Jurnal Kesehatan
Vol. 15, No. 2, August 2024
ISSN 2086-7751 (*Print*), ISSN 2548-5695 (*Online*)
http://ejurnal.poltekkes-tjk.ac.id/index.php/JK

Analysis of Household Waste Management in Settlements around The Watershed

Yunida Zhafirah, Yustini Ardillah*, Rafika Oktovaningrum, Laura Dwi Pratiwi
Faculty of Public Health, Universitas Sriwijaya, Ogan Ilir, Indonesia

ARTICLE INFO

Article history

Received date
24 Jan 2024

Revised date
1 Aug 2024

Accepted date
27 Aug 2024

Keywords:

Environment;
Recycle;
Wetland area.

ABSTRACT

The problem of household waste in Ogan Ilir Regency is increasingly complex due to the characteristics of the wetland area. Poor management of household waste around the watershed can cause various problems, both environmental and public health issues. This study analyzes household management in settlements around the Ibul Besar II Village watershed. This study is qualitative. The informants in this study consisted of seven key informants and five ordinary informants who were selected using the purposive sampling method. Data was collected through in-depth interviews, observation, and documentation (photovoice). The study results show that efforts to eliminate household waste still need to be improved. Four out of six housewives reuse used buckets. However, only two out of six housewives recycle. Household waste is not sorted into five types. The collection and transportation of household waste do not meet the requirements due to the unavailability of TPS or TPS 3R, waste carts, and limited waste transportation. The household waste is burned, and the waste is not processed. It can be concluded that household waste management in settlements around the Ibul Besar II Village watershed has not gone well. Waste reduction efforts are still limited, and waste handling needs to be corrected. Household waste management in Ibul Besar II Village experiences many obstacles, such as economic limitations, time, facilities, and infrastructure, and lack of public awareness and knowledge about the stages of good and correct household waste management.

Corresponding author:

Yustini Ardillah
Faculty of Public Health, Universitas Sriwijaya, Ogan Ilir, Indonesia
Email: yustini_ardillah@fkm.unsri.ac.id

INTRODUCTION

Waste is still a global problem, especially in developing countries like Indonesia. Until now, the waste problem in Indonesia has not been resolved. This waste problem is exacerbated by the lack of waste disposal sites and locations, the low awareness and willingness of the community to manage waste, the lack of knowledge about the benefits of waste, and the unwillingness of the community to recycle waste (Sari, 2016). In addition, the high population growth rate is also directly proportional to the waste generated daily (Purnomo, 2021).

In 2022, the volume of national waste generation in Indonesia reached 20.5 million tonnes/year, with a managed waste percentage of only 65.94%. Meanwhile, the waste generation in South Sumatra Province is 886,632.08 tonnes/year, with the most extensive composition coming from households, 58.86% (The Ministry of Environment and Forestry, 2022). In 2023, waste generation in Indonesia rose to 38.8 million tonnes/year, and waste generation in Ogan Ilir district was 64,162 tonnes/year, with the largest source of waste coming from households at 131.84 tonnes (The Ministry of Environment and Forestry, 2023). Waste-related problems are also a burden and a serious problem in almost all districts/cities in Indonesia, including Ogan Ilir Regency, with an area of 2,666.07km^2. Part of the area is wetlands, causing waste problems to become more complex. Complex sanitation problems in watersheds and swamps are characterized by inequality, lack of adequate sanitation facilities, and low public awareness of protecting and maintaining the surrounding environment (Sembiring & Safithri, 2023). In principle, the use of wetlands for an activity must have certain limits so as not to damage/change the ecosystem because wetland areas play an essential role in the life of living things (Harianto & Dewi, 2017).

Wetland utilization could be more optimal due to many problems, including improper waste management (Rosida et al., 2022). Most rivers in Indonesia have been polluted by household waste (Ruhmawati et al., 2017). Gustina's research

(2022) showed that out of 87 people on the banks of the Musi River, 73.6% did not manage household waste properly. Throwing garbage into the river causes environmental pollution, siltation of rivers, and potential flooding. Waste also creates odors that disturb comfort and increase the risk of disease transmission (Sari, 2016). Waste can be a place of life and breeding for various disease vectors such as flies, cockroaches, and others (Axmalia & Mulasari, 2020).

Ibul Besar II Village is a wetland settlement in the suburban area. Ibul Besar II Village has an area of 1.92km^2, around 1.09km^2, located in a watershed or riverbank. Most people in Ibul Besar II Village work as casual daily laborers with a low economic level. The community of the upper sea settlement in Kota Ternate Sub-district continues to throw garbage into the sea because of the unavailability of special waste storage provided by the local government so that the garbage generated by the community is directly disposed of into the sea with the reason that there is no need for waste collection (Rosnawati et al., 2017). There is a significant influence between the mother's knowledge about waste management on the mother's behavior in disposing of waste that has the potential for flood disasters in the Deli watershed in Medan City (Silalahi, 2017).

The inhibiting factors in waste management are population distribution and density, characteristics of the physical environment, socio-economic and cultural conditions, and community behavior (Khoiriyah, 2021). The assumption that waste management is difficult and expensive also makes people reluctant to manage their household waste (Pambudi & Krismani, 2017).

Based on a preliminary survey, the people of Ibul Besar II Village dispose of their waste carelessly in the river, under houses, and on the roadside. This means that a lot of household waste needs to be managed properly, which can cause environmental pollution, flood, and health problems in the community, especially those who use the river as their primary water source. Most of the community still applies the collect, transport, and dispose paradigm. Household waste management should consist of waste minimization and waste handling activities. The unavailability of TPS influences the amount of waste in the Ibul Besar II Village watershed. Signs prohibiting littering are also ineffective in overcoming people's bad behavior. This study aimed to determine how household waste management and factors that influence community behavior in settlements around the watershed of Ibul Besar II Village.

