

Analysis of community participation in waste management at the sidomandiri sidoharjo integrated waste processing site (tpst) pringsewu regency

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Abstract. Due to the large amount of waste generation in Pringsewu Regency, community-based waste management sites such as TPST were created through the KOTAKU program. One of the TPSTs in Pringsewu Regency is the Sidomandiri Sidoharjo TPST with the number of households that have participated in the Sidomandiri Sidoharjo TPST as much as 16.65% of the total Pekon Sidoharjo households. The aim of the research is to analyze the type and volume of each type of waste managed by Sidomandiri Sidoharjo TPST and to analyze the level of community participation in waste management at Sidomandiri Sidoharjo TPST. The method used is descriptive quantitative with a sampling technique in the form of simple random sampling and measurement using a Likert scale. The results showed that the sources of waste in TPST came from households, restaurants and schools. The volume of waste receipts for 2023 from January to April is 92 m³, 88 m³, 85 m³ and 107 m³. Types of waste include organic, inorganic and residual waste. Then the level of community participation in the form of thoughts, energy and skills is included in the low category. While the participation of goods and money is included in the medium category. So based on the overall results, the level of community participation is in the low category with a score of 2.10.

Keywords: Community Participation, Solid Waste, Waste Management, 3R

1 Introduction

Management rubbish is something activity Which systematic, comprehensive, And sustainable way to reduce and process waste [1]. One of the solutions that can be applied in waste management is the 3R concept. Society participation very important in waste management. Participation in this perspective is understanding of awareness and concern as well as community responsibility towards necessity management rubbish [2]. Form participation public consists from thought, power, skills, goods, and money. Pringsewu Regency has a fairly large area in terms of population dense. The area of Pringsewu is 625 km² consisting of 9 sub-districts, 131 ward And amount resident as much 406.823 soul with density resident as big as 650.92 Soul/Km [3]. Enhancement amount resident result production Waste in Pringsewu Regency is increasing. This condition is at least possible seen from the results of basic identification of slum settlements in Pringsewu Regency 2018. Data year 2021 show that Regency Pringsewu produce as big as

162.73 tons of waste per day, with the volume of waste generated being transported to the landfill as big as 74,621 m³ [3]. For overcome problem This, government has try implementing the KOTAKU program with TPST. One of the TPSTs in the Regency Pringsewu, namely the Sidomandiri Sidoharjo TPST, is located in Pekon Sidoharjo which was founded in 2021.

Number of families who have given their waste to the Sidomandiri TPST Sidoharjo has 300 families with a percentage of 16.65% of the total families Pekon Sidoharjo which participated in providing household waste to TPST Sidomandiri Sidoharjo. Public Which give the trash to TPST Sidomandiri Sidoharjo Not yet do sorting rubbish from source before Later it will be transported by the management of the Sidomandiri Sidoharjo TPST so that the waste is organic And inorganic still mixed.

The level of success of a waste processing site, one of which is TPST, can be seen from how much big level participation public in overcome problem rubbish by sorting waste independently [4]. So this research needs to be purposeful to analyze the type and volume of each type of waste managed by the Sidomandiri TPST Sidoharjo and analyze the level of community participation in waste management in TPST Sidomandiri Sidoharjo.

2 Methodology

Time and location for conducting research April-May 2023 at TPST Sidomandiri Sidoharjo Pekon Sidoharjo Subdistrict Pringsewu Regency Pringsewu. Method taking The sample used in this research was simple random sampling. Determination The sample size uses the Slovin formula with a margin of error of 10%. Instrument study Which used form questionnaire with amount respondents as much 75 families from a total

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sample of 300 KK. To calculate the sample size, researchers used the Slovin formula as follows:

$$n = \frac{N}{1+Ne^2} \quad (1)$$

Information:

n = number of samples

N = total population

e = error rate used (10% or 5%)

l = constant

Based on the formula above, it can be seen that the number of samples obtained is:

$$n = \frac{300}{1+300(0,1)^2} \quad (2)$$

$$n = \frac{300}{1+30 (0,01)} \quad (3)$$

$$n = \frac{300}{4} \quad (4)$$

$$n = 75 \text{ respondents} \quad (5)$$

Based on these calculations, the number of samples studied was 75 respondents, one respondent representing one family. The flow of the stages of implementing the final project research is presented in the form of a flow chart which can be seen in figure below.

