

Community Participation in Response to the Environmental Impact of PT Pusri's Waste (A Study Palembang)

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Abstract. *This study analyzes the perceptions of residents in administrative division I Ilir, Ilir Timur II District, Palembang, regarding the impact of industrial waste generated by PT. Pupuk Sriwijaya (Pusri), as well as the extent of community participation in the waste management process. Although Pusri has implemented Corporate Social Responsibility (CSR) programs and there have been communication efforts from local government authorities, issues related to waste impacts such as the odor of ammonia remain a concern, and the effectiveness of the mitigation efforts has not been fully perceived as significant by the community. A descriptive qualitative method was employed in this research, with data collected through in-depth interviews, observation, and documentation. The analysis was guided by Marschall's (2006) theoretical framework on participation, which emphasizes three key indicators: the availability of community participation forums, community involvement in the process, and access to voice opinions. The findings reveal that although there is no formal forum specifically for waste-related issues, communication occurs through the neighborhood-level (RT/RW) hierarchy and the administrative division, which functions as the main facilitator. Community participation is primarily observed at the stage of expressing aspirations, but there remains an expectation for increased involvement throughout all stages of decision-making and oversight. While avenues for voicing opinions such as public discussions and hearings are available, transparency regarding the follow-up of decisions remains insufficiently perceived. These findings underscore the need to formalize participation forums, enhance comprehensive community engagement, and improve transparency from both the company and the government to achieve more participatory and responsive environmental governance.*

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INTRODUCTION

Pollution caused by waste refers to a condition in which the environment has deteriorated from its original, healthy state to a more harmful one (Triassi et al., 2015; Ferronato & Torretta, 2019; Kenny & Priyadarshini, 2021). This environmental degradation, including climate shifts, is driven by the introduction of contaminated substances such as chemicals, industrial waste, and pollutants. These materials are key contributors to environmental pollution. The effects of such pollution are often not felt immediately by the community, but over time, they can become severe and even fatal (Edelstein & Wandersman, 1987; Cross, 2001). In the case of PT PUSRI, ammonia gas emissions have caused air pollution that directly affects the surrounding community. The

decline in air quality is evident through the presence of a pungent odor, which has the potential to disrupt respiratory health (Schulze et al., 2017; Lee et al., 2021; Grzywa-Celińska et al., 2020). An incident in 2022 demonstrated that ammonia exposure led to significant damage to vegetation in Ilir I, as evidenced by yellowing leaves and necrosis of plant stems. Therefore, PT PUSRI's ammonia emissions pose a serious risk to public health and environmental sustainability. The Regional Regulation of Palembang City No. 26 of 2011 stipulates various rules regarding waste management and monitoring within the city. This regulation aims to improve the quality of life, protect the environment, and encourage public participation in development efforts. Furthermore, the legal framework places responsibility on companies for managing their industrial waste. This is clearly articulated in Article 1, paragraph 3 of Law No. 40 of 2007 concerning Limited Liability Companies, which states that corporate social and environmental responsibility is a commitment by companies to participate in sustainable economic development in order to improve the quality of life and the environment, both for the local community and society at large. Additionally, Article 74, paragraph 3 of the same law declares that companies responsible for producing industrial waste must be held accountable and are subject to legal sanctions as stipulated by the legislation (Mamesah et al., 2024; Uche & Azoro-Amadi, 2024; Hardi et al., 2024; Farhoq et al., 2024).

The role of the community in waste management can significantly support the government in achieving environmental welfare (Brotosusilo et al., 2020; Permana et al., 2024; Rodić & Wilson, 2017; Leknoi et al., 2024; Faishal, 2022; Rabbani et al., 2020). Improper waste processing poses serious health risks, particularly to residents in Ilir Timur II District. A large portion of the community in this area has expressed complaints about the daily waste generated, ranging from unpleasant odors to thick smoke emissions from the factory's chimneys. However, some residents living along the banks of the Musi River feel that they have benefited from the presence of the company, without fully considering the negative environmental and health impacts it may cause.