METHOD

This research is qualitative research with a descriptive approach. This research was conducted in Ibul Besar II Village, Pemulutan District, Ogan Ilir Regency, South Sumatra Province, September to November 2023. The informants in this study consisted of 7 key informants and 5 ordinary informants selected by purposive sampling. The criteria for key informants are those who can communicate well, know about research problems, are domiciled in Ibul Besar II Village for at least two years, and are housewives aged 21 to 60 years old. Key informants consisted of housewives and the Secretary of Ibul Besar II Village. Meanwhile, ordinary informants consisted of the Head of the Hamlet, the Head of the Hygiene Division of DLH Ogan Ilir Regency, and the Sanitarian Officer of Puskesmas Pegayut.

This study consists of 7 variables: reducing, reusing, recycling, sorting, collecting, transporting, and processing waste. Each variable seeks to discover how housewives manage household waste and the factors influencing these habits. Data was collected using in-depth interviews, documentation, and direct observation at the vital informant's house for 3 days each. In-depth interviews, observation, and documentation conducted data collection. The research instrument was the researcher, and the data collection tools used were interview guidelines and observation sheets (checklists). This research uses 3 types of triangulation: source, method, and data.

Data were analyzed during and after collection. The data were analyzed using tables or a matrix summarizing the results of in-depth interviews and observation. The data can be presented in narrative text, tables, and images that describe and illustrate the research results. This research has obtained a certificate of ethical review from the Health Research Ethics Commission of the Faculty of Public Health, Universitas Sriwijaya, with number 376/UN9.FKM/TU.KKE/2023.

RESULTS

Characteristics of informants

The informants in this study consisted of key informants and ordinary informants. The following are the characteristics of the research informants:

Table 1. Characteristics of informants

Type	Name	Age	Position	Education
Key informant	RY	39	Village Secretary	Bachelor
	A	37	Housewife	Senior High School
	R	50	Housewife	Elementary School
	NN	50	Housewife	Senior High School
	LL	50	Housewife	Senior High School
	RM	47	Housewife	Elementary School
	NK	24	Housewife	Senior High School
Regular informant	BR	55	Head of Hamlet I	Senior High School
	BS	57	Head of Hamlet III	Junior High School
	IA	40	Head of Hamlet V	Senior High School
	TA	41	Head of Cleaning DLHK OI	Bachelor
	FD	45	Sanitarian	Bachelor

The selected informants have knowledge and information about the research objectives and play a direct or indirect role in household waste management in settlements around the Watershed of Ibul Besar II Village.

Reduce

Based on the results of in-depth interviews with six housewives, it was found that restrictions on the use of plastic bags, disposable items, or packaging are still minimal. Informants have not reduced because of a lack of knowledge about what efforts can be made to limit household waste. The following interview excerpt illustrates this:

"I do not limit my waste; if I get a plastic bag, I keep it" (NK).

"No, I buy soy sauce, even the ones that are small, so I just throw them away" (RM).

"I do not limit my waste. I just use what I have. I do not know how to limit it" (LL).

One informant argued that bringing their shopping bag is a hassle. This shows that there needs to be more awareness about reducing. The following is an excerpt from his interview.

"If you have to bring a shopping bag, it is a hassle because there is plastic in the shop; you just have to bring money to the shop" (RM).

Based on in-depth interviews with the local village government, it is known that there is no policy or appeal about reducing.

"There is no appeal about waste reduction" (BS).

"Hmmm... at the moment, there is nothing about reducing waste" (RY).

Table 2. Observation results of reduce variables

Assessment indicator	Yes	No	Description
Using a shopping bag or tote bag	-	✓	5 out of 6 housewives do not bring a shopping bag from home
Using a tumbler bottle	-	✓	4 out of 6 housewives do not use tumblers
Using refillable product	-	✓	5 out of 6 housewives use products with disposable packaging

Table 2 shows the correspondence between observations and in-depth interviews. Only one out of six housewives try to bring a basket when shopping at the market. Using shopping baskets is the first step in reducing household waste, especially plastic waste.

Reuse

Based on the results of in-depth interviews with research informants, waste or used goods that are usually reused are used buckets and cans. The level of awareness and economic factors drive the reuse of waste in Ibul Besar II Village. Informants at the middle to upper economic levels prefer to give their used goods to *scavengers* or helpers. The following interview excerpt illustrates this:

"Sometimes we still use paint buckets to make flower pots, sometimes we use the lid of the fan to catch fish, and we use in cans to hold fish" (A).

".....The paint bucket is still used for water containers, motorbike tools, used oil" (NK).

"Maybe their awareness is good, and if it is not cost-effective or important to buy a waste box, they use the old ones" (RY).

"I do not reuse. If it has used items like plastic bottles, I give them to scavengers or my housemaid, who can sell them later" (NN).

Table 3. Observation results of reuse variable

Assessment indicator	Yes	No	Description
Reusing used buckets	✓	-	4 out of 6 housewives utilize used buckets for various purposes
Reusing used plastic bottles	-	✓	Six housewives do not reuse used plastic bottles
Reusing used cans	-	✓	5 out of 6 housewives do not reuse used cans

Table 3 shows that all six housewives did not reuse used plastic bottles for personal use at home. Instead, two women sold their waste to junk collectors to increase their income.

Figure 1. Re-utilization of Used Buckets

The results of in-depth interviews, observation, and documentation (photovoice) show the same thing: household waste that is often reused in Ibul Besar II Village uses paint buckets as water storage containers, tool containers, trash cans, and flower pots.

Recycle

Two out of six housewives living in settlements around the watershed of Ibul Besar II Village recycles household waste in the form of paper, cardboard, and plastic bottles for personal and business purposes. The following interview excerpt illustrates this:

"....Only for us, when we wet the paper, we make cigarette ashtrays, make dolls out of paper in white cement" (A).

"Sometimes, I make buckets from cardboard waste; buckets need cardboard; sometimes, I make boxes for crafts. Most of the time, I make flowers out of bottles, but not often, if I make them at all, it depends on the order" (NN).

