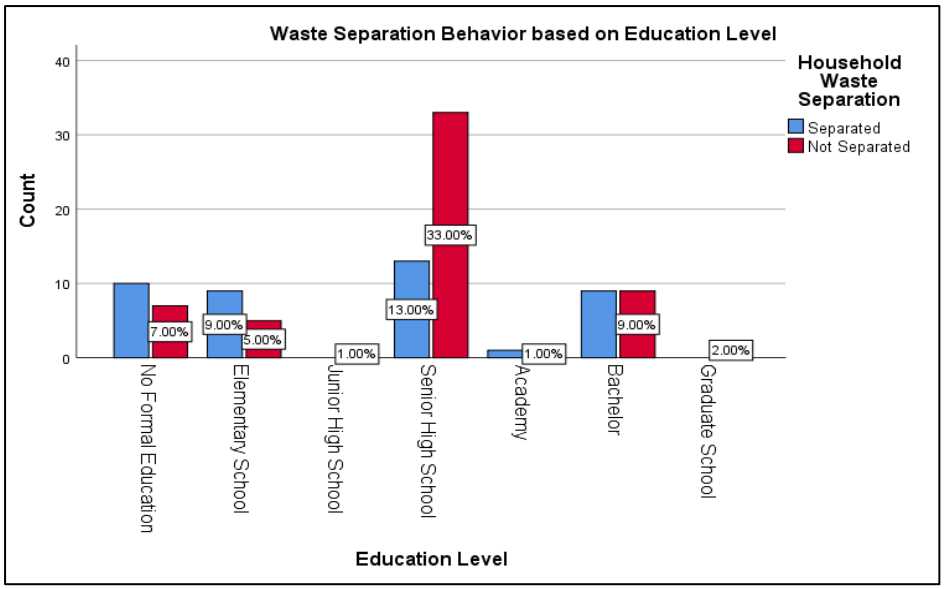
4.2.3. Waste Separation Behavior based on Education Level

Based on the questionnaires result, crosstabulation result showed that most respondents that separating waste have senior high school education, while respondents who did finished their higher education, in

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

this case academy have the lowest waste separation behavior equal with respondents who did have junior high education, this research showed that the higher the education level the least percentage of respondents who separating their household waste. The data is shown in the following Figure.

Fig 4.3. Waste Separation Behavior based on Education Level

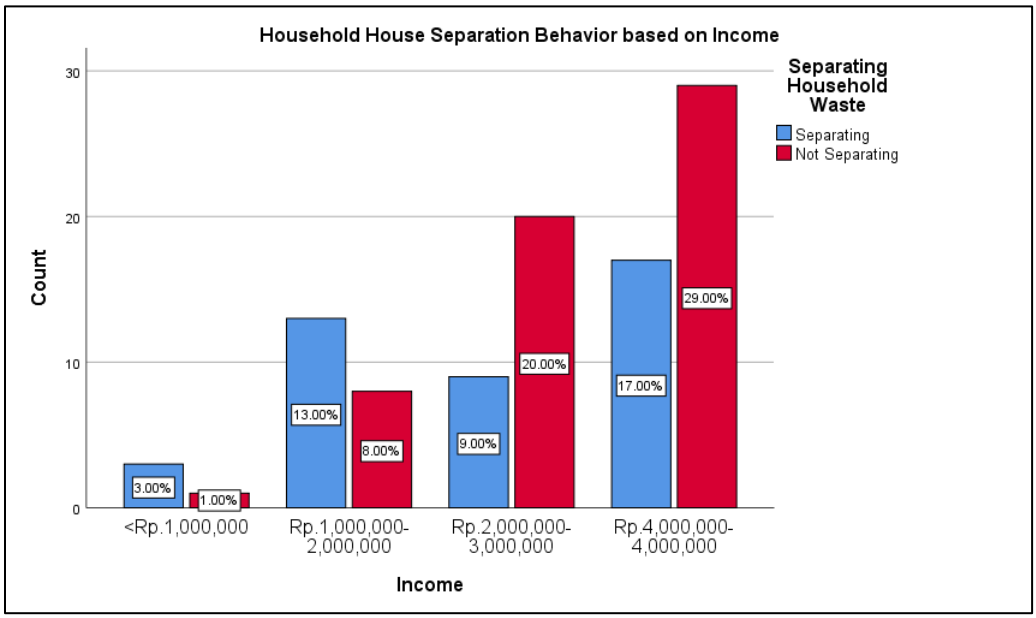


Source: Primary Data

4.2.4. Waste Separation Behavior based on Income

Based on the questionnaires result, crosstabulation result showed that most respondents that separating waste are respondents who have higher income level. The data is shown in the following Figure.

