Jurnal Presipitasi
Media Komunikasi dan Pengembangan Teknik Lingkungan
e-ISSN: 2550-0023

Vol 19, No 2, 2022, 303-315
Article available at homepage presipitasi

Regional Case Study

The Effects of Community Characteristics on Solid-Waste Generation and Management in the Village (A Case Study: Kurandak, North Sumatra)

Wisnu Prayogo[1]*, Royana Chairani[2], Desy Rahmadani Telaumbanua[3], Novi Fitria[4], Firdha Cahya Alam[5], Muhammad Faisi Ikhwali[6], Rifka Noor Azizah[5], Istiqomah Shariati Zamani[7]

[1] Department of Building Engineering Education, Faculty of Engineering, Universitas Negeri Medan, Medan, Indonesia 20221
[2] Department of Mathematics, Faculty of Math and Natural Science, Universitas Negeri Medan, Medan, Indonesia, 20221
[3] Department of Physical Education, Faculty of Math and Natural Science, Universitas Negeri Medan, Medan, Indonesia 20221
[4] Department of Chemical Analyst, Sekolah Tinggi Analis Bakti Asih, Bandung, Indonesia 40192
[5] Major of Environmental Engineering, Department of Infrastructure and Regional Technology, Institut Teknologi Sumatera, Lampung Selatan, Indonesia 353365
[6] Department of Environmental Engineering, Faculty of Engineering, Universitas Islam Negeri Ar-Raniry, Banda Aceh, Indonesia 202015
[7] Department of Environmental Engineering, Faculty of Engineering, Universitas Muhammadyah Kendari, Kendari, Indonesia 091036
*Corresponding Author, email: wisnuprayogo@unimed.ac.id

Abstract

Waste is a very complex and urgent problem to be solved. The problems occur due to the participation of the residents as the leading actor. This study aimed to determine the significance of the influence of gender, age, education, employment status, income, duration of stay, and the level of knowledge on waste generation and management. Respondents to questionnaires and interviews were 37 people whose numbers were determined based on the Slovin equation, while data was analyzed using SPSS Statistics 20 software. A person's educational status significantly positively affects people's habits in reducing waste generation. The following positive significance was income, gender, and length of stay. Age and employment status have a negative correlation, indicating that the older and working, the less waste the society generates. Besides affecting waste generation, it turned out that education also significantly affects waste management. Therefore, education is the main factor considered in waste planning. The results of this study can be used as input for the Indonesian Government in providing information through training and the provision of waste management facilities.

Keywords: Rural; solid waste; socio-demographic; socio-economic; Kurandak Village

1. Introduction

Kurandak Village is a remote village located in Deli Serdang Regency, North Sumatra, formed in 1998. By 2022, this village will have more than 140 families; most people will be farmers and fishers. Nearly 90% of the people live in poverty, and inadequate access to villages makes it increasingly difficult for economic growth. Because the location is far from the city, it experiences difficulties developing educational facilities. This condition ultimately causes people to miss the information, as they are not interested in continuing higher education (Alimuda, 2021). The lack of knowledge and public awareness makes Kurandak Village need attention to solve the waste problem. Waste could reduce the aesthetic value because of the unfavourable smells and slum areas. In addition, garbage becomes the breeding ground for types of diseases and triggers environmental pollution (Wiryono et al., 2020). Waste in rural areas is generally organic. Inorganic waste or hazardous and toxic materials is less than 20% compared to organic waste. The unavailability of waste management facilities causes people to manage independently, which is not according to standards, such as burning, open dumping, throwing into the irrigation, and even illegally dumping them on the road's side (Langinan et al., 2018). Complex chemical compounds from the inorganic waste decomposition could accumulate in the human body by consuming polluted drinking water. Its carcinogenic effect in the long term can adversely affect human health.

According to Azkha (2006), factors related to community characteristics significantly affect the amount of waste generation and its efforts to manage trash in an area. Many researchers in Indonesia have analyzed the influence of socio-demographic and socio-economic factors on waste generation and management. The characteristics of influential communities, as described by Oratmangun & Ariastita (2020), including gender, age, educational status, employment status, income, length of stay, and level of knowledge. Adlina (2013) conducted a study that resulted in a person's gender, age, and income significantly affecting the waste generation and management in West Java. Prajati et al. (2017) conclude that education seriously affects waste generation and public awareness in Java and Sumatra in managing their waste. Employment status, length of stay, and level of knowledge could influence community participation in waste management in Jombang Village, East Java (Prianto, 2011). Based on previous research, this research tried to measure these factors in Kurandak. The novelty of this study is shown in Table 1, which displays the differences in the variables in this study. Unlike previous studies conducted in big cities, it purposed to examine the characteristics of people in rural areas with a smaller number of respondents, around 37 people. This study aims to determine the significant influence of community characteristics such as gender, age, education, employment status, income, length of stay, and level of knowledge on the amount of waste generation and management in Kurandak. However, the variables in this study are more comprehensive, and the data were analyzed by Statistical Product and Service Solutions (SPSS) software.