Informants who did not recycle waste argued that they did not have the time, skills, money, time and machinery. The following is an excerpt from the interview:

"I cannot recycle, no time either" (R).

"Never, recycling has to use a machine or tool, it has to be bought, we do not have the money, so we just throw our waste away" (RM).

"Never, do not have the skills. There is no recycling training here" (NK).

The Pegayut Health Centre team has never conducted education or training on household waste recycling in Ibul Besar II village. In addition, Ibul Besar II village does not yet have a waste bank. The following is an excerpt from the interview:

"There has been no counseling on recycling..." (FD).

"If it is a waste bank in the sub-district, it is not here" (IA).

Table 4. Observation results of recycle variable

Assessment Indicator	Yes	No	Description
Making crafts from plastic waste	-	✓	5 out of 6 housewives do not make crafts from plastic waste
Recycling paper/cardboard waste	-	✓	4 out of 6 housewives do not recycle paper/cardboard waste
Recycling glass waste	-	✓	Six housewives do not recycle glass waste
Recycling fabric scraps	-	✓	Six housewives do not recycle fabric scraps.

Based on Table 4, it is known that the six housewives do not recycle glass waste and fabric scraps. The results of recycling paper and cardboard waste can be seen in the picture below:

Figure 2. Recycling products

The results of in-depth interviews, observation, and documentation are valid; two housewives recycle waste into various craft items, such as ashtrays and wall hangings.

Waste sorting

Based on the results of in-depth interviews, three out of six housewives sorted waste into two types: wet waste and dry waste. The sorting of household waste is expected to facilitate the next stage. The following interview excerpt illustrates this:

"For food waste rice, we separate it, and for paper and plastic waste combined into one. We separate the wet from the dry" (A).

"If you bring much waste to the city, it will be difficult, so separate the ones that can be burned, burn them, and bring the wet ones to the front" (NN).

"Separate it, so plastic with plastic, then if it is vegetables, for example, the used food is for fertilizer" (LL).

Table 5. Observation results of waste sorting variable

Assessment Indicator	Yes	No	Description
Sorting waste by type (at least five types of waste)	-	✓	Waste segregation is not done according to the type of waste
Waste segregation facilities are available by type with labels/marks	-	✓	Waste bins used are plastic bags and open bins
Closed and substantial rubbish bins available	-	✓	
Waterproof rubbish bins are available	✓	-	
Easy-to-empty rubbish bins available	✓	-	
There are rubbish bins that are easy to clean.	-	✓	

Table 5 shows that the six housewives did not have segregated waste bins to health requirements. The following is the documentation result:

Figure 3. Condition of informant's waste bin

The results of in-depth interviews with the results of observation and documentation (photovoice) are different. Waste segregation carried out by three mothers was not based on the waste's correct nature or characteristics. Organic and inorganic waste is only combined in 1 bin.

Waste collection

Waste is usually collected for 1 to 7 days at each house. Then, the waste is brought individually to the Kertapati TPS across from Ibul Besar II Village. Some people collect waste on the pavement near RT.09. This is illustrated in the following interview excerpt:

"We collect it at home first, then we move it to the other side. It takes 2-3 days to collect it and then dispose of it" (A).

"Across the street, sometimes I throw it on the road near RT.09. Collected a week, three bags. Wait for the thought and intention to bring the rubbish there, lazy if you have to do it every day" (NK).

"Some are collected on the side of this road, some are thrown forward, and there is another box opposite the city" (BS).

Based on the observation, Ibul Besar II Village does not have a TPS or TPS 3R. This is why the villagers collect their waste at the Kertapati TPS. Other waste collection sites in Ibul Besar II Village can be seen in the following figure:

Figure 4. Waste collection location

In Figure 4, you can see rubbish piled up and scattered on the roadside and the words "No rubbish here. However, the appeal did not stop people from dumping rubbish at the location.

Waste transport

In 2023, there were no more mobile waste collectors in Ibul Besar II Village. An explanation of the waste collection officers is illustrated in the following interview excerpt:

> *"There is no waste collection service that goes around to houses. However, a service once came here with a car carrying waste and paid a fee. I used to go, but they did not regularly pick up the waste and waited 2-3 days before they picked it up, so it smelled so I do not use it anymore because I want it to be picked up every day. I do not know if it is still there. Maybe there are only a few because the complaints are the same as mine" (NN).*

The following quote from the Head of the Cleaning Division of Environmental services (DLHK) Ogan Ilir illustrates the mechanism and obstacles to waste collection in Ibul Besar II Village:

> *'We do not pick up the waste every day. We pick up the waste in 1 week for one day, precisely on Thursday. However, if it is urgent, we even pick it up twice a week... It is not that we are selective or do not want to serve the community because of our limited fleet. Our access from Pemulutan to the Palem Raya landfill is too far"* (TA).

Table 6. Observation results of waste transport variable

Assessment Indicator	Yes	No	Description
Waste is transported from the source or TPS to the landfill	-	✓	Waste is transported at the roadside
Closed waste transportation available	-	✓	Waste is transported by dump truck
Waste is transported to the landfill every day	-	✓	Waste is transported 1-2x/week.

Figure 5. Waste transport process

Table 6. and Figure 5. show the waste collection process carried out by DLHK Ogan Ilir in Ibul Besar II Village. Waste is transported using an open yellow dump truck. So, the garbage in the dump truck may fall and drift during the trip to the landfill.

Waste processing

Based on the results of in-depth interviews, the six informants have yet to process household waste by Indonesian Law Number 18 of 2008 and Indonesian Government Regulation Number 81 of 2012. Some housewives litter, and some burn their waste, including waste containing B3, such as detergent packaging. This is illustrated in the following interview excerpt:

> *"Wet plastic is combined with vegetable scraps and disposed of in the city; the burned waste is used in liquid soap, molto, and perfume packaging. Leftover rice, vegetables, and fish bones are thrown behind my house. Many chickens and cats will eat it. When floods come, waste becomes soil"* (RM).