Fig 4.4. Waste Separation Behavior based on Income (in Rupiah/Rp)



Source: Primary Data

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

4.3. DISCUSSIONS

In some ethnic groups in Indonesia, littering is also a tradition from their ancestors. In some culture, deliberately make the floor of their houses on stilts rather sparse to make it easier for them to dispose of food waste from inside their homes, likewise, in some community, they throw food waste directly from the kitchen window to the outside of the house. According to observations, this is almost evenly done by older generations at the level of people who born in the 1940s. The current habit of waste if we look again, are the legacy and education from the previous generation where that the garbage they dumped everywhere in the past was partly organic waste, the food and the things they use including bags, cutlery and so on are mostly made from organic materials that come from the environment around them, so that whatever they throw away, if not eaten by pets, will decompose so quickly in the ground. it is even useful for soil, therefore, even though littering activities are carried out, the streets in the village in the past were still clean of garbage.

However, this tradition will be a big problem if the garbage they throw away carelessly is no longer organic waste but plastic waste which has been confirmed to be difficult to decompose. The existence of this plastic is also not accompanied by a change in the tradition of littering into a society that cares about waste. The government's lack of clarity in dealing with plastic waste also adds to the complexity and complexity of this problem.

V. CONCLUSIONS

The research showed that the respondents who have lower education level have more tendency on separating their waste than the respondents who have higher education level, and the research also showed that the respondents who separating their waste showed have higher income level. The research showed that here isn't much evidence of a causal link between education, income level and pro-environmental behaviour.

VI. REFERENCES

[1] Burr, V. (2015). Social Constructionism (3rd ed.). Routledge.
[2] Creswell, John W. Research design: qualitative, quantitative, and mixed methods, Sage Publication, California, 2014.
[3] E., Stephanie, Slovin's Formula Sampling Techniques. Houghton-Mifflin, New York, USA, 2003.
[4] Erhabor, Norris & Don, Juliet. (2016). Impact of Environmental Education On the Knowledge and Attitude of Students Towards the Environment.
[5] Ma J, Hipel KW. Exploring social dimensions of municipal solid waste management around the globe - a systematic literature review. Waste Management. 2016;56:3–12. 10.1016/j.wasman.2016.06.041 doi: [PubMed] [Reference list]
[6] Marleen C. Onwezen, Gerrit Antonides, Jos Bartels, The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour, Journal of Economic Psychology, Volume 39, 2013.
[7] Smith-Lovin, Lynn and David R. Heise. "Analyzing Social Interaction: Advances in Affect Control Theory." (1988). THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT Effect of Credit Management System on Financial Performance of Development Bank in Rwanda: Case Study of Development Bank of Rwanda,-,-.
[8] Sepaku Regency Monograph, 2020.
[9] The Home News (New Brunswick, New Jersey) of Thursday 10th March 1983

Technium Education and Humanities
Vol. 4, pp.18-29 (2023)
ISSN: 2821-5079
www.techniumscience.com

[10] Tạp chí Nghiên cứu dân tộc. 11. 5367-5375. 10.25073/0866-773X/68.Liu, Z., Yang, J.Z. Predicting Recycling Behavior in New York State: an integrated model. Environmental Management 70, 1023–1037 (2022). https://doi.org/10.1007/s00267-022-01708-6

[11] Whitmarsh LE, Haggar P, Thomas M. Waste Reduction Behaviors at Home, at Work, and on Holiday: What Influences Behavioral Consistency Across Contexts? Front Psychol. 2018 Dec 6;9:2447. doi: 10.3389/fpsyg.2018.02447. PMID: 30574111; PMCID: PMC6291483.