Table 1 Recent research compared to previous research

Researcher, Title and Research Year	Research Location	Method	Amount of Respondents	Factors of consideration	Objective
Amin et al.: Community Perception and Participation in Household Waste Management through Waste Banks in South Jakarta (2018)	Jakarta Selatan (urban)	Question-naire	31	a. Age b. Gender c. Education d. Job status e. Income f. Knowledge	Analyzing the relationship between community characteristics and waste management efforts
Lestari et al.: Analysis of Factors Related to Household Waste	Batu (urban)	Question-naire	28	a. Age b. Gender c. Education	Analyzing the relationship between

Researcher, Title and Research Year	Research Location	Method	Amount of Respondents	Factors of consideration	Objective
Management Behavior at the Batu City Waste Bank (2018)				d. Job status e. Income f. Government role g. Waste facilities	community characteristics and waste management efforts
Handayani et al.: The Influence of Socio-Economic Conditions on the Adoption of Organic Waste Management Innovations (2019)	Bandung (urban)	Question-naire	45	a. Age b. Education c. Income d. Pendapatan e. Knowledge	Analyzing the relationship between community characteristics and waste management efforts
Utama et al.: The Influence of Socio-Economic Factors on Community Behavior in Rural Waste Management in West Sumatra Province (2020)	Sumatera Barat (region)	Secondary data from BPS	5,996	a. Age b. Gender c. Education d. Income e. Job status f. The amount of familly member g. Knowledge	Analyzing the relationship between community characteristics and waste management efforts
Raharyanti: Analysis of Socio-Economic Factors in Waste Bank Management in the Bogor Raya Permai Housing Environment (2020)	Bogor (urban)	Question-naire	37	a. Education b. Job status	Analyzing the relationship between community characteristics and waste management efforts
Muliani et al.: Community Preferences on Technical Aspects of Waste Management in Banda Aceh City (2020)	Banda Aceh (urban)	Multidime nsional scaling analysis	100	a. Age b. Gender c. Education d. Job status e. Home ownership status f. House type g. Income	Analyzing the relationship between community characteristics and waste management efforts
Ilma et al.: Community Behavior in Household Waste Management in the Coastal Zone of Parepare City (2021)	Pare Pare (urban)	Question-naire	92	a. Age b. Gender c. Education d. Job status e. Income f. Knowledge	Analyzing the relationship between community characteristics and waste management efforts
Oratmangun et al.: Analysis of the Relationship of Community Characteristics and Forms of Participation	Maro (urban)	Question-naire	100	a. Age b. Gender c. Education d. Length of stay e. House status	Analyzing the relationship between community characteristics and waste

Researcher, Title and Research Year	Research Location	Method	Amount of Respondents	Factors of consideration	Objective
in Waste Management in Maro Village, Merauke District (2021)				f. Job status g. Income	management efforts
This Research: The Effect of Community Characteristics on Waste Generation and Management in Kurandak Village, North Sumatra (2022)	Kurandak (village)	Question-naire and statistical analysis using SPSS software	37	a. Age b. Gender c. Income d. Job status e. Income f. Length of stay g. Knowledge	Knowing the level of influence of community characteristics on waste generation and management

Solid waste in rural areas generates from several places, including (1) Residential settlements, including kitchens, gardens, and house yards; (2) Agriculture/plantations; and (3) Garbage from roads and public places, such as offices, schools, markets, and other similar places (Rahim & Selintung, 1994). Based on Syuhada's (2020) research, Kurandak Village is inhabited by 526 people who could increase waste generation. Based on research conducted by Adlina (2013), Prajati et al. (2017), and Prianto (2011) was estimated that socio-demographic and socio-economic factors have a positive correlation. The different living environment conditions between rural and urban communities impact the perspective, lifestyle, and behaviour habits. Moreover, different research locations produce significant socio-demographic and socio-economic factors from previous studies in urban areas.

2. Methods

The research was conducted in Kurandak; details are shown in Figure 1. Determining the number of samples using the Slovin equation (Riduwan, 2005), namely n = N (1+Ne2). Where: n is the number of samples, N is the total population, and e is the confidence value of the research data obtained. Statistical analysis of interview and questionnaire data was conducted using SPSS Statistics 20 software for chi-square and Spearman correlation tests. With a confidence level of 85% to the results, the sample used as respondents in this study amounted to 37 people. Determining the sample using probability sampling assumed that all samples have an equal chance of being in the population. The chi-square test was used to analyze the relationship between each factor. In contrast, the Spearman correlation test was used to analyze the significance of the hypotheses. Statistics are displayed in graphical form to make it easier to understand the results of data analysis using SPSS.

Figure 1. Research location map

3. Result and Discussion

3.1. Kurandak Village Overview

Kurandak is a small village between two boundaries; the coast and the mainland. The people use the land area as oil palm fields or rice fields as a livelihood, while the coastal area is used by people whose profession is mostly fishers. Based on this fact, around 80-95% of waste generation consists of organic waste or wet waste, such as leftover material from processing agricultural/plantation harvests, dry leaves, and twigs, and less than 10% in the form of plastic bags, plastic bottles, used cans, and a small amount of toxic waste. There were no waste management facilities in Kurandak, such as waste management treatment and waste collection places, and trash bins were not found in public places (Figure 2). So far, the community has managed the produced waste with limited knowledge and facilities. Waste management that is not managed correctly and meets standards can cause hazardous impacts whose exposure does not occur in a short time but in a very long time. Hazardous chemical content in waste, especially inorganic waste such as plastic and metal, can easily pollute the environment due to being burned, thrown into water bodies, or natural decomposition, which causes the waste to be more negligible in size (microplastics). Even though no research explicitly mentions harmful microplastics, at least it can be a sound-absorbent in the environment that can absorb chemical compounds.