The lack of knowledge and awareness of Housewives are due to the need for educational activities on household waste management in Ibul Besar II Village. Villagers are only encouraged to maintain cleanliness. The following quote illustrates this:

> *"There are also no special educational activities for residents about waste management at most when we go to Ibul Besar II Village for posyandu or check the water, the health promotion team and we are assisted by the village midwife and village officials as well as telling them to be good at hygiene, do not throw waste carelessly, especially into the river, but it is not conveyed to all residents"* (FD).

The observation also shows that the six housewives do not process waste by compaction, composting, material recycling, or energy

recycling. Waste processing carried out by informants can be seen in the following figure:

Figure 6. Waste burning

Figure 6 shows waste burning in two different houses. The waste is burned inside a metal barrel and in the house's yard. Waste was burned when the air quality of Palembang City and surrounding areas was poor due to forest and land fires.

DISCUSSION

Reduce

The lack of restrictions on household waste generation in settlements around the Ibul Besar II Village watershed characterizes the uncontrolled use of plastic bags. Plastic waste can pollute soil and water. If humans consume water polluted with microplastics, it can be toxic and disrupt the digestive tract (Dalilah, 2021). Housewives also prefer soy sauce, detergents, and cleaning fluids in disposable packaging (sachets). The results of this study also show a mismatch between the perceptions and behaviors of the six housewives. This is in line with the research of Apriyani et al. (2021) that people's knowledge and perceptions about environmentally friendly shopping bags do not match the actions of people who use plastic bags with the assumption that as long as plastic bags are still provided, they can still be used.

The absence of policies or appeals from the Ibul Besar II Village government to limit household waste generation affects community behavior. Policies that the village government can issue are restrictions on single-use plastics by local stalls. Policies limiting the use of plastic bags aim to protect an area from pollution, ensure public safety and health from the impact of pollution, ensure justice and fulfillment, and protect the right to a good and healthy environment for all people in an area. A policy will reduce the use of plastic bags by 30% (Amin & Khalida, 2021).

Reducing is challenging because it depends on the willingness of the community to change their behavior, namely from the pattern of throwing garbage to the pattern of sorting garbage (Wildawati & Hasnita, 2020). Efforts to limit waste generation must still be made to reduce the amount of waste not transported to the landfill. Based on in-depth interviews and observation, it is known that informants do not reduce household waste because they are lazy and do not want to bother carrying tote bags when shopping. Each person is expected to reduce the amount of waste produced so that the total household waste generation can also be reduced. The local village government can also make a single-use plastic restriction policy through local stalls and organize education on efforts to limit household waste generation.

Reuse

Reusing used paint buckets can be one of the solutions to reduce the amount of waste that is difficult to decompose in nature. PP RI Number 81 of 2012 carries out efforts to reuse waste without prior processing (President of Republic Indonesia, 2012). Research informants reuse waste for personal use at home due to economic factors. Informants from lower-middle-class economic levels reuse their waste for home use; for example, they use buckets as trash cans and flower vases. They think that instead of buying new items, it is better to reuse unused items. Meanwhile, middle- to upper-class economic informants prefer to give their household waste, such as used cans and buckets, to scavengers. These results align with Buana's (2016) research; people with lower middle socio-economic levels are motivated to reuse waste for basic needs, so they reuse used goods repeatedly.

The reusing of waste is not based on the community's knowledge of waste reuse efforts but on community habits and economic limitations to buy new goods (Shafira et al., 2023). However, socialization and training have been proven to improve the community's ability to reuse inorganic waste, such as used plastic bottles, leaky pots, used gallons, and used buckets and sacks for plant containers at home (Mariyono et al., 2022). In addition to its relevance as entertainment, social media can be used as an alternative source of answers to everyday questions, including information about the environment (Mavrodieva et al., 2019), from community service activities that are packaged through application training on Instagram social media, evaluated through the insight feature on Instagram which shows that participants can create and apply content to attract public interest in managing waste (Aquinia et al., 2022). Therefore, the government and local health centers can increase the role of the community in

reuse efforts by implementing more creative and innovative education with the use of technology. Education is not only carried out directly but also through social media such as Facebook, Instagram, and TikTok or printed media such as posters, leaflets, billboards, and others. Education is expected to increase public knowledge and awareness about the importance of household waste minimization efforts.

Recycle

Two key informants recycle cardboard waste and plastic bottles and sell and market recycled products online. Recycled products made by two key informants include flower buckets, gift boxes, cigarette ashtrays, and wall hangings. Plastic recycling efforts can extend landfill life by one year and 38 days longer than waste management without recycling (Astuti et al., 2020). Recycling glass waste, such as glass bottles, helps save energy and improve environmental quality (Olii et al., 2021). Glass waste can be recycled into crafts such as accessories and flower pots. Meanwhile, fabric waste can be made into tablecloths, brooches, and other fashions. Efforts to recycle fabric waste can also save the use of natural resources and reduce the risk of disease due to landfill waste (Novita, 2018). The disease risk for people living around the landfill includes diarrhea, dysentery, shortness of breath, chest pain, coughing, and itching (Axmalia & Mulasari, 2020).

Four housewives who did not recycle waste argued that they lacked time, facilities, infrastructure, cost limitations, and expertise or skills. This is in line with the research by Isabella (2020); the implementation of the 3R system at the household level is complex due to lack of knowledge, limited time, and the assumption that implementing the 3R system is troublesome. The informants lack skills because they do not have the money to buy tools or materials and attend handicraft or recycling training. The lack of skills of mothers is due to the absence of community empowerment. Even though household waste recycling training can change participants' attitudes, they will begin to realize the adverse effects of waste and foster a spirit of entrepreneurship to increase income and improve the economy (Astriani et al., 2021).