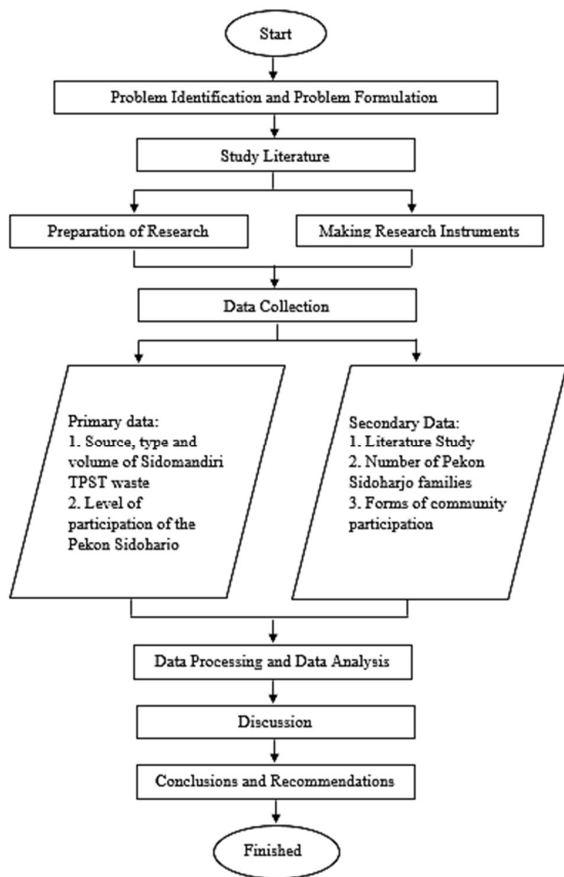


Fig. 1. Stage flow of implementing the final project research.

3 Result

3.1 TPST Sidomandiri Sidoharjo waste management

Pekon Sidoharjo has 1801 heads of families, of which at the time this research was conducted there were 300 heads of families who took part in throwing their household waste to the Sidomandiri Sidoharjo TPST. The rest process their waste independently by burning the rubbish, throwing it into the river, or throwing it into rubbish bins at the market which will then be transported by rubbish trucks to the Bumi Ayu landfill..

3.1.1 TPST Sidomandiri Sidoharjo waste management process

1) Accommodation

The people of Pekon Sidoharjo who took part in throwing their rubbish to the TPST prepared their own rubbish disposal containers. The containers used by the community are plastic, sacks and baskets.



Picture 1. Pewadahan di masyarakat.

2) Collection

The waste collected from the source to the TPST is transported using three motorbike carts by three TPST officers. Waste collected from the community to the TPST is transported 3-4 times a week with the TPST manager working days from Monday to Saturday and on Sundays the TPST is closed so it is not operational. The manager goes from house to house to pick up rubbish, the rubbish that is picked up is then put into a motorbike cart which will then be taken to the TPST. Sidomandiri TPST waste collection coverage is carried out in 13 RT in Pekon Sidoharjo. Transportation is carried out from 07.30 to 11.30 with the capacity of the motorbike cart used being 1.5 m³ – 2.5 m³.



Picture 2. Vehicle transporting waste to TPST.

