



## COMMUNITY PARTICIPATION AND OPERATORS' RESPONSIBILITIES IN MITIGATING IMPACTS AT THE SENDANGSARI MINGGIR INTEGRATED WASTE TREATMENT FACILITY (TPST)

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**Abstract:** This study was motivated by waste management issues that cause unpleasant odors, environmental pollution, and disturbances to the comfort of the community living near the Sendangsari Integrated Waste Treatment Facility (TPST). This study aims to describe community participation in mitigating the operational impacts of the facility and to analyze the responsibilities of the TPST management based on Article 6 of Sleman Regency Regulation No. 6 of 2023. This study employs a qualitative descriptive approach, with data collected through interviews, observations, and documentation. The findings indicate that community participation occurs both directly and indirectly, primarily through complaints and communication with community leaders or via social media, while direct participation includes protests, the display of banners, and public meetings. The operator's responsibilities are implemented through public outreach, staff training, odor control, wastewater treatment, and pollution control facilities, reflecting the implementation of Article 6(a), (b), (c), (d), (e), and (g) of the regulation.

**Keywords:** Impact Mitigation, Community Participation, Responsibilities of Solid Waste Management Facility Operators

### INTRODUCTION

The waste problem has become one of the growing environmental issues across various regions of Indonesia. Population growth, economic activity, and changing consumption patterns have led to an increasing volume of waste generated daily. Improperly managed waste can cause various negative impacts, such as environmental pollution, clogged drainage systems, unpleasant odors, and the risk of disease transmission (Sayrani, 2020). In addition to its impact on the environment, the waste problem also affects public health, residential comfort, and the general

quality of life. Therefore, waste management requires an effective, integrated, and sustainable system to minimize the resulting impacts.

Sleman Regency is one of the areas in the Special Region of Yogyakarta with a population that is quite high so it has the potential for large waste generation. Based on data from *Harianjogja.com* (2025), during January–September 2025 the amount of waste generation in Sleman Regency reached around 10,316 tons with residue of 2,051 tons after going through the management process. The high volume of waste shows that waste management is still a serious

challenge that requires the attention of local governments and the community. If waste management is not carried out optimally, it can cause air pollution, water pollution and health problems for the surrounding community (Khansa, 2024).

One of the local government's efforts to overcome this problem is the construction of the Sendangsari Integrated Waste Management Site (TPST) in Kapanewon Minggir. TPST is a facility used to carry out waste collection, sorting, reuse, recycling and processing activities before the residue is disposed of at the Final Processing Site (TPA). The existence of TPST is expected to be able to reduce the amount of waste entering landfill while supporting the application of the principles of reduction, reuse, recycle (3R) in sustainable environmental management (Wati et al., 2021). In addition, good waste management also needs to pay attention to the characteristics of waste, both organic and inorganic. Organic waste that is not processed immediately can rot and produce a strong odor due to the high decomposition process (Sakti, 2021). Meanwhile, inorganic waste such as plastic and metal takes a very long time to decompose, potentially causing long-term environmental pollution (Apriyani, 2023).

In practice, the existence of TPST is not always positively accepted by the public. Unoptimal waste management can cause various environmental and social impacts, such as air pollution, water pollution due to leachate, disturbance of community comfort, and social conflict between the community and managers (Khansa, 2024). This condition also occurred at TPST

Sendangsari Minggir. Based on initial observations in November 2025, since the construction phase of the TPST there has been resistance from some communities due to concerns about environmental impacts, especially unpleasant odors and possible pollution of water used for agriculture. This rejection developed into a citizen demonstration which showed public dissatisfaction with the planning and management process of the TPST.

The problems show that waste management is not only related to technical aspects, but also related to community participation and managers' responsibilities in mitigating environmental impacts. Community participation is community involvement in the decision-making process, implementation, and evaluation of a program or activity (Cohen & Uphoff, 1980). In the context of waste management, community involvement is essential to support the success of waste reduction and handling programs and create a clean and healthy environment (Saputra, 2022). However, in practice public participation is often only consultative and has not provided scope for active involvement in decision-making. As a result, the community feels less involved, giving rise to distrust of managers and the government.