In addition, the absence of a waste bank in Ibul Besar II Village can also be one of the factors inhibiting the recycling of household waste. Waste banks are also defined as one of the strategies for implementing waste management with the 3R principles (Reduce, Reuse, and Recycle), starting from the source at the community level with the principle of implementation in the form of social engineering to invite people to sort waste (Saputro et al., 2016). Therefore, village governments, community health centers, and local environmental agencies must provide education, counseling, and training on household waste recycling. Another effort is to establish a recycled handicraft household industry or waste bank in Ibul Besar II Village. Waste banks can be implemented by empowering local communities as waste bank administrators. Before establishing a waste bank, the village government should coordinate with the environment office, health office, a reputable waste bank in Ogan Ilir district, or other cities such as Palembang. The waste bank can reduce waste generation and add creativity and income to the community.

Waste sorting

Six mothers did not sort their waste correctly. The results of this study are not by PP RI Number 81 of 2012; household waste should be divided into at least five types of waste consisting of waste containing hazardous and toxic waste, biodegradable waste, reusable waste, recyclable waste, and other waste (President of Republic Indonesia, 2012). The results also show that the inhibiting factors in sorting household waste are lack of public awareness and knowledge, unavailability of adequate facilities and infrastructure, low education and economic levels, and diverse socio-cultural factors of the Ibul Besar II Village community. The research informants could not sort waste properly because they needed to learn the types of waste. This study's results align with the research by Yudhistirani et al. (2016), which showed that education, age, and counseling significantly influence the decision to sort household waste.

One housewife who uses plastic bags as waste containers usually hangs the plastic bags in the kitchen. Uncovered trash cans in the kitchen invite flies, cockroaches, and other animals, spreading unpleasant odors outside the room and polluting the air (Santri et al., 2022). Poor waste management in the house will increase the density of flies that can contaminate food, which will then risk causing diarrhea in residents (Carles et al., 2017). Waste segregation from the source reduces the amount of waste in the TPS (Windraswara & Prihastuti, 2017). Therefore, it is necessary to conduct counseling efforts and provide communal waste sorting facilities that can be used by all levels of society in Ibul Besar II Village.

Waste collection

Each household's responsibility is to collect domestic waste in temporary shelters. The unavailability of TPS and TPS 3R in Ibul Besar II Village significantly affects household waste collection. Informants tend to collect their waste on the side of the road, in front of their houses, and even throw it under their houses. Some informants collected waste for two to seven days because they were too lazy to walk daily to the temporary shelter in Palembang City. In addition, the community's habit of throwing garbage along the road is also caused by a lack of concern for the cleanliness of the environment around the area where they live (Sumitro, 2020). Garbage that accumulates on the sidewalk can cause a foul odor. The odor that comes from the accumulation of garbage will trigger the arrival of rats and flies at risk of transmitting typhoid, cholera, dysentery, diarrhea, and skin diseases (Axmalia & Mulasari, 2020). Waste disposed of carelessly in the open can also cause soil and groundwater pollution (Hasibuan, 2016).

The waste collection period of up to one week is at risk of disease transmission. The waste collection schedule should be based on its type, with organic waste collected once every two days and inorganic waste collected once every seven days (Martinawati et al., 2016). In addition, the absence of garbage carts or motorbikes causes residents of Ibul Besar II Village to collect waste in a direct communal pattern. The direct communal pattern is done by collecting waste directly and independently to the TPS and then transporting it to the landfill (Sahil et al., 2016). The household waste collection process in settlements around the Ibul Besar II Village watershed does not meet the requirements because of the unavailability of facilities and infrastructure in the form of TPS and segregated waste collection tools. The first step that can be taken is to provide facilities and infrastructure in the form of TPS and waste carts.

Waste transport

The transport of waste from Ibul Besar II village to the landfill is the responsibility of the Ogan Ilir District Environment Office. Waste is not transported from the source to the landfill because no waste collectors exist in Ibul Besar II Village. The waste transportation from Ibul Besar II Village experiences many obstacles, especially in the input and process sections. The first is the limited transport equipment and the distance to Palem Raya Landfill, which is 27km with a travel time of about 40 minutes. Suboptimal waste collection leads to the accumulation of waste at the TPS, which reduces the quality and aesthetics of the environment and triggers itching and respiratory problems (Hariyanti et al., 2022). This happens because the accumulation of waste produces methane gas and hydrogen sulfide gas, which causes a foul odor and triggers the arrival of mosquitoes, flies, and rats (Axmalia & Mulasari, 2020). The frequency of waste collection from TPS or TPS 3R to TPA or TPST is adjusted to the amount of waste generation (Subekti & Apriyanti, 2020).

Based on in-depth interviews and observations, there is a garbage truck from the Ogan Ilir district environmental office, but the truck rarely comes, only once a week. The truck only picks up waste collected by the community on the side of the road near the village office. This is due to the limited fleet and the unavailability of temporary shelters. The condition of the tailgate of the waste truck is also uncovered. Waste transport vehicles without a tub cover and wastewater safety can cause garbage and wastewater to scatter, damaging the aesthetics of the environment and disturbing other road users (Hariyanti et al., 2022). Therefore, the government is expected to increase the number of waste collection facilities whose conditions meet the requirements and provide TPS and waste transport bicycles to optimize waste collection frequency. The village government can also discuss with the community and the local government the source of funds that can be used to provide TPS and waste collection bicycles.

Waste processing

All six housewives did not process their household waste. Household waste should be processed by compaction, composting, material recycling, or energy recycling by Indonesian Law No. 18/2008. Waste is directly disposed of in TPS, sidewalks, and home yards due to limited time, money, facilities, and infrastructure and a need for more awareness and knowledge. This study's results align with Isabella's research (2020), which states that most people directly dispose of their household waste to TPS without applying the 3R system first due to hassle and lack of knowledge. In addition, household waste management is also related to motivational factors, family support, and the role of health workers (Ningsih & Sugiarto, 2020).

The characteristics of the physical environment influence the habit of dumping rubbish under houses and rivers. The type of house usually built in wetlands is a house on stilts.