3) Processing in TPST

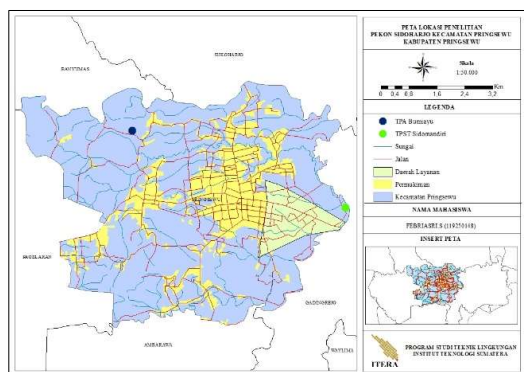
The transported waste will be processed on the same day, the existing waste will not stay overnight at the TPST. Types of waste are sorted into three groups, namely organic, inorganic and residue, with two TPST officers tasked with sorting the waste. The organic waste in the TPST is processed into compost and as maggot feed. Inorganic waste that has sales value is collected to be sold to large collectors who have collaborated with TPST. Residual waste that cannot be processed by the TPST management will be combined and then transported to the Bumiayu TPA. Apart from being used as feed for maggots, the organic waste in the TPST is processed into fertilizer, before that the existing organic waste must first be chopped up so that it is smaller in size and easier for the composting process. After that, sieving is carried out so that the organic waste that is still large can be chopped again into smaller sizes. Inorganic waste that will be sold to collectors is first collected in sacks and tied which is then stored in the TPST storage room.

4) Transportation to landfill

The waste transported to the Bumiayu landfill is non-residual waste can be processed by the TPST manager and if there is waste that is not handled by manager TPST so rubbish Which There is will transported to landfill Bumiayu. Waste that is not handled is caused by a lack of personnel is at TPST. The distance from Sidomandiri TPST to Bumiayu TPA is approximately ± 9.1 km with travel time ± 25 minutes.



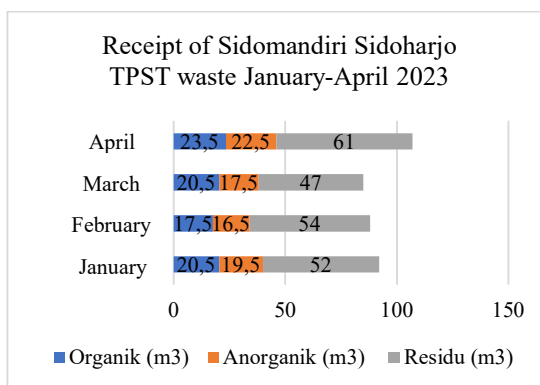
Picture 3. TPA Bumi Ayu.



Picture 4. Bumi Ayu Tpa location.

3.1.2 Source of type and volume of Sidomandiri Sidoharjo TPST waste

Waste receipts come from households (KK), three restaurants and two schools. The amount of waste received was 98.33% dominated by household waste, 1% from restaurant waste and 0.67% came from school waste. There are three types of waste in TPST, namely organic, inorganic and residual waste. Organic waste comes from food waste, vegetable waste and dry leaves. Inorganic waste consists of bottles, used cans, plastic, cardboard and other used items that can still be sold. Residual waste in the form of styrofoam, baby diapers, glass, glass and plastic that is too dirty and waste that cannot be handled by TPST managers is included in the residue category. The following is a graph of waste receipts at the Sidomandiri Sidoharjo TPST from January to April 2023 which includes organic, inorganic and residual waste.



Picture 5. Receipt of Sidomandiri Sidoharjo TPST waste.

In the period from January to April, there is more organic waste than inorganic waste. It can be seen that people contribute more household waste, namely organic waste such as food waste and vegetable waste.

3.2 Participation Public

3.2.1 Characteristics respondent

1) Gender

Table 1. Respondents based on gender.

No.	Gender	Frequency
1	Man	38
2	Woman	37
Total		75

Male and female gender has a difference of 1 respondent, with the number of male respondents being greater than female respondents. The participation of men and women is different.

2) Age

Table 2. Respondents based on age.

No	Intervals Age	Frequency
1	21-30	10
2	31-40	13
3	41-50	22
4	51-60	18
5	61-70	5
6	71-80	7

Respondents aged 41 to 50 years had a higher frequency, namely 22 respondents with a percentage of 29%. This is because when the questionnaire was distributed it was done on an office holiday and people who worked as farmers and laborers were already at home at 11.00 (rest time) which was the time for distributing the questionnaire so that people of that age were mostly at home.

3) Education

Tabel 3. Respondents based on education.