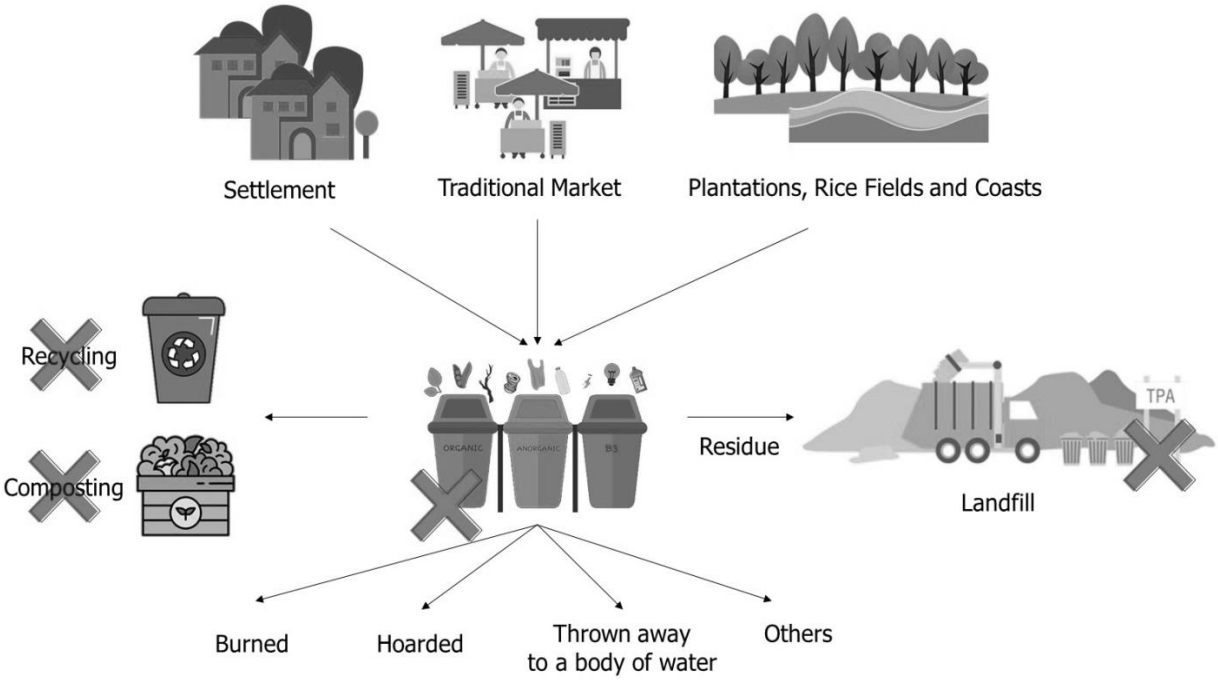

Figure 2. General condition of waste management in Kurandak Village

3.2. Factor of Gender

The number of respondents involved in the study was 37 people, with the proportion of male respondents being 16 (43.2%) and female respondents being 21 (56.8%) (Figure 3). It can be seen based on gender that the population of Kurandak is primarily women. Based on this gender, people's behaviour towards waste generation and management was different. The existence of one gender that dominates in an area makes waste generation follow the characteristics of the inhabitants. According to research conducted by Tanod et al. (2014), women are more involved in waste generation than men because they are housewives and produce kitchen waste, so they are identical to waste producers. Even some matters related to waste management are also mostly done by women. In the village, the manita is

also synonymous with cleaning the house, including cleaning the house from garbage, such as managing garbage in the kitchen and sweeping the yard to process it.

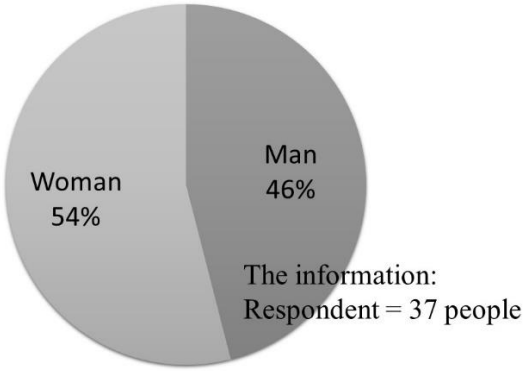

Figure 3. Percentage of gender factor

The following variables were considered: the number of women, men and the female to male ratio. The evaluations of consumption-related elements highlight the linkages between living situations and waste creation. Most of these variables (e.g., income, property tenure, consumer expenditures, and work status) serve as proxies for general affluence, but there are other social statistics (e.g., gender and age structure). According to the research review, the gender and age makeup of the population may have a significant impact on waste output. As a result of differences in men's and women's lifestyles and habits connected to product consumption and waste management, such reliance may develop. Gender is a significant influence in the waste creation process replicated in different places for testing (Talalaj et al., 2015).