Garbage thrown into the river increases the risk of disease transmission and causes odor in the water that disturbs the comfort and health of the community (Sari, 2016). The behavior of dumping garbage in the river causes water pollution, which, when consumed, can increase the risk of diarrhea and increase the cost of raw water treatment (Putra et al., 2016). A simple composter makes Waste management more suitable for wetland residential areas. A household-scale composter can be made by utilizing an old bucket or drum. Organic waste, such as leftover vegetables, fruit, and rice, can be used as compost. Do not include eggshells, meat, and bones, as they will slow the composting and cause a foul odor (Surya et al., 2024).

The six housewives had never attended counseling on waste management. The Pegayut Health Centre team's counseling focused on drinking and clean water issues. Waste is still one of the fundamental sanitation problems in Ibul Besar II Village. Waste causes various other sanitation problems, such as the contamination of the river, which is the primary source of clean water in Ibul Besar II Village. Therefore, the waste problem must be addressed immediately to maintain environmental sanitation and public health. Environmental health programs should also focus on waste issues. Various education programs on waste can be implemented through counseling and training, print media, and social media.

CONCLUSION

Household waste management in settlements around the Ibul Besar II Village watershed could have gone better. Household waste management in settlements around the Ibul Besar II Village Watershed still needs to fulfill the requirements Indonesian government regulation. Waste reduction efforts are still limited, and waste handling needs to be corrected. Waste reduction activities are minimal, especially limiting waste generation and recycling waste. Five of six housewives do not limit plastic bags, disposable items, or packaging use. However, the reuse of waste, such as used buckets, is quite good. Four out of six mothers have reused used buckets for water containers, flower pots, and trash cans. Waste handling activities that include the stages of waste segregation, collection, transport, and processing do not fulfill the requirements. Household waste is not sorted into five types: waste is collected anywhere, waste is transported using dump trucks only once per week, waste is burned, and even no waste processing is done at all. Household waste management in Ibul Besar II Village experiences many obstacles, such as economic limitations, time, facilities, and infrastructure, and lack of public awareness and knowledge about the stages of good and correct household waste management.

Implementing educational programs on household waste management should be more creative and innovative, utilizing technological advances. The quality and quantity of waste management facilities need to be improved. The characteristics of the community and the Ibul Besar II Village area can also empower the community. For example, they are creating a waste bank.

REFERENCES

Amin, M., & Khalida, N. (2021). Komunikasi Kebijakan Publik Dalam Membatasi Penggunaan Kantong Plastik Di Kota Jambi. *Jurnal Ilmiah Muqoddimah: Jurnal Ilmu Sosial, Politik, dan Humaniora, 5*(2), 395-405. http://jurnal.um-tapsel.ac.id/index.php/muqoddimah/article/view/2656

Apriyani, A., Susilo, S. A., & Habibi, M. (2021). Analisis Penerapan Prinsip 3r (Reduce, Reuse, Recycle) Pada Pengelolaan Sampah Rumah Tangga Di Rt 04 Kelurahan Tenun Samaranda Seberang. *Jurnal Kesehatan Lingkungan: Jurnal dan Aplikasi Teknik Kesehatan Lingkungan*, *18*(2), 129-132. https://ejournal.kesling-poltekkesbjm.com/index.php/JKL/article/view/312

Aquinia, A., Liana, L., Hardiyanti, W., & Rachmawati, L. (2022). Pelatihan Aplikasi Media Sosial Instagram Pada Bank Sampah Resik Sejahtera Sambiroto Semarang. *Jurnal Penamas*, *6*(1), 7-11. https://www.unisbank.ac.id/ojs/index.php/penamas/article/view/8887

Astuti, A. D., Wahyudi, J., Ernawati, A., & Aini, S. Q. (2020). Studi Kelayakan Daur Ulang Kantong Plastik dari Aspek Ekonomi dan Lingkungan. *Jurnal Ilmu Lingkungan*, *18*(3), 488-494. https://doi.org/10.14710/jil.18.3.488-494

Astriani, L., Mulyanto, T. Y., Bahfen, M., & Dityaningsih, D. (2021). Meningkatkan Ekonomi Masyarakat Melalui Produk Kreatif Dari Pengolahan Sampah Plastik. *Prosiding Seminar Nasional Pengabdian Masyarakat LPPM UMJ, 1*(1). https://jurnal.umj.ac.id/index.php/semnaskat/article/view/8070

Axmalia, A., & Mulasari, S. A. (2020). Dampak Tempat Pembuangan Akhir Sampah (Tpa) Terhadap Gangguan Kesehatan Masyarakat. *Jurnal Kesehatan Komunitas, 6*(2), 171-176. https://jurnal.htp.ac.id/index.php/keskom/article/view/536ss

Buana, C. (2016). Motivasi, Pendorong Dan Penghambat Ibu Rumah Tangga Dalam Pengelolaan Sampah Berbasis 3r (Reuse, Reduce, Recycle) Berdasarkan Kelas Sosial. *Parsimonia-Jurnal Ekonomi dan Bisnis, 2*(3), 112-124. https://jurnal.machung.ac.id/index.php/parsimonia/article/view/35

Carles, Amrifo, V., & Zahtamal. (2017). Keterlekatan Perilaku Masyarakat Dalam Pengelolaan Sampah Dengan Tingkat Kepadatan Lalat Terhadap Gejala Penyakit Diare Di Kecamatan Rumbai Pesisir. *Jurnal Ilmu Lingkungan, 11 (1)*, 44-53. https://digilib.unri.ac.id/index.php?p=show_detail&id=87587&keywords=

Dalilah, E. A. (2021). *Dampak Sampah Plastik Terhadap Kesehatan dan Lingkungan*. https://doi.org/10.31219/osf.io/kc3jf

Gustina, E. (2022). Analisis Pengelolaan Sampah Padat Rumah Tangga Pada Masyarakat Di Pinggiran Sungai Musi Kota Palembang Tahun 2022. *Indonesian Journal of Health and Medical*, *2*(4), 409-416. https://ijohm.rcipublisher.org/index.php/ijohm/article/view/198

