Universitas Warmadewa

Editorial Office: Department of Government | Faculty of Social and Political Sciences | Universitas Warmadewa

Jl. Terompong No.24, Sumerta Kelod, Kec. Denpasar Timur, Kota Denpasar, Bali 80239

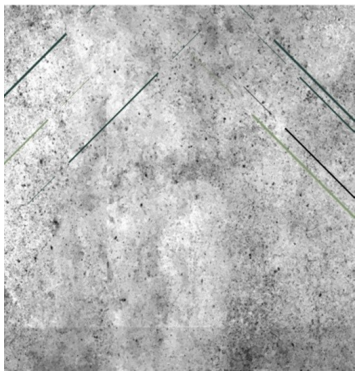
Politicos: Jurnal Politik Dan Pemerintahan

Volume 5, Number 1, 2025

ISSN: 2776-8031 (Print) | 2776-8023 (Electronics)

Publication details, Including author guidelines

Visit URL: https://www.ejournal.warmadewa.ac.id/index.php/politicos/onlinesubmissionandauthorguideline



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Article History

Received : February 20, 2025

Revised : March 21, 2025

Accepted : March 24, 2025

Published : March 31, 2025

How to cite this article (APA)

Candra, I. A. (2025). From Waste to Crisis: The Environmental Security Implications of Jogja Waste Emergency. *Politicos: Jurnal Politik Dan Pemerintahan*, *5*(1), 57-70. https://doi.org/10.22225/politicos.5.1.2025.57-70

ISSN 2776-8031 (Print)
ISSN 2776-8023 (Electronics)

POLITICOS

Original Article

Volume 5 Number 1 (2025)
https://doi.org/10.22225/politicos.5.1.2025.57-70

From Waste to Crisis: The Environmental Security Implications of Jogja Waste Emergency

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Abstract

There is a critical waste management crisis in the Special Region of Yogyakarta (DIY) that is popularly referred to as the *Darurat Sampah Jogja* (Jogja Waste Emergency). The crisis has exacerbated existing problems in waste management and also resulted in devastating environmental effects. The purpose of this study is to examine the degree to which the Jogja Waste Emergency has influenced the environmental impacts on the citizens of Yogyakarta City. This research sheds light on the complex risks of inefficient waste management and their extensive effects through the paradigm of human security, notably in environmental security. The work adopts a qualitative research design consisting of primary and secondary data sources. Primary data are gathered based on in-depth interviews with the primary informants of various background categories among members of affected communities. Simultaneously, secondary data is gathered from policy documents, government and non-government reports, as well as media reports, which all help to contextualize and reinforce the findings. The analysis suggests that the Jogja Waste Emergency was first seen as a crisis marked by the accumulation of waste, and foremost manifesting immediate threat of environmental degradation, health, and disaster risk. But as the issue worsens, wider and more complicated impacts are shown, especially with regard to the pollution of essential natural resources like air and water. Such environmental degradation interferes with daily life, endangering public well-being and stability in urban Yogyakarta. The research stresses the need for comprehensive reforms in waste management, enforcement of stronger policy interventions, and more community involvement to address and minimize the environmental security threats presented by this chronic crisis.

Keywords: Waste Management Problem; Environmental Security; Jogja Waste Emergency; Yogyakarta

Introduction

One of the contemporary and prominent environmental security concerns of today's society is based on the problem of waste management. This problem is particularly pertinent as noted by Kaza et al. (2018), given that waste management is still a global problem that continues to foster environmental degradation despite ongoing efforts aimed at reducing its adverse impacts. The intricacy of this problem is manifested in both developed and developing economies, where poor waste management systems have caused a myriad of environmental and social problems. In Indonesia, the problem of waste management has manifested extremely badly because it is the second largest contributor of plastic waste in the world after China, with an average annual volume reaching 3.2 tons, and around 1.29 tons of which are dumped into the sea (Kementerian Lingkungan Hidup dan Kehutanan, 2020). Waste production in 2022 based on the amount of national waste accumulation from 202 cities in Indonesia has reached 21.1 million tons and 34.29 percent of it has not been managed properly (Kementerian Koordinator Bidang Pembangunan Manusia dan Kebudayaan, 2023). Indonesia's annual waste production is estimated to reach 69.9 million

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tons, but only 33 percent is included in the management process (Teristi, 2024).