3.3. Factor of Age

Research by Dihatri (2013) states that people in a young age group can easily accept new information about waste management because they are younger and have a high level of willingness, so they have good knowledge because of the experience they have gained. Meanwhile, in the older age group, the proportion of knowledge lacking is due to the increasing age, the memory, comprehension, and digestibility to receive information are decreasing. Of course, the ability they have will decrease as well. Many factors affect the management of waste generated at the household level. One of these factors is the level of knowledge (adequacy of getting information about a thing). Differences in a person's level of knowledge can be influenced by age, and the difference in the level of expertise in the end also causes differences in handling the frequency of community participation. The age of a person also affects the waste characteristics. The characteristics of waste are increasingly diverse at an increasingly mature age.

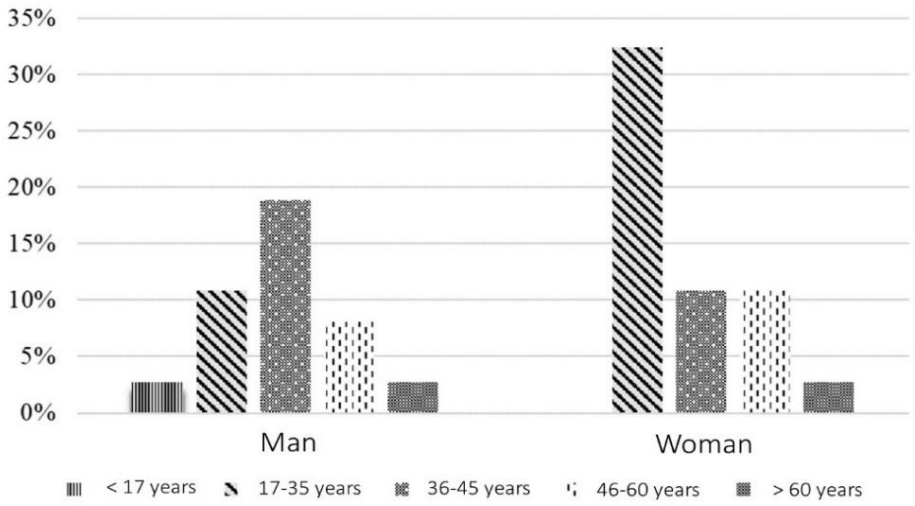

Figure 4. Percentage of age factor

Figure 4 shows that of the 16 male, 1 person (6.3%) aged <17 years, 4 people (25%) aged 17-35 years; 7 people (43.8%) aged 36-45 years, 3 people (18.8%) aged 46-60 years and 1 person (6.3%) aged > 60 years. Meanwhile, for female respondents, from 21 people, none were <17 years old, 12 people (57.1%) were 17-35 years old; 4 people (19%) aged 36-45 years; 4 people (19%) aged 46-60 years and 1 person (4.8%) aged > 60 years. In general, respondents consist of 1 person (2.7%) aged <17 years, 16 people (43.2%) aged 17-35 years; 11 people (29.7%) aged 36-45 years, 7 people (18.9%) aged 46-60 years and 2 people (5.4%) aged > 60 years. According to Utama & Putri (2020), awareness of waste management increases as a person's age increases. The younger age group would have high awareness, but their participation in waste management was low. On the other hand, the older age group can be directly involved in waste management. Based on the results of the Chi-Square test, the Asymptotic.Sig (2-sided) value of 0.250 > 0.05 means that the age category was not significantly influenced by gender.

3.4. Factor of Educational

According to previous research, education can help people adopt pro-environmental behaviours and raise understanding, concern, and recognition of the consequences of their actions (Hotta et al., 2014). Mubarak (2012) claims that the more educated a person is, the more likely they are to engage. In this situation, the greater the educational level, the better the waste management behaviour. The ability to assimilate information in the environmental field is linked to the quality of public education. People with a high level of knowledge are more likely to acquire information quickly, actively respond to environmental issues, and participate in environmental management. People with a poor level of education frequently have an underdeveloped attitude, learning, and conduct. Socialization, counselling, and training to develop knowledge can all help to improve non-formal education.