Harianto, S. P., & Dewi, B. S. (2017). *Buku Ajar Biologi Konservasi: Biodiversitas Fauna Di Kawasan Budidaya Lahan Basah*. Plantaxia. http://repository.lppm.unila.ac.id/4352/

Hariyanti, Y., Susanto, J., Alfarisi, I., Chotib, M., & Anggraini, Z. (2022). Mekanisme Pengangkutan Sampah Di Kecamatan Pasar Muara Bungo Kabupaten Bungo. *Jurnal Reformasi Administrasi: Jurnal Ilmiah untuk Mewujudkan Masyarakat Madani, 9*(2), 94-104. https://ojs.stiami.ac.id/index.php/reformasi/article/view/2717

Hasibuan, R. (2016). Analisis Dampak Limbah/Sampah Rumah Tangga Terhadap Pencemaran Lingkungan Hidup. *Jurnal Ilmiah Advokasi, 4*(1), 42-52. https://jurnal.ulb.ac.id/index.php/advokasi/article/view/354

Isabella, S. (2020). Analisis Faktor Yang Berhubungan Dengan Upaya 3r (Reduce, Reuse, Recycle) Pada Ibu-Ibu Di Jalan Jati Rt 03 Rw 08 Kelurahan Panarung Kecamatan Pahandut Kota Palangka Raya Tahun 2020. *[Undergraduate thesis]. Banjarmasin: Universitas Islam Kalimantan.* http://eprints.uniska-bjm.ac.id/3902/

Khoiriyah, H. (2021). Analisis Kesadaran Masyarakat Akan Kesehatan terhadap Upaya Pengelolaan Sampah di Desa Tegorejo Kecamatan Pegandon Kabupaten Kendal. *Indonesian Journal of Conservation*, *10*(1), 13-20. https://journal.unnes.ac.id/nju/ijc/article/view/30587

Mariyono, M., Lisanty, N., & Gunariyati, Y. N. (2022). Penggunaan Barang Bekas Sebagai Alternatif Wadah Tanaman Di Desa Jati Kabupaten Kediri. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat, 4*(3), 772-778. https://ppjp.ulm.ac.id/journals/index.php/btj/article/view/5674

Martinawati, M., Zahri, I., & Faizal, M. F. M. (2016). Partisipasi Masyarakat Dalam Pengelolaan Sampah Rumah Tangga: Sebuah Studi Di Kecamatan Sukarami Kota Palembang. *Jurnal Penelitian Sains, 18*(1), 14-21. http://ejurnal.mipa.unsri.ac.id/index.php/jps/article/view/35

Mavrodieva, A. V., Rachman, O. K., Harahap, V. B., & Shaw, R. (2019). Role of Social Media as a Soft Power Tool in Raising Public Awareness and Engagement in Addressing Climate Change. *Climate, 7*(10), 122. https://www.mdpi.com/2225-1154/7/10/122/pdfs

Ningsih, A. S., & Sugiarto, S. (2020). Faktor Yang Berhubungan Dengan Pengelolaan Sampah Rumah Tangga Di Kecamatan Danau Teluk Kota Jambi. *Jurnal Ilmu Kesehatan Masyarakat Berkala, 2*(2), 18-24. http://journal.univetbantara.ac.id/index.php/jikemb/article/view/989

Novita, N. (2018). Teknologi Daur Ulang Limbah Tekstil Padat Yang Dikoleksi Dari Tempat Pembuangan Akhir (Tpa) Gampong Jawa Banda Aceh. *BIOTIK: Jurnal Ilmiah Biologi Teknologi dan Kependidikan, 4*(2), 111-116. https://jurnal.ar-

raniry.ac.id/index.php/biotik/article/view/1078

Olii, M. R., Poe, I. E., Ichsan, I., & Olii, A. (2021). Limbah kaca sebagai penganti sebagian agregat halus untuk beton ramah lingkungan. *Teras Jurnal: Jurnal Teknik Sipil*, *11*(1), 113-124. https://teras.unimal.ac.id/teras/article/view/407

Pambudi, Y. S., & Krismani, A. Y. (2017). Pengaruh Faktor Predisposition, Enabling Dan Reinforcing Terhadap Perilaku Masyarakat Perkotaan Mengelola Sampah Rumah Tangga Yang Di Mediasi Oleh Variabel Motivasi (Studi Kasus Di Rw V Dan Vi Kelurahan Joyotakan, Kecamatan Serengan, Kota Surakarta). *Jurnal Kesehatan Kusuma Husada*, *8*(1). https://jurnal.ukh.ac.id/index.php/JK/article/view/208

President of Republic Indonesia. (2012). *Peraturan Pemerintah (PP) Nomor 81 Tahun 2012 tentang Pengelolaan Sampah Rumah Tangga Dan Sampah Sejenis Sampah Rumah Tangga.* Jakarta.

Purnomo, C. W. (2021). *Solusi Pengelolaan Sampah Kota*. Yogyakarta: UGM PRESS.

Putra, T. P., Adyatma, S., & Normlenai, E. (2016). Analisis Perilaku Masyarakat Bantaran Sungai Martapura Dalam Aktivitas Membuang Sampah Rumah Tangga Di Kelurahan Basirih Kecamatan Banjarmasin Barat. *JPG (Jurnal Pendidikan Geografi)*, *3*(6). https://ppjp.ulm.ac.id/journal/index.php/jpg/article/view/2829

Rosida, L., Husairi, A., Illiandri, O., Setyohadi, D., Skripsiana, N. S., Rifani, R., Ulfah, F., Salsabilla, N. N. A., Kamila, N., & Indratma, R. A. (2022). Pemanfaatan Sampah Rumah Tangga Untuk Pembuatan Kompos Di Lingkungan Lahan Basah. *Lambung Mangkurat Medical Seminar*, *3*(1), 81-88. https://lummens.ulm.ac.id/ojs3/index.php/proceeding/article/view/11/17