Align with the aforementioned discussion, the severity of the waste management problem in Indonesia is also manifested at the domestic level, especially in the Special Region of Yogyakarta (DIY). The critical nature of this crisis garnered widespread acknowledgment in 2023 through the emergence of the term *Darurat Sampah Jogja* (Jogja Waste Emergency) in both popular discourse and the mass media (Adhi, 2023; Dari, 2023; Detik, 2023). This terminology captures the severity of the crisis, which was triggered by the closing down of operations at the Piyungan Landfill (TPA Piyungan) (Setiawan, 2023), drawing attention to the deficiencies in city waste management that have been periodically affecting the area.

DIY only has three landfill facilities: TPA Banyuroto, which processes waste from the Kulon Progo district; TPA Wukirsari, which processes waste from the Gunung Kidul district; and TPA Piyungan, which processes Bantul, Sleman, and Yogyakarta City. In the context of Yogyakarta City, the daily generation of waste has already hit a concerning rate of 240-250 tons, way above the TPA Piyungan's reception capacity of a mere 210 tons per day (Yulindriani, 2023). Such a disparity between the generation and disposal of waste has seriously overwhelmed the waste treatment infrastructure in the area, contributing to mounting levels of untreated trash. The ensuing crisis has attracted serious attention, with the public and various media calling the event the Jogja Waste Emergency, highlighting its extreme and critical impacts.

Furthermore, the DIY region, which is famous for its tourism sector, has experienced a high growth of tourists throughout the decades. Although tourism is one of the drivers of economic growth, it also acts to contribute directly to the high volume of waste generated (Martinez-Alier, 2023). Heightened tourism activity has placed an extra burden on the waste treatment infrastructure, thus leading to environmental insecurity, especially in urban areas like Yogyakarta City. River pollution is one of the primary impacts of this crisis, and it is caused by the poor disposal of organic waste along with the entry of toxic chemicals from plastics waste into terrestrial and aquatic ecosystems (Nurwanto & Dewangga, 2024). The risk of pollution is not only threatening the sustainability of regional ecosystems but also undermining the health and well-being of societies that are dependent on the utilization of natural resources for livelihood. In addition, the accumulation of waste on a large scale has led to the emission of foul smells, hence creating additional disruption to day-to-day activities. The prevalent malodor that comes with poorly managed waste has been linked with respiratory infections, chronic health ailments, and possibly detrimental effects to mental health (Kumalasari, 2024). Such environmental concerns highlight the relationship between mismanagement of waste and general public issues, highlighting the importance of immediate intervention.

In light of this complicated character of this crisis, it is imperative to develop an in-depth analysis of the complexity of the Jogja Waste Emergency and its effects on ecological security and human well-being. This research attempts to evaluate how far inadequate waste management has entrenched environmental insecurity in the resident of Yogyakarta City. This research seeks to illuminate the overarching risks and ramifications of waste mismanagement in Yogyakarta City by using the environmental security concept as its theoretical foundation.

This study mainly analyses the multiple threats and impact associated with the Jogja Waste Emergency in the context of human security, primarily the environmental security. This inquiry aims to supply significant information on the extended consequences of waste mismanagement in urban settings. The outcomes of this study will strengthen the current body of literature on environmental security, with particular emphasis on the urgent requirement for sustainable waste management strategies and human-centered interventions to reduce negative effects of waste buildup. Further, the study will provide insights for an intervention that can be taken at policy and grassroots levels to tackle the present crisis and avert such situations in the future.