No.	Education	Frequency
1	No School	1
2	Level School	61
3	Level Bachelor	13
Total		75

There was 1 respondent who did not attend school, 61 respondents had a school level education and 13 respondents had a bachelor's level education. It can be seen that respondents in Pekon Sidoharjo have more school level education (SD, SMP, SMA and Vocational School) than undergraduate level with a percentage of respondents who have school level education of 81%.

4) Work

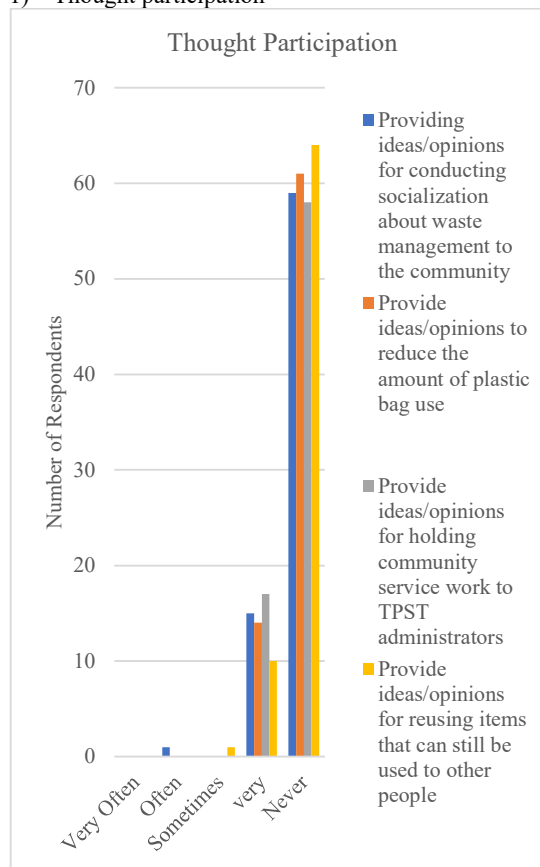
Table 4. Respondents based on occupation.

No	Work	Frequency
1	Employee	22
2	Non Employee	53
Total		75

Respondents who work as employees have a percentage of 29%, while the largest number, namely 53 respondents, work as non-employees with a percentage of 71%. This indicates that the occupations of respondents in this study were more laborers, traders, farmers and other non-employee jobs.

3.2.2 Level participation public

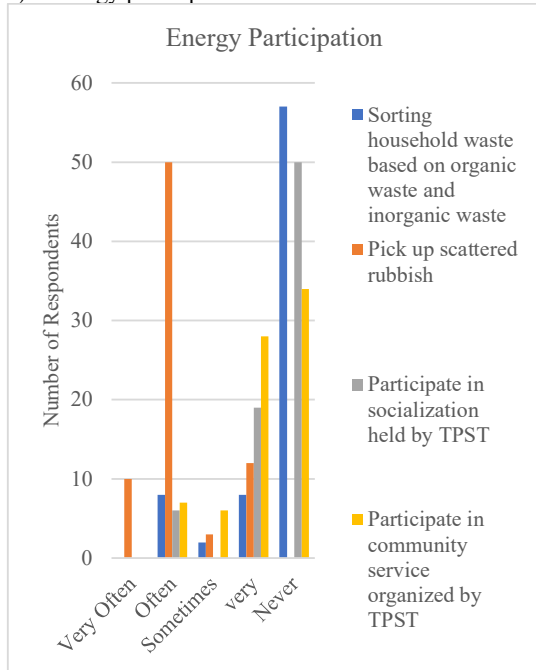
1) Thought participation



Picture 6. Chart thought participation.

It can be seen that many of the people of Pekon Sidoharjo choose never to give ideas regarding waste management and obtain the results of the level of participation in the form of community participation in Pekon Sidoharjo which is in the low category.