In addition to public participation, the responsibility of managers is an important factor in waste management. The concept of good environmental governance emphasizes that environmental management must be carried out in a participatory, transparent, responsible and sustainable manner (Purniawati et al., 2020). In managing TPST, the manager's responsibilities include controlling environmental impacts,

managing odors and leachate, providing waste management facilities, and communicating with the surrounding community (Lawado, 2025). However, various obstacles such as limited resources, weak supervision, and not yet optimal implementation of operational standards can still cause environmental and social problems to arise around the TPST.

Normatively, waste management in Indonesia is regulated in Law Number 18 of 2008 concerning Waste Management which emphasizes the importance of reducing and handling waste sustainably. In addition, Law No. 32/2009 on Environmental Protection and Management also affirms the right of people to obtain a good and healthy living environment and to participate in environmental management. At the regional level, regulations regarding waste management in Sleman Regency are regulated in Sleman Regency Regional Regulation Number 6 of 2023 concerning Waste Management. In these provisions, local governments and managers have the responsibility to control the environmental impacts of waste management.

Several previous studies have shown that waste management still faces various problems. Khansa's (2024) research suggests that waste management in TPSTs can pose a threat to public comfort and health due to odors and environmental pollution. Sakti Research (2021) explains that waste management based on TPS 3R has an important role in reducing waste generation to TPA, but still faces obstacles related to environmental impact and community comfort. Hardito's (2024) research shows that people's behavior in waste

management is still influenced by low awareness and lack of management facilities. Meanwhile, research by Evitasari (2020) confirms that differences in community perspectives on TPST management can influence the success of community-based waste management. Putra's research (2019) also shows that waste management in the DIY region still faces various limitations so collaboration is needed between the government, management and society.

Based on these various studies, it can be seen that research on waste management mostly discusses technical aspects of management and community behavior. Meanwhile, research specifically examining community participation and management responsibilities in mitigating the operational impact of TPST is still limited, especially at TPST Sendangsari Minggir. Therefore, this research is important to carry out to examine how community participation in mitigating the impact of TPST Sendangsari Minggir and how managers are responsible in carrying out impact mitigation in accordance with Article 6 of Sleman Regency Regional Regulation Number 6 of 2023 concerning Waste Management. This research is expected to provide an understanding of waste management implementation based on community participation and become evaluation material for local governments and managers in realizing sustainable, fair and environmentally friendly waste management.

## **MAIN PROBLEM**

Based on the background above, the question formulation that will be

discussed in this research is as follows:

1. How does community participation mitigate the impacts caused by TPST Sendangsari Minggir?
2. What is the responsibility of the Sendangsari TPST management, moving aside in efforts to mitigate the impact in accordance with the provisions of Article 6 of Sleman Regency Regional Regulation Number 6 of 2023?

### **METHOD OF RESEARCH**

This study employed a descriptive qualitative approach. The research stages consisted of instrument preparation, data collection, data analysis, and conclusion drawing. Sugiyono (2019) states that qualitative research is a method for examining the natural conditions of objects, where researchers are the key instrument. Based on this approach, this research focuses on community participation and management responsibility in mitigating the operational impact of TPST Sendangsari. The research was carried out at TPST Sendangsari, Kapanewon Minggir, Sleman Regency, as well as affected community environments in Denokan, Ngepringan II, Tobayan and Plaosan hamlets. The research instruments used included interview guidelines, observation sheets, voice recording devices and field notes.

Data collection techniques are carried out through interviews, observations and documentation. The operational definition of research includes community participation as a form of citizen involvement in

conveying aspirations, deliberations and actions related to the impact of TPST, as well as management responsibilities as an effort to control environmental impacts through waste management, odor control and communication with the community. Data analysis techniques use Miles and Huberman's interactive model which includes data collection, data reduction, data presentation, and drawing conclusions.