Method

The present research is a case study with the focused of environmental security, and more precisely the Jogja Waste Emergency. The research was carried out in Yogyakarta City as the epi-

center of the waste problem in the Special Region of Yogyakarta (DIY). In the last several years, the waste management problems in Yogyakarta have attracted significant national interest, overshadowing the problems in other major cities such as Jakarta and Bandung, which also grapple with the same problems (Daeng, 2024). The critical nature of the problem in Yogyakarta has caused extensive public discussion, and the city has become a priority case for examining the wider ramifications of urban waste mismanagement in Indonesia. The crisis has highlighted the necessity of proper waste management programs and has initiated urgent discussions related to environmental security.

Furthermore, the data collection methods that were used during the conduct of this research were the commination of primary and secondary sources, thus providing a comprehensive knowledge of the issue at hand. Primary data were gathered using interviews, online observation, and documentation, thereby permitting an in-depth examination of the experiences of the affected populations. The interviews were administered to 20 respondents who were located in Yogyakarta City and comprised a blend of backgrounds and perceptions. The participants in this research were individuals who were either directly affected by illegal waste disposal and waste burning or had the knowledge and understanding of the Jogja Waste Emergency. Besides this, secondary data were gathered from a variety of sources, which comprised scholarly articles, official reports, legal documents, books, and press publications, thereby enabling holistic and contextual assessment of the waste crisis.

Results

Waste management has been commonly identified as one of the key environmental challenges caused by human activities, especially in contemporary times, as evolving consumption patterns have heightened the rate of solid waste generation (Moldovan, 2022). This problem presents a paradox: even though effective waste management has pivotal consequences for public health and environmental sustainability, it is essentially human activities that lead to its ineffective management. The task lies in achieving a balance among economic development, consumption patterns, and environmentally friendly waste management systems. The United Nations Development Programme (UNDP) has defined human security in terms of encompassing environmental security also, acknowledging that environmental threats pose essential risks to human well-being (UNDP, 1994). This viewpoint takes into account the interconnectedness of human activity and environmental consequences, justifying the imperative to treat waste management as a central component of environmental security.

Complex interplay between anthropogenic activities and environmental security makes it very challenging to counter the environmental changes prompted by dynamic interaction of human activities and ecosystems (Zurlini & Müller, 2008). Waste management issues are usually viewed primarily in terms of their immediate effects, for example, the piling up of garbage in public places, dumping of waste in water bodies illegally, and incineration of plastic waste, without taking into account the long-term effects of such activities. The effects of improper waste management, though, reach far beyond borders. The above concerns are among pervasive human insecurities, leading to a chain effect that ripples into numerous facets of day-to-day life, such as survival (encompassing physical threats, violence, oppression, and mortality), livelihood (encompassing unemployment, starvation, health threats, and economic insecurity), and dignity (encompassing human rights violations, injustice, exclusion, and discrimination) (Tadjbakhsh, 2014).

Many scholars have attempted to define the concept of environmental security through various perspectives. Barnett (2009) defines environmental security as the preventive diminution of anthropogenic threats to both the operational integrity of ecological systems and the well-being of humankind. This definition indicates that waste management goes beyond simple environmental issues to become an imperative factor in human well-being protection. Belluck et al. (2006) maintain that environmental security involves averting environmental degradation in order to safeguard human populations and material assets at local, national, and international levels. Their approach emphasizes the extensive consequences of ineffective waste management, underlining

its potential to frustrate sustainable development. In a supporting article, Zurlini and Müller (2008) define environmental security as a long-term concern with addressing environmental changes induced by the interplay between human activities and ecological systems. This view underscores the challenge of managing environmental hazards at a time of rapid urbanization and industrialization.

