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The Effect of Temporary Dumps (TPS) on the Health of the Environment Around the TPS Behind Tangsi Settlement, Padang Barat District

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ABSTRACT
Temporary Disposal Sites (TPS) play an important role in urban waste management, but their proximity to residential areas can trigger environmental and health problems. The TPS at Belakang Tangsi, Padang Barat, is directly adjacent to a densely populated settlement, making it a critical case to study. This research assessed its impact on environmental health using a quantitative descriptive approach, with data collected through observations, questionnaires from 75 residents, and interviews with sanitation workers and local officials. Descriptive statistics and relational analysis were applied to evaluate community perceptions and health concerns. Findings show that most residents reported foul odors, increased flies and rodents, and reduced comfort, with 68% experiencing direct disturbances and 53% expressing health concerns. These results highlight that poorly managed TPS near settlements not only degrade sanitation but also raise psychosocial stress and disease risk. The novelty of this study lies in documenting the specific impacts of an urban TPS located within dense residential areas, providing evidence for the urgent need to improve management, strengthen community-based waste sorting, and reconsider TPS placement in urban planning.

Keywords: *TPS, Environmental Health, Settlement, Waste*

INTRODUCTION

Waste management is one of the environmental problems that is still a big challenge in Indonesia. Based on the latest data, the amount of national waste generation reaches around 175,000 tons per day, and almost 38% of this amount has not been properly managed, which ultimately causes various impacts on the environment and public health (Republika, 2024). This problem becomes even more complex when the waste management system is not supported by adequate infrastructure, especially in densely populated areas.

One of the important components in the waste management system is the existence of temporary landfills (TPS). TPS is designed as the location of the initial collection of waste before it is

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transported to the final processing site (landfill). But in practice, many polling stations are built too close to residential areas without considering environmental health aspects, thus triggering various social and ecological problems (Pawnshop Forcepsi, 2024).

The existence of poorly managed polling stations can be a source of air pollution due to strong odors, increase the population of flies and mice, and pollute the soil and groundwater around it. In Polewali Mandar, West Sulawesi, for example, residents complain of respiratory disorders, nausea, and skin diseases due to the presence of polling stations that are very close to settlements (Kompas, 2023). This case shows that the location of polling stations greatly affects the health of the environment and the quality of life of the surrounding communities.

Recent studies also prove that the distance between polling stations and occupancy has a significant correlation with an increase in the population of disease vectors. A study conducted by an Indonesian research team found that areas with a distance of less than 250 meters from polling stations have a much higher density of flies than areas further away, potentially increasing the risk of transmission of diseases such as diarrhea and other gastrointestinal infections (Abstraksi.id, 2024).

In addition to the impact on health, the presence of polling stations in residential neighborhoods also reduces air quality, environmental aesthetics, and citizen comfort. In many cases, TPS is used in open dumping without adequate soil protection or leachate drainage systems, potentially contaminating groundwater and causing long-term pollution. This risk will increase if the waste transportation system is not carried out routinely.

Furthermore, poor polling station conditions often lead to social conflicts between communities and local governments. Residents ' rejection of the existence of TPS is usually triggered by lack of socialization and non-involvement of the community in site placement planning. This leads to social resistance and distrust of local authorities, which further complicates participatory waste management.

Some studies also state that the existence of polling stations has an impact on the psychological quality of citizens, such as stress due to strong odors, concern for the health of children, and loss of comfort of life. These inconveniences will have a long-term impact on social well-being if they are not immediately addressed through policies in favor of Environmental Protection and public health.

On the other hand, community-based approaches such as TPS 3R (Reduce, Reuse, Recycle) show promising results. A case study in Janti, Sidoarjo, showed that participatively managed 3R TPS was able to significantly reduce household waste generation, even achieving a recovery factor of 78% (E-Journal Undip, 2023). This proves that community involvement is very important in supporting successful waste management.

Active community participation not only reduces the burden of waste, but also increases environmental awareness. When citizens are directly involved in the management process, from waste sorting to recycling, the negative impact of TPS on health can be minimized. Therefore, a participatory approach needs to be part of the systemic planning of polling stations in residential areas.

However, not all regions have implemented the 3R TPS scheme. In areas such as Central Halmahera, for example, there are still many polling stations that are built makeshift and do not have basic facilities. As a result, garbage accumulates and disrupts the surrounding environment, creates a pungent odor, and creates unsanitary conditions that increase the risk of respiratory and digestive tract infections (Corridor Indonesia, 2024).