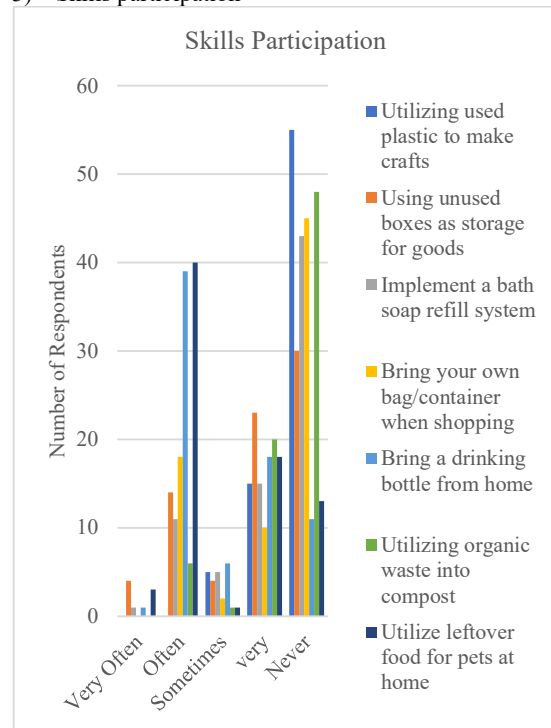
2) Energy participation



Picture 7. Chart energy participation.

The form of participation in the form of energy is still not implemented by the community. This is proven by the results of distributing questionnaires, as many as 76% of them never answered the statement "Sorting waste based on type" and 67% answered never the statement "Participated in socialization held regarding waste management". Apart from that, workforce participation in the form of "participating in community service" in the community is still low with 45% answering never.

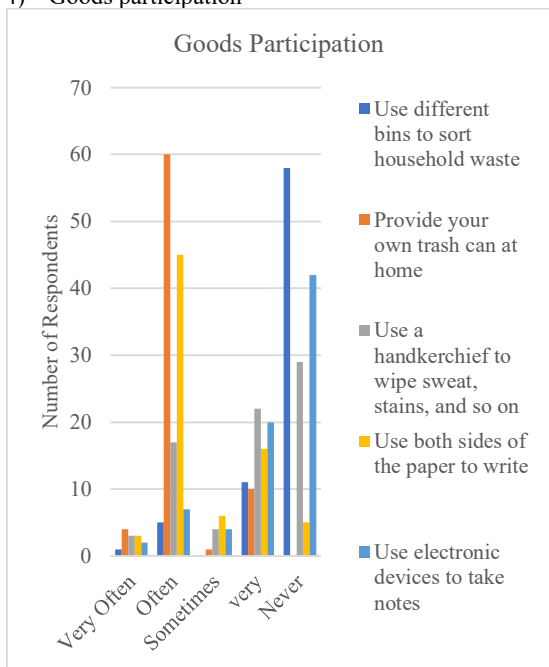
3) Skills participation



Picture 8. Chart skills participation.

As a result of distributing questionnaires to the people of Pekon Sidoharjo, only some people used used plastic to make crafts and organic waste to make compost. Factors that cause a lack of skills participation in society include the fact that people rarely know how to use plastic waste to make crafts, there is no time to do it, and there is no place to market the crafts that people make.

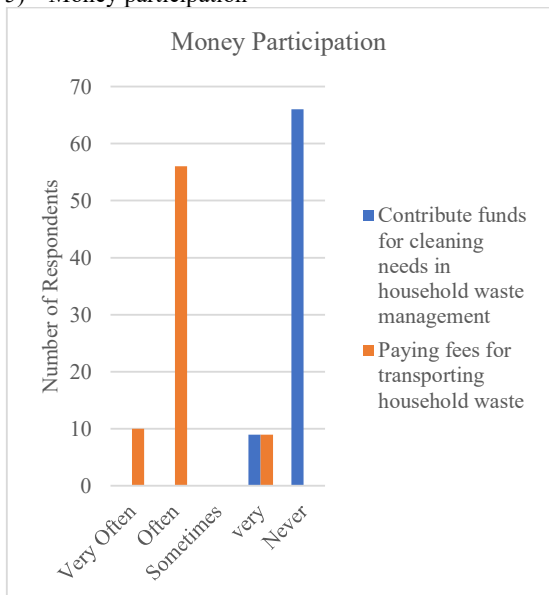
4) Goods participation



Picture 9. Chart goods participation.