As clarified by the UNDP, environmental security is a situation in which individuals and societies are safe from environmental dangers, which may either be induced by human activities or natural disasters (UNDP, 1994). While environmental threats may be viewed as less pressing compared to armed conflict, their cumulative effects can be equally catastrophic as those linked with war (Floyd, 2008). Environmental degradation as a result of poor waste management has direct consequences on public health, access to clean water, air quality, and general health. Because of these consequences, it is apparent that ensuring environmental security demands anticipatory and diversified measures. These measures should focus on enhancing individuals' ability to adapt, building social resilience, strengthening community-level waste management behaviors, and safeguarding human life (Elliott, 2015).

An in-depth analysis of human security requires an examination of the concept at a more personalized level, particularly relating to individuals' everyday experiences (Tadjbakhsh, 2014). This study observes that waste management issues, as represented by the Jogja Waste Emergency, are part of the broader discourse on environmental security that highlights the difficulties that people and communities face in striving for a secure and sustainable environment in which to live. To this extent, the research concentrates on the the various environmental threats and impacts experienced by the community as a result of the Jogja Waste Emergency.

The Threat of Environmental Pollution, Health, and Disaster Risk

When revisiting the concept of environmental security as part of human security, the environment is understood as a fundamental aspect of life since environmental insecurity can have chronic and long-lasting impacts (UNDP, 1994). This statement underscores the importance of ensuring environmental protection to prevent severe consequences that may arise due to environmental degradation. The issue of waste management plays a crucial role in discussions of environmental security, as it directly influences public health and societal well-being (Moldovan, 2022). If waste is not properly managed, it can lead to severe environmental pollution, which in turn has negative repercussions for human health and quality of life.

In this regard, community members who participated as informants in this study shared significant concerns regarding the Jogja Waste Emergency. Their primary concern was the resulting environmental pollution, which created distress about their health conditions. The presence of unmanaged waste in urban areas, particularly in close proximity to residential zones, has heightened fears among local populations. The direct exposure to waste and its associated health hazards has led individuals to express deep-seated anxieties about their safety and well-being.

The responses gathered in this study indicate that people do not only seek physical security but also psychological and emotional protection. Several informants highlighted their concerns that the accumulation of waste, particularly during the rainy season, could lead to an increased risk of disease outbreaks. Their fears are justified, as direct and prolonged contact with unmanaged waste significantly raises health risks. The heap of waste provides a conducive environment for disease-carrying animals such as rats, flies, and mosquitoes, which thrive in waste piles and act as vectors for numerous infectious diseases. In this context, the presence of disease-carrying animals such as rats, flies, and mosquitoes, which thrive in waste piles, becomes a significant threat (Octavia, 2019).

Align with the aforementioned discussion, other informants expressed concerns regarding food contamination caused by these disease-carrying pests. The presence of rats and flies in areas where food is stored, prepared, or consumed raises the likelihood of foodborne illnesses, including food poisoning. Contaminated food can become a direct physical hazard, causing immediate health complications for individuals who consume it. Moreover, environmental pollution resulting

from poor waste management is not merely a localized issue; rather, it has the potential to create cascading effects that exacerbate existing vulnerabilities in communities.

Beyond physical health concerns, some informants projected that environmental pollution could lead to even more severe consequences. Several individuals who participated in this research reported experiencing significant emotional and psychological distress. Their anxiety stemmed from fears that waste management issues could ultimately threaten their very existence. This psychological burden is deeply tied to the perceived inability of authorities to manage waste effectively and mitigate its harmful effects. The concerns raised by informants in this study align with findings by Lavigne et al. (2014), who emphasized that large accumulations of household waste, particularly organic waste, can generate gases with the potential to cause explosions, which may lead to fatalities. This further highlights the urgent need for robust waste management systems that can prevent such hazardous occurrences.

Furthermore, the consequences of poor waste management are not limited to environmental pollution alone; they also pose a serious threat to public health, safety, and societal sustainability. Environmental degradation is a key factor in increasing disaster risks, particularly in urban settings where waste management infrastructure may be inadequate. Improperly waste management frequently clogs drainage systems, significantly reducing the ability of these systems to channel excess water efficiently. As a result, the risk of urban flooding is heightened, particularly during heavy rainfall periods (Lamond et al., 2012; Marfai, 2011).