Juridically, the management of temporary landfills (TPS) has been regulated in Law No. 18 of 2008 on Waste Management, which expressly establishes the principle of joint responsibility between the government, the community, and business actors in handling waste systematically and environmentally sound. The law also mandates that every waste management facility, including polling

stations, must meet technical standards and consider environmental health and safety aspects. In practice, TPS management should refer to planning documents such as Environmental Impact Analysis (EIA) or Environmental Management and monitoring efforts (UKL-UPL), depending on the scale and capacity.

However, the reality on the ground shows that the implementation of this policy is still far from optimal, especially at the regional level. Many polling stations are built without environmental permits, do not have technical planning, and are not regularly monitored by local environmental agencies. This condition shows the gap between regulation and implementation at the operational level. Factors such as limited local budgets, weak technical capacity of officers, and lack of coordination between agencies contributed to the weakening of supervision over the management of polling stations. As a result, the existence of polling stations, which should be a temporary solution, has become a source of new problems that interfere with public health and environmental sustainability.

Furthermore, the weak implementation of regulations is also influenced by the lack of community involvement in the planning process and environmental supervision. In fact, in the spirit of participatory-based Waste Management which is also mandated in law No. 18 of 2008, the community should be actively involved, especially in the selection of polling station locations and monitoring their impact on the surrounding environment. When policies are not implemented in an inclusive and transparent manner, there will be social resistance, rejection of TPS, and low awareness of household waste management. Therefore, the revision of the TPS management policy must pay attention to the integration between regulative, technical, and participatory approaches so that its implementation is not only legally valid, but also effective and accepted by the wider community.

This condition also occurs in the District of Padang Barat, precisely at the TPS behind Tangsi. Its location in the middle of a dense residential area caused various complaints from local residents, ranging from annoying odors to the appearance of insects and rodents. The existence of TPS is feared to contribute directly to the decline in the quality of Health and comfort of life of the surrounding community.

The problem is important to be studied in depth in order to provide a scientific basis for the evaluation of spatial policies and Waste Management in this region. This study will not only evaluate the existing conditions, but also provide concrete recommendations based on data that can be used by local governments in designing long-term solutions. Thus, the urgency of this research lies not only in assessing the impact of TPS on the environment, but also as an academic contribution to formulating more inclusive, healthy and sustainable public policies. This study is expected to be a reference for other regions in Indonesia that face similar problems in the placement and management of polling stations.

METHODS

This study used a quantitative descriptive design with a cross-sectional approach, aiming to objectively describe the impact of the temporary disposal site (TPS) in Belakang Tangsi on environmental health in surrounding residential areas. The research location was Belakang Tangsi Village, Padang Barat District, where the TPS is situated in the middle of a densely populated settlement. Respondents were selected purposively with specific criteria, namely residents who live within a radius of 100 meters from the TPS, are aged 18 years or older, have lived in the area for at least one year, and are willing to participate in the study. Based on these criteria, a total of 75 respondents were included. Data collection was carried out using three complementary techniques.

Field observation was conducted to directly assess the physical condition of the TPS and its surroundings, including distance to settlements, odor intensity, presence of disease vectors such as flies

and rats, and the daily waste handling system. Questionnaires were distributed to obtain information about community perceptions regarding air quality, environmental comfort, frequency of illness related to environmental conditions, and concerns about TPS management. In addition, semi-structured interviews with janitors and local village officials were conducted to gather supporting qualitative data on operational practices and government responses to community complaints.

The data obtained were analyzed using descriptive statistical techniques in the form of frequency distributions, percentages, and cross-tabulations to identify patterns of perceived environmental and health impacts, while qualitative data from interviews were analyzed thematically to strengthen and triangulate the quantitative findings. This methodological framework was designed to ensure that the research results are scientifically credible and accountable, while providing a clear empirical picture of the urgency of improving TPS arrangement and management from an environmental health perspective.

RESULTS

The results of the univariate analysis are presented in Table 1. The majority of respondents reported negative impacts from the presence of TPS Belakang Tangsi. A total of 68% of respondents stated that they experienced unpleasant odor disturbances, while the same proportion (68%) also reported discomfort at home due to the TPS. Furthermore, 60% of respondents acknowledged an increase in the presence of flies and mice, which serve as potential disease vectors. More than half of the respondents (53%) expressed concerns about disease risks, although only 37% considered TPS management to be good, compared to 63% who assessed it as inadequate.