Alongside increased production, the volume of waste generated by PT Pusri has also risen, leading to serious problems particularly in The Musi River, which serves as the final disposal site for treated waste from PT Pusri, has directly affected the riverbank communities, many of whom remain heavily dependent on the river for their daily activities. Public perception of the waste's impact is critical, as it directly relates to health and environmental concerns. Observations indicate that in 2018, ammonia gas emissions from PT Pusri resulted in 25 residents being hospitalized due to respiratory issues. To this day, local residents continue to report the persistent smell of ammonia and frequent respiratory problems. An estimated 87,327 residents in a district affected by the waste produced by PT Pusri.

Liquid waste containing hazardous and toxic substances can contaminate water sources and disrupt aquatic ecosystems, posing a threat to human life (Rajak et al., 2024; Mushtaq et al., 2019; Singh et al., 2024). The negative impacts of improper waste management include skin diseases, respiratory disorders caused by air pollution, and significant environmental changes in the area surrounding In a 1 Ilir. These conditions indicate serious environmental degradation, where a previously healthy environment has deteriorated due to the infiltration of chemicals and pollutants. Although residents of 1 Ilir express concerns over the adverse effects of waste and air pollution, they also acknowledge certain benefits from the presence of PT Pusri. Meanwhile, the government, as the owner of this state-owned enterprise (BUMN), has yet to fully resolve these issues. Therefore, this study aims to analyze "Community Perceptions of the Environmental Impact of PT Pusri in Ilir Timur II District." The focus is on the perceptions of local residents regarding the environmental consequences of PT Pusri's industrial activities, particularly related to ammonia waste and its impact on their quality of life.

The specific objectives of this research include: (1) identifying the mechanisms through which the community expresses environmental complaints, (2) assessing the level of community involvement in managing the impacts of industrial waste, and (3) evaluating the extent of public access to communication forums and platforms for voicing opinions. The study also seeks to

examine how community aspirations are addressed by both the government and the company, while offering recommendations to enhance transparent and participatory community-based environmental management (Dyer et al., 2014; When & Almomani, 2019; Commodore et al., 2017).

METHODS

This study employed a descriptive qualitative design to examine community participation in responding to the environmental impact of industrial waste produced by PT Pusri in Ilir Timur II District, Palembang. This approach was selected because it is appropriate for exploring community perceptions, experiences, and forms of participation in a natural social setting. Through descriptive qualitative inquiry, the study was able to capture how local residents understand the environmental effects of PT Pusri's waste, how they communicate their concerns, and how they are involved in related decision making processes.

The research was conducted in Administrative Division I Ilir, Ilir Timur II District, Palembang, an area located close to PT Pusri's operational environment and directly affected by the issue under study. The focus on this location was based on the relevance of the area to the research problem, particularly the community's experiences with ammonia odor, environmental complaints, and interaction with local government and the company.

Data were collected through observation, in depth interviews, and documentation. Observation was used to understand the environmental and social context of the community, particularly the conditions surrounding the affected area and the interaction patterns among residents, local leaders, and the company. In depth interviews were conducted with relevant informants, including local government representatives, neighborhood leaders, and community members, in order to obtain detailed accounts of public perceptions, complaint mechanisms, and forms of participation related to waste management issues. Documentation was used to support and strengthen the findings obtained from observation and interviews through written records, reports, and other relevant materials.

The selection of informants was based on their relevance to the research focus and their direct knowledge of the environmental issues caused by PT Pusri's waste. Informants therefore included parties who were directly involved in complaint communication, community facilitation, and local responses to the environmental impact experienced by residents. This allowed the study to gather data from actors who understood both the practical problems in the field and the existing mechanisms of participation.

Data analysis was carried out qualitatively by organizing, reducing, interpreting, and drawing conclusions from the data obtained from the field. The analysis referred to Marschall's framework of participation, which emphasizes three main indicators, namely the availability of participation forums, community involvement in the process, and access to express opinions. These indicators were used as analytical lenses to interpret how participation was practiced by the community in responding to the environmental impact of PT Pusri's waste. The use of this framework also helped ensure that the findings were systematically connected to the objectives of the study and the structure of the discussion presented in the results section. The paper's results and abstract indeed use Marschall's three indicators, while the original methods section did not explain this analytical basis clearly enough.

To improve trustworthiness, data from interviews, observation, and documentation were compared and interpreted carefully so that the findings reflected the actual conditions experienced by the community. In this way, the study sought to produce a comprehensive description of community participation in addressing the environmental impact of PT Pusri's industrial waste.