When urban flooding occurs, the accumulation of waste and debris exacerbates the damage to property and infrastructure. Floodwaters can carry large amounts of waste into residential areas, contaminating homes and water sources. This, in turn, can lead to secondary health risks, such as the spread of waterborne diseases. The inability to manage waste effectively not only degrades environmental quality but also intensifies disaster risks that impact various aspects of life. When such disasters occur, the accumulation of waste and debris can further exacerbate property damage, trigger landslides, contaminate soil, and result in even greater losses (Chen et al., 2007; Nicholas & Proverbs, 2002). The inability to manage waste effectively not only degrades environmental quality but also intensifies disaster risks that impact various aspects of life.

Interview responses revealed that many community members perceive urban flooding as a direct consequence of poor waste management. This perspective underscores the interconnectedness between environmental security and disaster risk reduction. How people experience and interpret environmental changes often triggers subjective feelings and emotional reactions. Fear, in particular, plays a fundamental role in shaping how individuals respond to crises and adapt to changing environmental conditions (Kahneman, 2011; Wei et al., 2017). The informants in this study came from diverse residential backgrounds, indicating that concerns about waste management and its threat are widely felt across different segments of the population.

Many informants linked their fears about flooding to the behavior of individuals who neglect waste management by carelessly dumping trash, particularly into rivers. This behavior reflects a broader societal challenge in managing waste responsibly. Individuals may seek to keep their immediate surroundings clean by disposing of waste improperly, shifting the problem elsewhere without considering the broader environmental consequences. This behavior aligns with the argument of Yukalang et al. (2017), which suggests that people's fear of waste management issues is often reflected in their actions – seeking to keep their immediate surroundings clean while disposing of waste irresponsibly elsewhere. In other words, people may adopt short-term solutions that relieve their immediate anxieties about waste accumulation while simultaneously contributing to larger environmental problems.

The tendency for individuals to offload waste-related concerns onto the environment, rather than adopting sustainable waste disposal practices, highlights a significant gap in public awareness and policy enforcement. Effective waste management requires a collective effort, involving both governmental authorities and local communities. However, as emphasized by UNDP (1994), while humans are the primary actors responsible for ensuring environmental security, they often continue to degrade the environment under the assumption that natural systems will recover on

https://doi.org/10.22225/.politicos.5.1.2025.57-70

their own. This assumption is problematic, as environmental recovery is not always guaranteed, particularly when damage has reached an irreversible threshold.

The Impact on Resources

Before further analyzing the impact on resources due to the Jogja Waste Emergency, it is necessary to first understand the context of waste emergence based on domestic activities that occur in Yogyakarta City. In this case, Yogyakarta City is unique in terms of social, economic, and demographic dynamics. Yogyakarta City has always experienced a significant increase in the number of residents, both permanent residents and immigrants. In 1980, the population in Yogyakarta City reached 398,192 people, then in 2015 it reached 411,589 people, in 2019 it was 433,267 people, and in 2024 it has reached 466,950 people (Agus, 2024). Population growth is integral to economic growth, but it usually leads to uncontrolled waste management dynamics (Martinez-Alier, 2023).

Furthermore, the tourism sector does have a significant impact on the increase in waste volume in Yogyakarta City. Despite being one of the main drivers of economic growth, the surge in the presence of tourists inevitably leads to waste production that is not balanced with the local waste management capacity (Prayogo et al., 2023). Most tourists do not pay attention to environmental impacts. Research by Kil et al. (2014) suggests that individuals who do not reside in a visited location have less of a sense of ownership or attachment. This explains the behavior of tourists who tend not to care *about* waste because they feel it is not their responsibility. Pemerintah Kota Yogyakarta (2023) reported that an increase in waste volume inevitably occurs during holidays. For example, during the Eid holiday in 2023, there was a 15 percent increase in waste production or around 35 tons per day (Widada, 2023). The Yogyakarta City Government even felt the need to implement waste management education for tourists to increase awareness and anticipate littering (Karin, 2024).