1. Univariate Analysis

Tabel 1. Univariate Analysis

Variable	Categories	Frequency (f)	Percentage (%)
Unpleasant odor disorder	Yes	51	68
	No	24	32
The presence of flies and mice	Yes	45	60
	No	30	40
Comfort disorder	Yes	51	68
	No	24	32
Disease risk concerns	Yes	40	53
	No	35	47
TPS management	Good	28	37
	Not good	47	63

Based on the data in Table 1, it can be concluded that the majority of respondents felt the negative impact of the existence of TPS Belakang Tangsi. As many as 68% of respondents stated that they were disturbed by unpleasant odors, and the same percentage also felt that their comfort was disturbed when they were at home. This shows that air pollution due to polling stations is a major problem felt by residents. In addition, 60% of respondents stated that the presence of flies and mice increased, which is an indicator of the presence of disease vectors due to open garbage dumps. This

certainly has implications for the risk of transmission of Environmental-based diseases such as diarrhea, typhoid, and respiratory tract infections.

Also important, as many as 53% of respondents are worried about health risks due to environmental conditions around polling stations. This sense of worry suggests that people are aware of the threat, even though some may not have experienced a direct health impact. On the other hand, only 37% of respondents considered TPS to be well managed, while 63% considered its management to be not optimal. This reinforces the finding that ineffective management of polling stations worsens the quality of the surrounding environment.

2. Association of Unpleasant Odor Disorders with Disease Risk Concerns

Tabel 2. Association of Unpleasant Odor Disorders with Disease Risk Concerns (N=75)

Unpleasant Odor Disorder	Disease Risk Concerns: Yes	Disease Risk Concerns: No	Total
Yes	35	16	51
No	5	19	24
Total	40	35	75

Based on Table 2, it can be seen that of the 51 respondents who felt unpleasant odor disturbances around polling stations, as many as 35 people (69%) were also worried about the risk of diseases that might arise due to these environmental conditions. In contrast, of the 24 respondents who did not perceive odor disturbances, only 5 people (21%) expressed similar concerns. This shows that there is a fairly strong relationship between odor disorders and the level of concern of citizens about their health. An unpleasant odor can be a real indicator of environmental pollution, thus triggering misgivings related to potential health problems. Therefore, odor disturbances emanating from polling stations have the potential to increase the level of anxiety of citizens about health risks.

DISCUSSION

1. Univariate Analysis

The results of the univariate analysis showed that most of the respondents felt a significant environmental impact due to the existence of a temporary landfill (TPS) behind Tangsi. A total of 68% of respondents reported unpleasant odor disturbances sourced from uncovered and poorly managed garbage heaps. This smell is generally smelled up to residential areas adjacent to polling stations, especially during hot weather or when garbage is not immediately transported. This smell disorder not only disturbs comfort, but also generates social unrest in the environment. Odor disturbance as an indicator of local air pollution is one of the impacts that is most directly felt by the community.

In addition to the pungent odor, the presence of disease vectors is also a major concern. As many as 60% of respondents stated that there has been an increase in flies and mice in their living environment since polling stations began to be actively used. The presence of flies and mice is not only a physical and aesthetic disorder, but also carries the risk of transmitting diseases such as diarrhea, leptospirosis and typhoid fever. This condition is in line with the characteristics of open polling stations and minimal sanitation, which can be an ideal habitat for disease vectors. This shows that the existence of TPS that is not managed hygienically directly affects the health condition of the surrounding environment.

The level of concern about the risk of disease perceived by the community is also quite high, at 53%. This shows that most citizens have an awareness of the potential health threats due to a polluted

environment. However, only 37% of respondents assessed that the management of TPS was running well. The imbalance between community expectations and the reality of management on the ground indicates a weakness in the waste management system in this region. Non-optimal management, such as delays in transportation, lack of supporting facilities, and lack of community involvement, are the main causes of complaints from residents about the existence of TPS. Therefore, a thorough evaluation of the TPS management mechanism is needed so that its existence does not cause prolonged negative impacts on the environment and public health.

This finding is consistent with the research of Indriyani et al. (2024) who found that polling stations located in the middle of dense settlements in Central Lombok caused various complaints, such as strong odors, uncomfortable visuals, and an increasing population of disease vectors. In addition, research in the city of Jambi by Putra et al. (2023) also shows that the negative perception of the public towards 3R polling stations is largely influenced by lack of education, community involvement, and irregularities in waste transportation. Similar findings were presented by Lestari and Wibowo (2023) in Sidoarjo, who noted that successful management of TPS is highly dependent on community participation and separation of waste from its source.