Rosnawati, W. O., Bahtiar, B., & Ahmad, H. (2017). Pengelolaan Sampah Rumah Tangga Masyarakat Pemukiman Atas Laut Di Kecamatan Kota Ternate. *Techno: Jurnal Penelitian*, *6*(02), 48-56. http://ejournal.unkhair.ac.id/index.php/techno/article/view/569

Ruhmawati, T., Karmini, M., & Tjahjani, D. (2017). Peningkatan Pengetahuan Dan Sikap Kepala Keluarga Tentang Pengelolaan Sampah Melalui Pemberdayaan Keluarga Di Kelurahan Tamansari Kota Bandung. *Jurnal Kesehatan Lingkungan Indonesia*, *16*(1), 1-7. https://ejournal.poltekkes-smg.ac.id/ojs/index.php/keslingmas/article/view/11513

Sahil, J., Al Muhdar, M. H. I., Rohman, F., & Syamsuri, I. (2016). Sistem Pengelolaan Dan Upaya Penanggulangan Sampah Di Kelurahan Dufa-Dufa Kota Ternate. *Jurnal Bioedukasi*, *4*(2). http://ejournal.unkhair.ac.id/index.php/bioedu/article/view/160

Santri, I. N., Istiqomah, I., & Adikusuma, W. (2022). Sosialisasi Dalam Pemilihan Tempat Sampah Organik Di Kelurahan Warungboto, Kecamatan Umbulharjo, Yogyakarta. *SELAPARANG: Jurnal Pengabdian Masyarakat Berkemajuan*, *6*(4), 1655-1660. https://journal.ummat.ac.id/index.php/jpmb/article/view/11023

Saputro, Y. E., Kismartini, K., & Syafrudin, S. (2016). Pengelolaan Sampah Berbasis Masyarakat Melalui Bank Sampah. *Indonesian Journal of Conservation*, *4*(1). https://journal.unnes.ac.id/nju/ijc/article/view/5162

Sari, P. N. (2016). Analisis Pengelolaan Sampah Padat Di Kecamatan Banuhampu Kabupaten Agam. *Jurnal Kesehatan Masyarakat Andalas*, *10*(2), 157-165. http://jurnal.fkm.unand.ac.id/index.php/jkma/article/view/201/0

Sembiring, E. T. J., & Safithri, A. (2023). Permasalahan Sanitasi Di Pemukiman Pesisir Jakarta Serta Rekomendasi Teknologi Pengelolaannya. *Environmental Occupational Health and Safety Journal*, *3*(2), 199-214. https://jurnal.umj.ac.id/index.php/EOHSJ/article/view/11937

Shafira, G. A., Wilujeng, S. A., Radita, D. R., Trihadiningrum, Y., & Pandebesie, E. S. (2023, December). Theory of planned behavior implementation towards intention of participating in cosmetic packaging waste management in Surabaya city. In *AIP Conference Proceedings* (Vol. 2621, No. 1). AIP Publishing. https://doi.org/10.1063/5.0142513

Silalahi, B. (2017). Pengaruh Pengetahuan Tentang Sampah Dan Ketersediaan Sarana Prasarana Terhadap Perilaku Ibu Membuang Sampah Yang Berpotensi Bencana Banjir Di Daerah Aliran Sungai Deli Kota Medan. *Jurnal Ilmiah*

Keperawatan IMELDA, *3*(1), 43-52. https://jurnal.uimedan.ac.id/index.php/JURNALKEPERAWATAN/article/view/256

Subekti, S., & Apriyanti, E. (2020). Pengelolaan Sampah Kawasan Perkotaan Kendal Kabupaten Kendal. *Neo Teknika*, *6*(1). http://jurnal.unpand.ac.id/index.php/NT/article/view/1582

Sumitro, S. (2020). Analisis Perilaku Masyarakat Dalam Membuang Sampah Di Btn. Baiti Jannati Sumbawa. *JISIP (Jurnal Ilmu Sosial dan Pendidikan)*, *4*(4). https://ejournal.mandalanursa.org/index.php/JISIP/article/view/1581

Surya, A., Sulastini, F., & Shaddiq, S. (2024). Pengelolaan Sampah Desa Mandi Kapau Timur Kabupaten Banjar Dengan Metode 3 R Dan Teknologi Lingkungan Lahan Basah. *PRO SEJAHTERA (Prosiding Seminar Nasional Pengabdian kepada Masyarakat)*, *6*(1). https://snllb.ulm.ac.id/prosiding/index.php/snllb-abdimas/article/view/1224

The Ministry of Environment and Forestry. (2022). *Capaian Kinerja Pengelolaan Sampah Indonesia Tahun 2022*. https://sipsn.menlhk.go.id/sipsn/#

The Ministry of Environment and Forestry. (2023). *Capaian Kinerja Pengelolaan Sampah Indonesia Tahun 2023*. https://sipsn.menlhk.go.id/sipsn/

Wildawati, D., & Hasnita, E. (2020). Faktor Yang Berhubungan Dengan Pengelolaan Sampah Rumah Tangga Berbasis Masyarakat Di Kawasan Bank Sampah Hanasty Kota Solok. *Human Care Journal*, *4*(3), 149–158. https://ojs.fdk.ac.id/index.php/humancare/article/view/503

Windraswara, R., & Prihastuti, D. A. B. (2017). Analisis Potensi Reduksi Sampah Rumah Tangga Untuk Peningkatan Kualitas Kesehatan Lingkungan. *Unnes Journal of Public Health*, *6*(2), 123-130. https://journal.unnes.ac.id/sju/ujph/article/view/15360

Yudhistirani, S. A., Syaufina, L., & Mulatsih, S. (2016). Desain Sistem Pengelolaan Sampah Melalui Pemilahan Sampah Organik Dan Anorganik Berdasarkan Persepsi Ibu-Ibu Rumah Tangga. *Jurnal Konversi*, *4*(2), 29-42. https://jurnal.umj.ac.id/index.php/konversi/article/view/894