Aside from the increasing population and the tourism sector as a domestic activity in Yogyakarta City that has direct implications for waste growth, there is also another cause that plays a major role in this problem - the use of anorganic products. It is reported that around 40 years ago, waste was only dominated by organic waste, but since the 1980s, inorganic waste, especially plastics, has been found in urban waste (Paris, 2023). Changes in people's lifestyles that are now starting to produce a lot of plastic waste add new dynamics to the problem of waste management. The plastic waste is difficult to decompose and has long only ended up piling up in the Piyungan landfill. This is one of the reasons that makes Piyungan landfill unable to accommodate waste any longer (Paris, 2023).

Based on the discussion above, it can be seen that waste is indeed very closely related to people's daily lives. This is because as long as humans are still doing activities to support their lives, waste will continue to be produced (Borowy et al., 2024). However, humans certainly have the right to be free from the various impacts caused by waste. UNDP (1994) has emphasized that human beings inherently desire freedom from hunger, poverty, environmental disasters, oppression, and other harmful disruptions to their daily lives. This assertion underscores the fundamental right of every individual to live without deprivation and to have access to essential resources such as food, clean water, housing, healthcare, and other crucial aspects necessary for a dignified life (Siahaan, 2004). The importance of social justice as a foundation for ensuring overall human well-being cannot be overstated, as it guarantees equitable access to resources and protection from environmental harm (Siahaan, 2004).

In this context, it is crucial to explore whether the Jogja Waste Emergency has disrupted essential resources necessary for daily life, such as clean water and fresh air. This discussion seeks to assess the extent to which the local community has experienced disturbances in accessing these critical resources. Waste management issues often lead to severe degradation of the quality of water, air, and soil, reducing the availability of these vital resources for public consumption and use (Food and Agriculture Organization, 2019).

One informant in this study reported experiencing extreme disruptions in terms of resource accessibility. Residing near a river and a waste disposal site, they have been severely affected by the expanding piles of waste, which generate foul odors and toxic leachate that ultimately compromise the quality of the water they rely on. The informant recounted that they previously engaged in small-scale fish farming in the river as a source of food, but due to pollution from waste, this practice has become unfeasible. This issue requires serious attention, as individuals living near both rivers and waste disposal sites face heightened difficulties in accessing essential resources such as clean water, breathable air, and even food.

This situation aligns with the arguments of Wilson et al. (2006), who assert that marginalized residential areas frequently encounter systemic discrimination in the allocation of waste management services. As a result, there is growing concern that low-income communities, particularly those living near rivers or waste disposal sites, face increasing challenges in securing their basic human needs due to prolonged environmental contamination (Goodson et al., 2023). The unequal distribution of waste management services contributes to environmental injustices, as vulnerable populations are disproportionately burdened with the adverse effects of pollution.

When environmental quality deteriorates, particularly in the form of water and air pollution, it has been consistently proven to disrupt lives and heighten vulnerability among affected populations. Such conditions necessitate urgent interventions to mitigate the impact of pollution and restore environmental balance (Smith & Ezzati, 2005). In this regard, all community informants in this study reported feeling distressed by the Jogja Waste Emergency, with particular emphasis on the foul odors permeating the air. This widespread concern indicates that air quality has been significantly compromised, creating an unhealthy living environment for local residents.

Clean air plays an essential role in human life, as it is a fundamental determinant of public health, social well-being, and environmental comfort. Poor air quality not only affects respiratory health but also diminishes the overall quality of life by limiting community interactions and reducing environmental livability (Bhui et al., 2023). Informants in this study expressed concerns that prolonged exposure to poor air quality had negatively impacted their well-being, leading to discomfort and a diminished sense of security in their surroundings.