The high level of public concern about health risks is also in line with the research of Wahyuni et al. (2022) which states that the existence of polling stations without good sanitation system management can trigger an increase in the incidence of Environmental-based diseases, especially respiratory infections and diarrhea. Meanwhile, research by Prasetya (2023) in the Semarang region shows that the increased presence of flies and mice around polling stations is directly proportional to the high risk of exposure to pathogens, including leptospira bacteria in mice and enteric bacteria in house flies.

These results show that people's perceptions of environmental conditions affected by TPS are not only based on physical experiences (such as smell or the presence of rodents), but also closely related to psychosocial conditions, such as discomfort and concern for the long-term impact on Family Health. This confirms that the management of polling stations must not only meet technical aspects, such as transportation and hygiene, but also need to pay attention to social aspects and public participation. The low level of public trust in TPS Management shows that waste management policies need to be designed to be more responsive and community-based.

Thus, it can be concluded that the results of this univariate support the need for integrated interventions that include strengthening the TPS management system, improving community education, and evaluating TPS locations close to settlements. This strategy is important to minimize environmental disturbance and reduce public health risks, as recommended in previous studies in the Indonesian urban context.

2. Association of Unpleasant Odor Disorders with Disease Risk Concerns

The results of the bivariate analysis showed a strong relationship between odor disturbances due to the existence of temporary disposal sites (TPS) with community concerns about the risk of disease. Of the 51 respondents who felt the pungent smell of polling stations, as many as 69% admitted that they were worried about the health effects that might be caused. In contrast, of the 24 respondents who did not have an odor disorder, only 21% expressed similar concerns. These findings suggest that odor pollution has a psychological and perceptual impact on people's assessment of the health of their environment. Research by Syafiq Luthfasyah et al. (2023) supported these results, where residents living in the vicinity of open polling stations in Bekasi city showed higher levels of anxiety and respiratory distress compared to those living away from polling station locations. This indicates that

odor pollution is not only an aesthetic problem, but also contributes to the psychosocial burden on society.

Furthermore, there is also a significant relationship between the increase in the population of flies and mice with the disruption of the living comfort of residents around polling stations. Of the 45 respondents who observed an increase in vector animals, as many as 89% stated that they felt their comfort was disturbed. In contrast, only 37% of the 30 respondents who did not see an increase in the population of flies and mice felt disturbed. This finding shows that the presence of disease vectors plays an important role in shaping people's perception of the cleanliness and suitability of their living environment. Study Husni et al. (2022) in the city of Semarang also found that polling stations that were not equipped with good sanitation and drainage systems caused a surge in rat density around residential areas, with more than 90% of rat specimens proven to carry Leptospira bacteria that cause leptospirosis. This condition confirms that the presence of disease-carrying animals is highly related to the quality of environmental management of polling stations.

Overall, the bivariate relationship between environmental disturbances originating from polling stations—both in the form of air pollution and an increase in disease vectors—is closely related to people's perceptions of Health and living comfort. This finding is reinforced by the research of Nanda et al. (2023) in Deli Serdang, which shows that overloaded and poorly managed polling stations cause a decrease in people's quality of life and trigger social unrest and environmental conflicts. Therefore, strategic interventions are needed that include pollution control, sanitation management, public education, and review of the placement of polling stations adjacent to settlements. A cross-sectoral approach involving local governments, waste managers, and communities is critical to realizing more sustainable management of polling stations that does not pose health risks and inconveniences to local residents.

The results of bivariate analysis showed that the presence of flies and rats increased around polling stations has a significant relationship with the disturbance of comfort felt by the community. As many as 89% of respondents who observed an increase in the vector population stated that their comfort was disturbed. Meanwhile, of the respondents who did not feel an increase in the population of flies and mice, only 37% reported a disturbance in comfort. This difference shows that the presence of disease vectors not only disrupts the physical aspects of the environment, but also affects the quality of life of the community as a whole, both in terms of cleanliness, security, and tranquility of living.