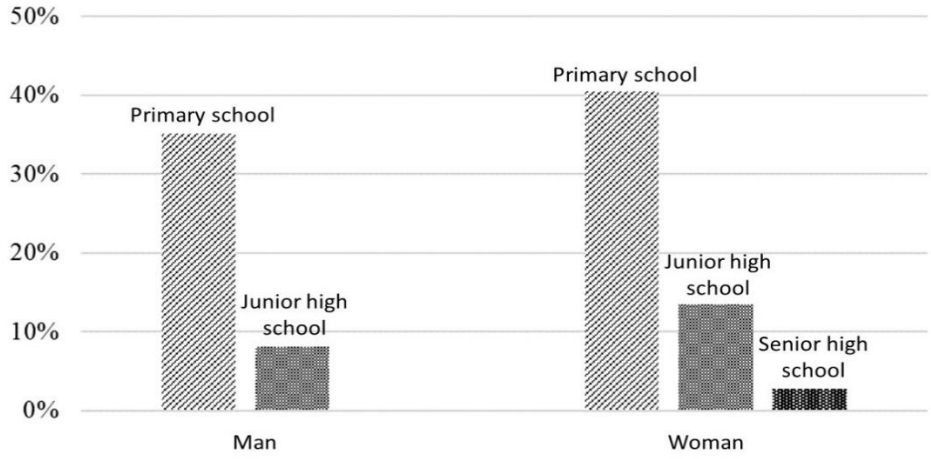

Figure 5. Percentage of education level factors

Figure 5 shows that most people mentioned elementary school as the last education. Of sixteen male respondents, 13 people (81.3%) graduated from elementary school, three respondents (18.8%) graduated from junior high school, and none continued their education in senior high school. While female, out of 21 people, 15 people (71.4%) finished elementary school, five people (8.1%) accomplished their junior high school, and one person (4.8%) graduated from senior high school. So as a whole, respondents were 28 people (75.7%) who graduated elementary school, eight people (21.6%) were junior high school graduates, and one person (2.7%) completed their senior high school. Based on the chi-square test, the Asymptotic. Sig (2-sided) value of 0.611 > 0.05 means that the education category is not significantly influenced by gender. According to Utama & Putri's research (2020), education significantly influenced waste management, where higher education correlates to their awareness of waste management. Educated people should understand the threats and negative impacts of non-standard waste management on the environment.

3.5. Factor of Job Status

Based on data from Kurandak, as shown in Figure 6, that can be seen that most of the people are jobless, and the rest are fishers. A total of 16 male respondents where one person (6.3%) did not work, a farmer (6.3%); 2 sellers (12.5%), ten fishers (62.5%), and two people had two jobs as fishers and sellers and farmers (12.5%). As for the female, among 21 people, 17 people (81%) have no work, a farmer (4.8%), two sellers (9.5%), and a fisher (19%). So overall, people in this village were 18 people (48.6%) who did not work, two farmers (5.4%), four sellers (10.8%), and 11 fishers (29.7%). Based on the results of the chi-square test, the value of Asymptotic.Sig (2-sided) 0.000 < 0.05, the gender category significantly affected the respondents' employment status. Employment status affected community participation in waste generation. Ratiabriani (2016) stated that a working person produces more waste than people who do not work and has much time at home. They generated paper, plastic bags, and plastic bottles. While other research by Al Muhdhar (2009), there is a link between work and waste management behaviour. Women who do not work and have a lower level of education do better in terms of waste management. That is because they have more free time at home and pay more attention to household trash management, including at home. People who live in rural areas should have more leisure time than city dwellers. Farmers and fishers have more flexible working hours, but persons in cities with office jobs have more restricted working hours. But in reality, waste management in Kurandak is not better due to other factors.

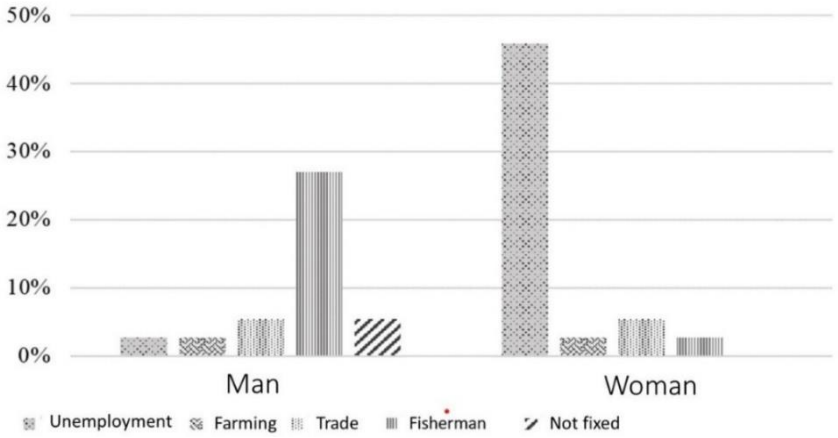

Figure 6. Percentage of job status factors

3.6. Factor of Income

Based on Figure 7, it depicts that from 16 male respondents, 2 people (12.5%) earn < Rp.500,000; 10 people (62.5%) have an income of IDR 500,000-1,500,000 and 4 people (25%) have a wage of IDR 1,600,000-3,500,000. Meanwhile, from 21 female, 17 people (81%) had income < Rp.500,000; 3 people (14.3%) have a wage of IDR 500,000-1,500,000 and 1 person (4.8%) earns an income of IDR 1,600,000-3,500,000. So overall, 19 people (51.4%) of Kurandak's inhabitants have income < Rp.500,000; 13 people (35.1%) have an income of IDR 500,000-1,500,000 and 5 people (13.5%) earn an income of IDR 1,600,000-3,500,000. Based on the results of the chi-square test, the value of Asymptotic. Sig (2-sided) 0.000 <0.05, the gender category significantly affects the income of the respondents. According to Utama & Putri (2020), the higher the income, the better the environment quality. People with high earnings can pay higher for waste transportation services, but not directly in waste management.