Overall, the participation of Pekon Sidoharjo community workers is in the medium category. Even though it is in the medium category, there is still a need for improvement because there are still forms of participation that are in the low category.

5) Money participation



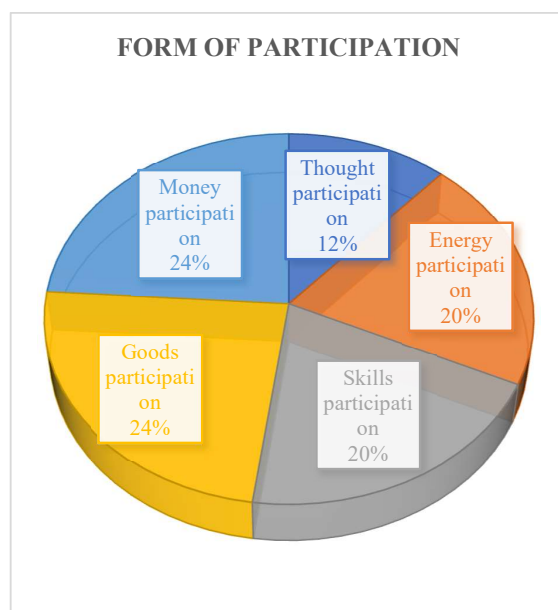
Picture 10. Chart money participation.

The form of financial participation carried out by the Pekon Sidoharjo community is that they are obliged to pay a levy fee of IDR 30,000/month. Apart from that, there are those who contribute funds outside of the levy

fee. It can be seen that the level of community participation in the form of paying levies is often answered often and some even answered very often, this can be seen that this form of community participation has a high active value among the people of Pekon Sidoharjo.

3.2.3 Recapitulation score form participation public Pekon Sidoharjo

The percentage level of thought participation is 12% (Low). The participation of energy and skills has a percentage of 20% (low). Meanwhile, the percentage of goods and money has a high percentage value compared to the other three forms of participation, namely 24% (Medium). The following is a diagram of the forms of community participation in Pekon Sidoharjo.



Picture 11. Diagram of forms of community participation in Pekon Sidoharjo.

3.2.4 Recommendation in enhancement participation public

1) Counseling and training

Based on the results of the questionnaire, participation in the thoughts, energy and skills of the Pekon Sidoharjo community regarding waste management is still low. So there is a need for outreach and training activities for the Pekon Sidoharjo community which is expected to provide knowledge and information about household waste processing. Counseling and training have been proven to increase public awareness of waste processing, one of which is separating organic and inorganic waste. This is based on Trisnawati's previous research which stated that the implementation of outreach and training activities provided concrete results in the form of increasing public knowledge about waste. The public can be aware of and start to get used to sorting organic and inorganic waste as the initial key to implementing the 3R concept. Apart from that, it can increase people's skills in turning organic waste into

compost and inorganic waste into various types of handicrafts [5].

2) Community service

In the Pekon Sidoharjo community, based on the results of distributing questionnaires, it was found that the level of community participation in workforce participation was in the low category. So there needs to be efforts to increase community participation in waste management, especially workforce participation, one of which needs to be implemented more in the implementation stage, in the form of mutual cooperation activities or community service [6].

4 Conclusion

Based on the research that has been carried out, it can be concluded that:

1. Sources of waste in TPST come from households, restaurants and schools. The types of waste include organic, inorganic and residual waste. The volume of waste receipts in 2023 in January will be 92 m³, in February it will be 88 m³, in March it will be 85 m³, and in April it will be 107 m³. Waste acceptance is dominated by organic waste compared to inorganic waste.
2. The level of participation of the Pekon Sidoharjo community in thought participation, energy participation and skills participation is in the low category, while goods participation and money participation are in the medium category. From the overall results, the average score for the form of participation of the Pekon Sidoharjo community in waste management at the Sidomandiri Sidoharjo TPST is included in the low category with a score of 2.10. There needs to be an increase so that the community plays an active role in managing waste at the Sidomandiri Sidoharjo TPST.

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