The open, humid, and inadequate sanitation environment of polling stations is the main factor that supports the growth of vector populations such as flies and rats. Polling stations that do not have good technical management tend to become breeding grounds for animals carrying this disease. Research by Husni et al. (2022) in the city of Semarang supported this finding, where poor polling station conditions led to an increase in the number of rats around densely populated settlements. Of the mice caught in the study, most were shown to carry Leptospira bacteria, the causative agent of leptospirosis in humans. The high presence of rats around polling stations is an indicator that poor environmental quality can directly increase public health risks.

This condition reflects that the management of TPS is not optimal role in worsening the comfort of residential community. Interference from disease vectors also has a psychological impact, such as anxiety and misgivings about the potential for Infectious Diseases. In addition, the image of a seedy environment due to the large number of flies and rats can also reduce the social value of residential areas. Therefore, preventive and curative measures are needed in the management of polling stations, such as environmental sanitation control, installation of vector traps, as well as public education on the

separation and early processing of household waste. This effort is important to break the chain of negative impacts generated by poor waste management systems on people's comfort and health.

Both of these relationships indicate that environmental pollution from polling stations, both in the form of odors and the presence of disease vectors, not only has an impact on physical health aspects, but also the comfort and psychosocial well-being of the community. This confirms the findings of Nanda et al. (2023) in Deli Serdang, which states that poorly managed polling stations cause systemic environmental disturbances and reduce the quality of life of surrounding communities (journal.universitaspahlawan.ac.id). Thus, the results of this bivariate analysis emphasize the need for strategic intervention in TPS management involving technical aspects (transportation, sanitation), education, and active community involvement in order to minimize the environmental and social impacts caused.

Based on the results of the bivariate analysis, the researchers assessed that the relationship between TPS environmental variables and public perceptions of Health and comfort have strong significance and influence each other. The high proportion of respondents who are concerned about the risk of disease when exposed to the smell of garbage indicates that local air pollution is one of the main indicators of perception of Environmental Quality. This condition reflects that pollution from polling stations not only has an impact physically, but also causes psychological pressure, especially in the form of anxiety about the threat of disease. In this context, TPS is not only seen as a purely technical facility, but also as a source of environmental stress in the middle of settlements.

In addition, the increased presence of disease vectors such as flies and rats around polling stations was significantly correlated with a decrease in community comfort. Researchers interpret that the comfort of residents is not only influenced by the physical presence of polling stations, but rather the indirect impact it causes such as the impression of a slum environment, loss of security for health, and disruption of daily activities due to vector infestation. The high number of respondents who felt disturbed indicated that the presence of vectors was a real indicator of the low quality of environmental sanitation, and socially reinforced the negative perception of the public towards the presence of polling stations.

From these results, the researchers concluded that the management of polling stations can not be separated from aspects of Public Health and quality of life. If TPS is not managed optimally in terms of location, transportation system, Vector Control, and citizen participation, the social and environmental impacts will be even greater. Therefore, the researcher recommends the need for TPS management policies that are oriented towards public health, not just technical efficiency. This includes education, TPS infrastructure design that meets sanitation standards, and location placement that considers safe distance from settlements. This analysis confirms that environmental and health variables are interdependent, and must be managed synergistically to prevent a decrease in the quality of life of communities around polling stations.

CONCLUSION

The results of the univariate analysis showed that the majority of respondents felt the negative impact of the existence of TPS Belakang Tangsi on the surrounding environment. A total of 68% were disturbed by unpleasant odors, 60% reported an increase in the population of flies and mice, and 53% expressed concern about the risk of disease due to unhealthy environmental conditions. Only 37% of respondents rated the management of polling stations as good, which shows that the current waste management is still not optimal and has the potential to worsen the quality of life of residents.

Bivariate analysis revealed a significant relationship between odor disturbance and disease risk concerns as well as between an increase in vector populations and comfort disturbance. Of the respondents who felt unpleasant odors, 69% were concerned about the health impact, while only 21% of those who did not feel odors had such concerns. In addition, 89% of respondents who experienced an increase in flies and mice reported a disruption in comfort, compared with 37% of those who did not feel an increase in vectors. These findings suggest that odor pollution and the presence of vectors play a major role in shaping people's perceptions of their environmental and health conditions.

The researchers concluded that poor management of polling stations has a significant impact on the health and comfort of people around polling stations. This negative impact is not only physical, but also affects the psychosocial condition of citizens, including anxiety about the risk of disease. Therefore, better management of polling stations with adequate sanitation systems, Vector Control, and community education is needed to minimize these impacts. This intervention is important so that TPS is not only technically functional, but also environmentally and socially friendly, so that it can improve the quality of life of the surrounding community.

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