On the other hand, people with higher incomes produce different waste characteristics. Characteristics of plastic and other inorganic waste are more likely to be found in middle and upper-economic societies. At the same time, low-income people dominate producing organic waste that can be composted or used as biogas. People with high incomes often buy goods produced by factories (inorganic) because of their lifestyle and looking for practicality. That is why rich people tend to produce more inorganic waste. People groups with this economic level also tend not to have time to take care of their waste.

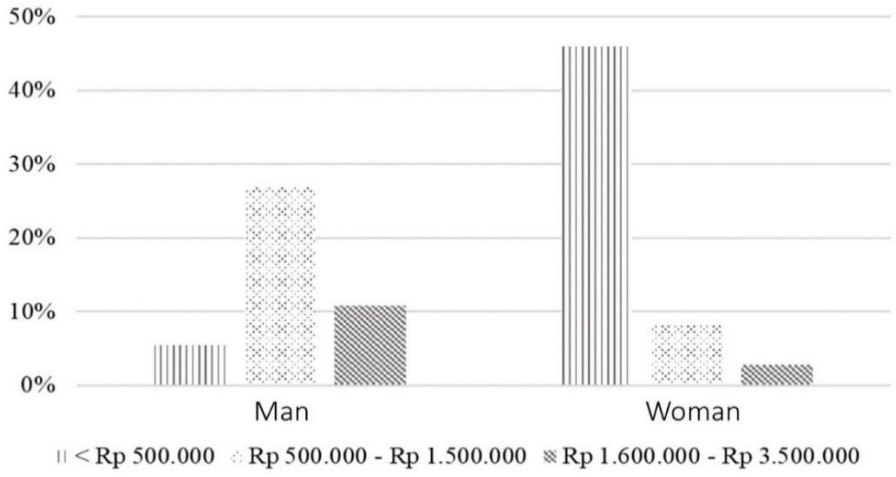

Figure 7. Percentage of income factors (per month)

3.7. Factor of Length of Stay

Based on the data, some people have lived in this village for a long time. Based on Figure 8, it is known that from 16 male respondents, one person (6.3%) has lived for 11-20 years, eight people (50%) have lived for 21-30 years, and seven people (43.8 %) for 31-40 years. Meanwhile, for 21 female respondents, two people (9.5%) have lived for 11-20 years, seven people (33.3%) for 21-30 years, ten people (47.6%) have stayed for 31-40 years, and two people (9.5%) have lived for 41-50 years. So, overall, respondents were three people (8.1%) who lived for 11-20 years, 15 people (40.5%) for 21-30 years, 17 people (45.9%) who lived for 31- 40 years, and two people (5.4%) lived for 41-50 years. Based on the results of the chi-square test, the Asymptotic.Sig (2-sided) value of 0.513 > 0.05 means that the category of the duration of stay is not significantly influenced by gender. According to Yulianda & Haswindy (2017), variations in the duration of stay do not cause significant differences in participation in waste generation and management. That is because most people still lack awareness of the environment. The people still practice the culture of throwing garbage on the grounds and around their homes. Moreover, efforts to process waste into compost or recycled products are less implemented in rural communities. In general, people who stay longer have a higher sense of caring. That makes him more concerned about the threats that could occur. His efforts in managing waste should also be better. But maybe it's more common in urban areas, and the conditions may differ from those in villages. It is conceivable because, due to ignorance, the village's dominant society, which does not practice appropriate waste management, forces others to follow the environment, which is the criterion of justice.

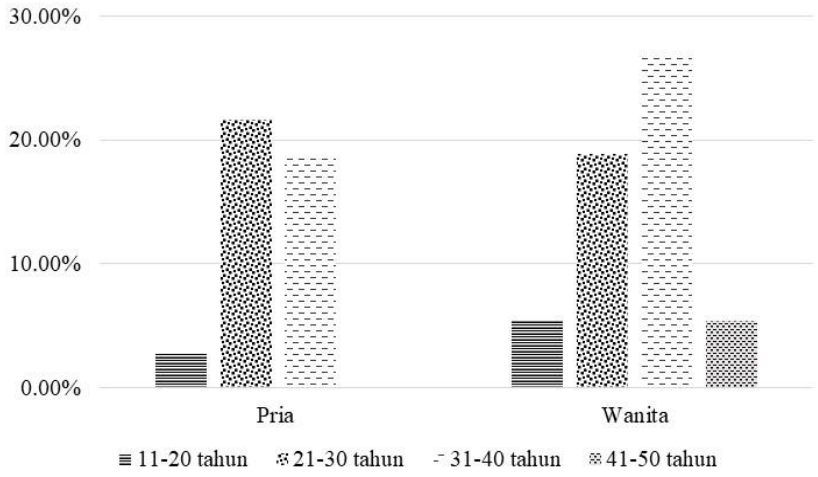

Figure 8. Percentage of length of stay

3.8. Factor of Knowledge Level

Based on the interview, people in Kurandak have not received any information related to waste management. This indicator shows that their waste management knowledge is low. That affects people's behaviour in generating and managing daily waste (Abrauw, 2011). Moderate knowledge of waste management can increase residents' participation in reducing waste generation and increasing waste management. This aspect needs to be improved by regular training.