### **RESEARCH RESULT AND DISCUSSION**

#### **1. Community Participation in Mitigating the Impact of TPST Sendangsari**

The research results show that community participation in mitigating the operational impacts of TPST Sendangsari takes two forms, namely direct participation and indirect participation. However, indirect participation is predominant over direct participation. People generally convey complaints and aspirations via social media, WhatsApp, Google Maps reviews, mass media, or through community figures such as hamlets and RT/RW heads. One of the informants said that "in the early days when it was still really smelly, we went to the regent every day, WA to the head of DLH, to the sub-district head" (Y, interview, February 1 2026). The statement indicated that the public made more use of indirect communication channels to complain about the operational impact of the TPST. Meanwhile, direct participation was carried out through a meeting forum with the operational management of TPST and the Sleman Regency Environmental Service, submission

of mitigation proposals, as well as protests against the impact of the odor caused. This can be seen from the installation of protest banners by residents as a form of direct conveyance of aspirations. As stated by the informant, the "protest banners were initially installed on Sunday 29 December 2024, then residents simultaneously placed banners along the road and in front of their respective houses" (MZ, interview, 1 February 2026).

Based on Cohen and Uphoff's (1980) participation theory, community involvement is more at the participatory in evaluation stage because society is involved in providing assessments and criticism of the impacts that have been felt. Community participation has not developed optimally at the participation in decision making stage because the community is not directly involved in the planning process or determining TPST operational policies. Community involvement tends to arise after environmental impacts appear, especially odor disturbances felt by local residents.

If analyzed using Arnstein's participation ladder theory (1969), the level of public participation is in the tokenism category, especially at the consultation and placement levels. People have gained scope to express aspirations, opinions and complaints through various communication forums. However, the public does not yet have real authority to influence or determine TPST management policies. This condition shows that the public has been heard, but the aspirations conveyed have not yet fully become

the basis for the decision-making process.

Research findings are also in line with Hobley's theory (1996) which places community participation at the level of participation by consultation. The community is involved through conveying criticism, opinions and proposals, but is not yet actively involved in planning, implementing or supervising the ongoing management of TPST. Thus, public participation serves more as a social control of environmental impacts than as part of a collaborative waste management system.

Normatively, this condition shows that the implementation of the right to public participation as regulated in Article 28 of Law Number 18 of 2008 concerning Waste Management and Article 65 and Article 70 of Law Number 32 of 2009 concerning Environmental Protection and Management has been running, but has not been optimal. The public has taken advantage of their right to submit suggestions, opinions and complaints, but involvement in the decision-making process is still limited so that participation has not yet reached the level of partnership (partnership).

## **2. Managing Responsibilities in Efforts to Mitigate Impacts**

The research results show that the operational manager of TPST Sendangsari has carried out various efforts to mitigate environmental impacts through preventive, technical and social measures. Before TPST operations began, the management carried out outreach to the community,

comparative studies to several TPSTs in Bali, as well as training for operational personnel recruited from the surrounding community. Such measures are being undertaken to improve public understanding of waste management systems while preparing the human resources that will be involved in the operations of the TPST. However, some people consider that the socialization process at an early stage has not taken place optimally. As stated by one informant, “from the start of its socialization was not open, so residents felt like something was being covered up” (AN, interview, 1 February 2026). These findings show that the principle of transparency, which is part of good environmental governance, still needs to be strengthened so that the public obtains adequate information from the planning stage.

Apart from outreach, the management also carried out comparative studies at several TPSTs in Bali as an effort to provide an overview to the public regarding the modern waste management system. One informant explained that “if the TPST in Bali is the input, it's rubbish, but the output is in the form of ash and will be thrown into the sea” (BS, interview, 23 February 2026). The comparative study activities are an educational tool for the community while demonstrating the efforts of managers in increasing public understanding of integrated and sustainable waste management.