A few important improvements in this revision are these. The revised version removes the inconsistent phrase about the tofu factory, aligns the methods with the study's actual object,

explicitly states the research location, clarifies the data collection techniques, explains the basis for informant selection, and most importantly connects the analysis to Marschall's participation framework, which is already central in the abstract and results..

RESULTS AND DISCUSSION

Community Perceptions of Industrial Environmental Impacts: a Case Study of PT Pusri in Ilir Timur II District.

This study analyzes the perceptions of residents in Ilir Timur II District, Palembang, regarding the environmental impact of industrial waste produced by PT Pusri in 2024. Through direct engagement with community members as respondents, the findings reveal significant variations in public opinion. Some residents expressed deep concern over the potential long-term environmental and health impacts of the waste, while others responded more positively, emphasizing the company's contributions to environmental quality and community welfare. This analysis is grounded in Marschall's theoretical framework of participation, which highlights the synergistic collaboration of three key elements: the availability of public participation forums, the community's capacity to engage in decision-making processes, and public access to channels for expressing opinions.

To Identify the Existing Mechanisms for Community Engagement

This study identifies that, although there is no formally structured community participation forum specifically addressing the environmental impact of PT Pusri in Subdistrict Administrative Unit I Ilir, channels for communication and public input continue to function through informal mechanisms and the active role of local government institutions. The head of Subdistrict Administrative Unit I Ilir (RM) explained that residents may submit complaints particularly regarding the ammonia odor through a hierarchical chain involving neighborhood leaders (RT), community unit leaders (RW), and finally, the Subdistrict Administrative Unit office. The local government at the Subdistrict Administrative Unit level acts as both a facilitator and a "frontline" recipient of complaints, with RT/RW officials proactively visiting residents to gather information, especially considering Subdistrict Administrative Unit I Ilir's location in the so-called "Ring I" of PT Pusri's operations. The strong communication between the Subdistrict Administrative Unit administration and PT Pusri has led to prompt company responses to complaints and the implementation of various assistance programs, including support for micro, small, and medium enterprises (MSMEs), which have had a positive impact on the community. RT 11 leader (H) confirmed that there are no NGOs or civil society organizations specifically handling waste issues in Subdistrict Administrative Unit I Ilir; coordination responsibilities are fully carried out by local government officials. The delegation of duties from the Lurah to RT leaders to engage directly with residents reflects a proactive governmental approach to safeguarding community welfare and public safety. Nevertheless, the RT leader noted that there is no funding allocated from the Subdistrict Administrative Unit, although PT Pusri has actively provided support such as free medical services, sewing training, and other forms of assistance, which have been highly appreciated by the local residents.

The head of RW 02 (SN) added that resident WhatsApp groups in each RW, created by RT leaders, have become effective platforms for submitting various complaints, demonstrating the use of digital technology to enhance responsiveness. The involvement of RW officials in PT Pusri's community meetings also indicates positive communication between the company and the local community. Residents acknowledged PT Pusri's efforts to mitigate negative impacts, such as the construction of a Wastewater Treatment Plant (IPAL) to reduce ammonia odors and the provision of compensation items, such as specialized handkerchiefs. Overall, community perceptions are generally positive, with the effectiveness of local government institutions rated at 80% and appreciation expressed for PT Pusri's support initiatives. When compared to other studies, such as waste management in Bogor City (Ramdhan & Hermawan, 2022), it was found that community participation was facilitated through the establishment of a Community Action Plan (CAP) Forum,

which involved residents in data collection and program development through Focus Group Discussions (FGDs). This contrast highlights that, while informal participation mechanisms and the role of local government are relatively strong in Subdistrict Administrative Unit I Ilir, the absence of a formal, waste-specific forum is a key distinction that warrants further attention to optimize more structured and planned community participation.

Community Involvement in the Process

Community involvement in governance reflects a concrete manifestation of the principle of participation, whereby the aspirations and needs of citizens are taken into account in decision-making processes. PT Pupuk Sriwijaya (Pusri) demonstrates this form of participation through the implementation of its Corporate Social Responsibility (CSR) programs. One such initiative is the annual free healthcare service, conducted simultaneously across four Subdistrict Administrative Unit in Palembang on August 18, 2023. This program actively involved local residents as service personnel and was closely coordinated with Subdistrict Administrative Unit officials. This activity illustrates the company's commitment to improving public health in surrounding communities and its adoption of a participatory approach. In addressing the environmental impacts of PT Pusri's waste, the Head of Subdistrict Administrative Unit I Ilir (RM) explained that communication and community involvement are facilitated through deliberative forums at both the RT and Subdistrict Administrative Unit levels. These forums serve as a platform for residents to express complaints, aspirations, and propose solutions for waste management.