3.9. Habits of the Kurandak's People Towards Waste Management

Based on the questionnaire, 37 respondents (100%) had never received waste management education from the government or the private sector. Hence, there are no activities for managing organic waste into compost and no recycling activities or using plastic waste and bottles as handicrafts. The lack of waste management facilities makes people not practice reducing waste generation and

managing their waste. There are eight ways of Kurandak's activities to manage their waste. It is known that:

1. Two people (5.4%) threw it into water bodies, such as rivers or drainage.
2. A person (2.7%) had a habit of littering.
3. As many as 20 people (54.1%) burned their waste to reduce its quantity.
4. A person (2.7%) collected the garbage in a burlap sack and burned it.
5. Six people (16.2%) burned garbage and threw their garbage in the yard.
6. Two people (5.4%) burned or threw it carelessly.
7. Three people (8.1%) burned or threw the litter into the river.
8. Two people (5.4%) burned or collected garbage in the yard.

Table 2. Recapitulation of the analysis of the characteristics of the community of Kurandak Village which affects waste generation

Characteristics	Asymptotic. Sig	Correlation Coefficient	Interpretation
Education	0.000 < 0.05	0.350 the higher the education, the more waste generated	Education affects the generation of waste generated
Income	0.265 > 0.05	0.139 the higher the income, the higher the income	Income does not affect the amount of waste generated
Gender	0.474 > 0.05	0.179 (low)	Gender does not affect the amount of waste generated
Length of stay	0.736 > 0.05	0.100 the longer people stay, the higher the incidence will be	Length of stay does not affect the amount of waste generated
Age	0.923 > 0.05	-0.061 the older the age, the less waste produced	Age does not affect the generation of waste generated
Job status	0.947 > 0.05	-0.062 people working will generate less waste. This is based on observational data that has been analyzed, 17 people who do not work because IRT produces more sources of waste generation in the kitchen (51.4%)	Work does not affect the generation of waste generated

Community characteristic factors such as gender, age, education, employment status, income, duration of stay, and level of knowledge (Table 2) significantly affect the waste generation and management in Kurandak Village, but some have no significant effect. The gender factor influences waste generation. Women are more likely to produce waste than men because of their role as housewives who spend much time in the kitchen. The educational factor significantly influences people's habits in reusing an item to reduce waste generation. Educational factors also influence waste generation; the higher a person's education, the more waste they produce. Likewise, income and length of stay have a positive correlation coefficient, while age and employment status are negative. The older a person is and has a job, the less waste is generated. Based on the obtained data, Kurandak's people do not have sufficient knowledge of reducing waste generation and management. The community has never received education regarding waste management. That affects the awareness and willingness to manage their waste. Therefore, it can be concluded that the most influential community characteristic factor on waste generation and management in education, with a correlation coefficient of 0.350.

4. Conclusions

The community condition is different from the urban community, which causes the impact on the generation and management of waste to be different. Assessment becomes challenging to determine because many factors are considered and interrelated, and the evaluation cannot be judged based on only one aspect. The results of this study can be used as input for the Government of Indonesia in providing information through training and the provision of waste management facilities. Regarding the study's limitations, it is well known that education is essential in generating and managing garbage in Kurandak Village. This research could be the new information for following studies on domestic waste generation, composition, and characteristics.

Acknowledgement

Our gratitude gives to the to Lembaga Penalaran Penelitian Ilmiah Mahasiswa (LP2IM) Universitas Negeri Medan for coordinating data collection activities in Kurandak Village.

References

Abrauw, A., H.S. Yunus, and S.R. Giyarsih. 2011. Perilaku masyarakat dalam pengelolaan sampah anorganik di Kecamatan Abepura Kota Jayapura. Majalah Geografi Indonesia 25(1), 1-14.

Adlina, A., and B. Rahardyan. 2013. Identifikasi pengaruh faktor-faktor sosioekonomi dan kependudukan terhadap timbulan sampah di Jawa Barat. Skripsi, Institut Teknologi Bandung.

Al Muhdhar, M.H.B.M. 2016. Keterkaitan faktor sosial, ekonomi, pengetahuan, dan sikap dengan manifestasi perilaku ibu-ibu rumah tangga dalam pengelolaan sampah rumah tangga di Kota Surabaya. Jurnal Ilmu Pendidikan Universitas Negeri Malang 10(2), 110933.

Alimuda. 2021. Gambaran pola berpikir masyarakat pesisir. Diakses dari https://www.kompasiana.com/alimudasiregar/603b3595d541df7d81369512/gambaran-pola-berpikir-masyarakat-pesisir.

Amin, A.A., A. Nugraha, and S.H. Sutjahjo. 2018. Persepsi dan partisipasi masyarakat terhadap pengelolaan sampah rumah tangga melalui bank sampah di Jakarta Selatan. Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan 8(1), 7-14.

Azkha, N. 2006. Analisis timbulan, komposisi dan karakteristik sampah di Kota Padang. Jurnal Kesehatan Masyarakat Andalas 1(1), 14-18.