In the perspective of good environmental governance, dissemination activities, comparative studies and training demonstrate the application of the principles of

transparency, participation and accountability. The management is trying to open access to information to the public regarding the development goals of TPST, the technology used, and the benefits of integrated waste management. These efforts are also in line with Article 6 of Sleman Regency Regional Regulation Number 6 of 2023 which mandates increasing public awareness, developing waste management technology, and coordination between stakeholders in waste management.

In the aspect of controlling environmental impacts, managers have carried out various technical innovations to reduce air pollution due to the smell of waste. These efforts include installing an automatic folding gate, using a blower to control the direction of air flow, and implementing a wet scrubber system through ducting and cooling pads to filter air that has the potential to cause odors. Based on the research findings, these various efforts are considered capable of reducing the intensity of odors felt by the public compared to the initial operational conditions of TPST. This is reinforced by the informant's statement that “residents from Padukuhan Parakan Wetan who previously frequently protested also said that the smell they feel is now much reduced compared to when TPST” first operated (BS, interview, 23 February 2026).

Apart from controlling air pollution, the management also processes liquid waste resulting from the waste management process. The liquid waste is treated through several filtering stages before being fed to the irrigation canal. The results showed

that some people used the water from the treatment for agricultural activities and considered that it provided benefits to the fertility of the crops. These findings show that waste management is not only oriented towards preventing environmental pollution, but also towards the sustainable use of waste processing products.

The responsibilities of the management are also realized through the provision of various supporting facilities, such as waste sorting facilities, RDF processing, liquid waste treatment systems, as well as the construction of special road access for waste transport vehicles. The provision of such facilities aims to increase the effectiveness of waste management while minimizing disruption to the surrounding community. This effort is in line with the provisions of Article 6 of Sleman Regency Regional Regulation Number 6 of 2023 which regulates the provision of waste management facilities and infrastructure.

Apart from technical efforts, the management also carries out follow-up on community complaints through RT, RW forums, hamlet deliberations, and coordination with local community leaders. The mechanism indicates that there is a space for communication between the public and managers in discussing the operational impact of TPST. However, research results show that some people still consider that handling complaints, especially related to odors, is not yet fully effective. Thus, while the principles of participation, transparency and responsibility have been pursued, the effectiveness of follow-up to the

perceived impact of the population still needs to be improved if the management of TPST is to proceed more sustainably and responsively to the needs of the population.

## **CONCLUSION**

1. Community participation takes place in two ways, namely participation direct and indirect. Community participation is more dominant indirect through submitting complaints, communication via community leaders, social media, and WhatsApp. Meanwhile, direct participation emerged in the form of protests, installations banners and meeting forums with DLH and TPST managers. Based on Cohen and Uphoff's (1980) theory, community participation is more many are at the evaluation stage of the impacts that have emerged than at the decision-making stage. That participation tends to be reactive because it appears after society feels it operational impact of TPST. Next, based on Arnstein's theory (1969), public participation was at the tokenism level, whereas according to Hobley (1996) it tends to take the form of participation by consultation. These conditions indicate that involvement society has occurred, but has not had that influence significant in the decision-making process related to management and mitigation of the impact of TPST.

2. Responsibilities of TPST Sendangsari management, Move within implementing impact mitigation is realized through various efforts pollution mitigation and control around the TPST area. Effort this is carried out through

outreach activities, comparative studies, training operational personnel, persuasive communication with the community, handling odour, treatment of effluents, provision of various control facilities pollution, as well as following up on public complaints. Besides, the manager also carries out various technical engineering, such as use blower, cooling pad, and installation of folding doors to minimize the spread of odor out of the TPST area. Management of liquid or leachate waste as well carried out using the processing process first beforehand used as organic fertilizer and distributed to papaya plants in around the TPST area. These various efforts are a form implementation of Regional Government duties in waste management as regulated in Article 6 letters a, b, c, d, e, and g of the Regulation Sleman Regency Region Number 6 of 2023. Thus, the responsibility of the Sendangsari TPST manager is normative implemented appropriate provisions regulations area, though implementation on the ground still requires improvement in order to impact the smell and pollution felt by the public can be minimized more optimally.

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