The Subdistrict Administrative Unit government also facilitates direct dialogue between PT Pusri and affected residents to foster mutual understanding. This mechanism which includes deliberation meetings and direct public hearings with the company has been running smoothly and in accordance with established procedures. Residents are invited to voice their concerns and suggestions, although the initiative and agenda of such meetings are generally set by the company. Moreover, the Subdistrict Administrative Unit does not yet have a separate activity plan beyond the currently implemented programs. RT 11 leader (H) confirmed that neighborhood leaders regularly invite residents to participate in deliberation meetings to gather complaints and aspirations. The results of these discussions are then reported to the Subdistrict Administrative Unit, accompanied by the RW (community unit leader), who acts as an intermediary with the company. The RT's role as an official communication channel and forum for community dialogue, with a flexible monthly schedule, reflects a proactive effort to listen to citizens' voices although challenges remain in gathering residents due to their individual time constraints. RW leaders from RW 02 (SN) and RW 03 (N) affirmed that their responsibility includes supporting the RT during meetings to ensure the accuracy of the information conveyed to the Subdistrict Administrative Unit. They also serve as facilitators and coordinators in this communication process.

Community participation in Subdistrict Administrative Unit I Ilir is predominantly evident at the stage of expressing aspirations, particularly through RT-level deliberation forums. Several community members (e.g., Ibu P, Ibu Minarti, Ibu M) stated that RT forums are the most frequently used platforms to raise complaints, such as the smell of ammonia and mild respiratory issues. Although a forum exists at the Subdistrict Administrative Unit level, final decisions regarding solutions are often determined primarily by PT Pusri. Communication is also conducted through RT WhatsApp groups, yet some residents perceive a lack of transparency in how their input is incorporated into final decisions. While residents appreciate the assistance provided by PT Pusri, they feel that the overall effectiveness in addressing ammonia odors or potential water pollution remains limited. As a result, they call for greater transparency, enhancements to CSR programs, and more frequent public hearings with the company. In a broader context, community involvement in waste management would be significantly strengthened if residents actively participated in oversight and the management process itself. This aligns with Article 70 of Law No. 32 of 2009 on Environmental Protection and Management,

which guarantees the rights and opportunities for the public to actively participate in environmental protection and management (Aldyan et al., 2025).

Public Access to Express Opinions

Freedom of speech and expression constitutes an essential foundation for accountable and democratic governance. The public's right to articulate their views and express themselves including through mechanisms of criticism and suggestions serves as an inherent means of oversight over the performance of government institutions and corporate entities operating within their communities. Active civic participation in providing evaluations and constructive recommendations significantly contributes to enhancing the responsiveness, transparency, and legitimacy of public policies, ultimately promoting sustainable development. This aspect is formally guaranteed under Law No. 14 of 2008 concerning Public Information Disclosure, which indirectly supports citizens in expressing their opinions and conducting oversight based on accurate information.

Based on interviews with the Head of Subdistrict Administrative Unit I Ilir (RM), the local government plays an active role as a facilitator and main liaison between the community and PT Pusri. Although no specific forum dedicated to waste issues exists, the Subdistrict Administrative Unit ensures public access through deliberation forums at the RT/RW level and meetings at the Subdistrict Administrative Unit level. The Lurah appreciated PT Pusri's responsiveness in listening to residents' complaints, a positive indicator of the communication that has been established. This process illustrates that community involvement consistently includes the submission of complaints, which then serve as the basis for joint problem-solving efforts between the local government and PT Pusri. The main challenge, according to the Lurah, lies in optimizing the solutions already in place, rather than in the absence of efforts.