Dihatri, R. 2013. Gambaran pengetahuan ibu rumah tangga tentang pengelolaan sampah rumah tangga yang berusia 20-60 tahun di lingkungan V Kelurahan Tegal Sari Mandala III Kecamatan Medan Denai Tahun 2013. Skripsi, Akademi Kebidanan Nusantara.

Handayani, R. 2019. Pengaruh kondisi sosial ekonomi terhadap adopsi inovasi pengelolaan sampah organik (studi kasus Kelurahan Cibangkong Kecamatan Batununggal Kota Bandung). Jurnal Bisnis dan Teknologi 11(1), 19-33.

Hotta, Y., and C. Aoki-Suzuki. 2014. Waste reduction and recycling initiatives in Japanese Cities: lessons from Yokohama and Kamakura. Waste Management Research 32(9), 857–86.

Ilma, N., A. Nuddin, and M. Majid. 2021. Perilaku warga masyarakat dalam pengelolaan sampah rumah tangga di zona pesisir Kota Parepare. Jurnal Ilmiah Manusia dan Kesehatan 4(1), 24-37.

Langinan, S., F. Tulusan, and N. Plangiten. 2018. Pengaruh kondisi sosial ekonomi keluarga terhadap partisipasi masyarakat dalam pembangunan pendidikan (suatu studi di Kecamatan Pulutan Kabupaten Kepulauan Talaud). Jurnal Administrasi Publik 4(5).

Lestari, N.M. 2018. Analisis faktor-faktor yang berhubungan dengan perilaku pengelolaan sampah rumah tangga di Bank Sampah Kota Batu. Prosiding Seminar Nasional Lingkungan Lahan Basah 3(1), 311-316.

Mubarak. 2012. Ilmu kesehatan masyarakat konsep dan aplikasi dalam kebidanan. Jakarta: Salemba Medika.

Muliani, F. 2020. Preferensi masyarakat terhadap aspek teknis pengelolaan sampah di Kota Banda Aceh. Teras Jurnal 10(2), 265-275.

Nugraha, A., S.H. Sutjahjo, and A.A. Amin. 2018. Analisis persepsi dan partisipasi masyarakat terhadap pengelolaan sampah rumah tangga di Jakarta Selatan. Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan 8(1), 7-14.

Oratmangun, M.D., and , P.G. Ariastita. 2021. Analisis hubungan karakteristik masyarakat dan bentuk partisipasi pengelolaan sampah di Kelurahan Maro, Kabupaten Merauke. Jurnal Teknik ITS 9(2), 139-146.

Prajati, G., T. Padmi, and B. Rahardyan. 2017. Projection of big cities waste management and cost based on economic and demographic factors in Indonesia. In IOP Conference Series: Earth and Environmental Science 97(1), 012014.

Prianto, R.A. 2011. Partisipasi masyarakat dalam pengelolaan sampah di Kelurahan Jombang Kota Semarang (analisis sosio yuridis pasal 28 Undang Undang No 18 Tahun 2008 tentang Pengelolaan Sampah). Skripsi, Universitas Negeri Semarang.

Raharyanti, F. 2021. Analisis faktor sosial ekonomi pada pengelolaan bank sampah di lingkungan Perumahan Bogor Raya Permai. PROMOTOR 4(1), 1-7.

Rahim, I.R., and M. Selintung. 1994. Studi karakteristik sampah Kantor Walikota Makassar dan alternatif pengolahannya. Skripsi, Universitas Hasanuddin.

Ratiabriani, N.M., and I. Purbadharmaja. 2016. Partisipasi masyarakat dalam program bank sampah: model logit. Jurnal Ekonomi Kuantitatif Terapan 9(1), 53-58.

Riduwan. 2005. Skala pengukuran variable penelitian. Bandung: Alfabeta.

Syuhada, A.S. 2020. Peranan komunikasi antar pribadi relawan dalam memotivasi perilaku pola hidup bersih dan sehat masyarakat Desa Kurandak. Skripsi, Univeristas Muhammadiyah Sumatera Utara.

Talalaj, I.A., and M. Walery. 2015. The Effect of gender and age structure on municipal waste generation in Poland. Waste management 40, 3-8.

Tanod, S.T., M.M. Rengkung, and L. Tondobala. 2014. Partisipasi masyarakat Kecamatan Madidir terhadap program pengelolaan sampah Kota Bitung. Sabua: Jurnal Lingkungan Binaan dan Arsitektur 6(3), 263-272.

Utama, A.R. and D.Z. Putri. 2020. Pengaruh faktor sosial ekonomi terhadap perilaku masyarakat dalam pengelolaan sampah perdesaan di Provinsi Sumatera Barat. Jurnal Kajian Ekonomi dan Pembangunan 2(1), 93-106.

Wiryono, B., M. Muliatiningsih, and E.S. Dewi. 2020. Pengelolaan sampah organik di lingkungan Bebidas. Jurnal Agro Dedikasi Masyarakat (JADM) 1(1), 15-21.

Yuliana, F., and S. Haswindy. 2017. Partisipasi masyarakat dalam pengelolaan sampah pemukiman pada Kecamatan Tungkil Ilir Kabupaten Tanjung Jabung Barat. Jurnal Ilmu Lingkungan 15(2), 96-111.