RT Head (H) reinforced this mechanism by explaining the flow of public deliberation outcomes, which are coordinated with the RW Head before being forwarded to the Subdistrict Administrative Unit. Subsequently, these results are brought directly to PT Pusri in official hearings. Interestingly, the RT Head highlighted PT Pusri's prompt responses, particularly to issues directly affecting the community, indicating the effectiveness of the existing communication channels. The complaint-handling process begins with documentation at the RT level, followed by coordination with the RW, and the community's expectation is the implementation of effective environmental monitoring to eliminate the ammonia odor, which remains the primary concern. Although PT Pusri frequently provides briefings, there is an implicit expectation for more prompt and concrete actions from the company.

RW Head (N) also elaborated on the vital role of the RW in collecting and aggregating the outcomes of deliberations from various RTs before formally submitting them to the Subdistrict Administrative Unit. The RW Head's initiative to conduct direct hearings with PT Pusri demonstrates a proactive effort to ensure that the community's voice is heard by the company. The response from PT Pusri, which the RW Head described as "fairly good," implies a reasonably satisfactory level of communication and responsiveness from the company regarding the issues raised. Residents of Subdistrict Administrative Unit I Ilir confirmed the diversity of complaint channels they utilize, including direct reports to RT/RW heads, participation in community deliberations, and attendance at hearings organized by PT Pusri. The roles of RT and RW leaders are acknowledged as the main drivers in this process. However, the community also identified challenges in complaint access, particularly in regard to more direct channels to PT Pusri. Additionally, there is a persistent hope for greater transparency concerning the decisions made following the submission of aspirations. While residents acknowledged the existence of meetings and socialization events organized by PT Pusri, these interactions are often perceived as suboptimal in terms of accessibility and transparency of follow-up actions.

In their experience, responses to complaints particularly those concerning industrial waste were considered prompt, and the solutions provided were fairly effective, including free medical

services, CSR programs, and reductions in ammonia odor. However, expectations remain high for future improvements, specifically the enhancement of CSR initiatives and the complete elimination of ammonia odors. This indicates that while progress and positive responses have been observed, the community continues to aspire for more comprehensive and sustainable solutions to the core issue of industrial waste impact.

CONCLUSION

Although there is no formal forum or specific civil society organization dedicated to addressing PT Pusri's waste issues, communication and the delivery of community aspirations are facilitated through informal mechanisms at the neighborhood (RT), community (RW), and urban village (Subdistrict Administrative Unit) levels. The Subdistrict Administrative Unit government acts as the "front line" and facilitator, proactively collecting residents' complaints through direct visits. Good communication with PT Pusri has resulted in the company's prompt response to complaints and the implementation of various Corporate Social Responsibility (CSR) programs that have had a positive impact. However, the absence of a structured forum specifically addressing waste issues presents a potential area for improvement, especially when compared to other cases with more formal participatory platforms (e.g., the Community Action Plan Forum in Bogor). The community is involved in the decision-making process through deliberative forums at the RT and Subdistrict Administrative Unit levels, which serve as platforms for expressing complaints and suggesting solutions. The Subdistrict Administrative Unit government also facilitates direct dialogue between the community and PT Pusri. Although residents are invited and given the opportunity to express their opinions, the initiative and meeting agendas are generally set by the company. The roles of RT and RW leaders are vital as official communication channels and facilitators, ensuring that community input is conveyed hierarchically. This involvement, however, tends to focus primarily on the aspiration-submission stage, with room for enhancing participation across all stages of waste management and monitoring aligned with the principles of the Environmental Protection and Management Law. Public access to voice opinions is facilitated through RT/RW deliberation forums, Subdistrict Administrative Unit meetings, and direct audiences with PT Pusri. The company is considered responsive to complaints, and its waste management efforts—such as the construction of wastewater treatment facilities and CSR programs—are appreciated, as indicated by the reduction of ammonia odor. Nonetheless, the community still identifies challenges in gaining more direct access to PT Pusri and notes a lack of transparency regarding how their input is factored into final decisions. While there is optimism about the outcomes achieved, the community places high priority on improving transparency, expanding CSR initiatives, and increasing opportunities for public engagement to support ongoing improvements. Overall, community participation in Subdistrict Administrative Unit I Ilir regarding the impact of PT Pusri's waste management reflects the presence of communication mechanisms and responsive efforts from various stakeholders. However, there remains significant potential to strengthen this participation through the formalization of participatory forums, enhanced community involvement at every stage of decision-making, and improved transparency from both the company and the government in responding to public input. Such improvements would contribute to more participatory and responsive environmental governance that better aligns with the real needs of affected communities.

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