Furthermore, several informants also raised concerns regarding the impact of waste mismanagement on clean water availability. Water is a crucial resource not only for consumption but also for sanitation, hygiene, and overall community sustainability (Bain et al., 2014). In the context of the Jogja Waste Emergency, the pollution of water sources has forced many residents to seek alternative means of obtaining clean water. Some informants reported having to spend additional money to purchase bottled or gallon water, as they no longer trusted the quality of the water available in their immediate environment. This situation underscores the financial burden imposed by environmental degradation, as affected communities must allocate limited financial resources toward securing basic necessities.

The increasing reliance on purchased water highlights the intersection between environmental pollution and economic vulnerability. Smith and Ezzati (2005) argue that environmental pollution exacerbates the risk of poverty by imposing additional costs on affected communities. In this case, the necessity of purchasing water due to contamination adds financial strain to already vulnerable households, further exacerbating economic inequalities. The inability to access clean water freely represents a direct violation of fundamental human rights, as safe water is an essential component of a dignified and healthy life.

The broader implications of environmental pollution extend beyond individual households, affecting entire communities and ecosystems. Contaminated water sources not only jeopardize human health but also disrupt agricultural activities, leading to reduced crop yields and food insecurity. In turn, these disruptions create a cycle of vulnerability that reinforces socio-economic disparities. Without effective waste management policies and intervention strategies, the adverse effects of pollution will continue to disproportionately impact marginalized populations.

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Discussion

It is important to note that waste management is the responsibility of the government as a form of public service. This is also part of the Law of the Republic of Indonesia Number 32 of 2009 concerning Environmental Protection and Management, which must be tried to be implemented optimally (Asrun et al., 2020). The emergence of the Jogja Waste Emergency certainly cannot be separated from the dynamics of the implementation of previous policies that contributed to this crisis. One of the most highlighted is the delay in the implementation of the Law of the Republic of Indonesia Number 18 of 2008, which ultimately affected waste management at the Piyungan landfill.

In line with the discussion above, the responsibility for waste management in the regions does indeed rest with the Regional Government as stipulated in Article 5 of Law of the Republic of Indonesia Number 18 of 2008. However, the DIY Government only implemented the mandate of the law in 2013 by issuing DIY Regional Regulation Number 3 of 2013 concerning the Management of Household Waste and Waste Similar to Household. This kind of condition is actually unjustified according to Article 44 of Law of the Republic of Indonesia Number 18 of 2008 which states that the Regional Government is required to make a plan for closing *open dumping* final processing sites no later than one year after the policy is enacted (Parasista, 2020).

Furthermore, DIY Regional Regulation Number 3 of 2013 actually emphasizes that it is time for landfills to be built using environmentally friendly technology and stipulates that each district/city to organize waste management. However, the condition of the Piyungan landfill still maintains the old method (only landfilled without being processed) and the regencies/cities have not built a capable independent waste management system (Kumparan Jogja, 2024). In this case, the DIY Government's readiness to implement *sanitary landfill* also only started in 2016 (Radar Jogja, 2016). In addition, waste transportation in Yogyakarta City, which is not carried out every day, coupled with an area coverage that has only reached 85 percent, also hampers the *sanitary landfill* system from being fully implemented (Mulasari et al., 2016; Sulistyaningsih, 2015). In the end, the Piyungan landfill remains an *open dumping* site (Ramadhan et al., 2018).

A series of dynamics in policy implementation as described above is certainly a strong reason for the emergence of the Jogja Waste Emergency. In relation to human security, the government is actually seen as the main actor who bears the greatest responsibility for ensuring the fulfilment of human security for each of its citizens, but sometimes the government is also the main actor who creates insecurity for its citizens (Axworthy, 2014). Related to this, the findings of this research contribute significantly to advancing the understanding of environmental security as a critical component of human security, particularly in the context of urban waste management. The Jogja Waste Emergency exemplifies the intricate and multifaceted relationship between waste management problem and broader environmental insecurities. Waste-related environmental degradation directly threatens multiple aspects of environmental security, reinforcing previous research that underscores the importance of proactive waste governance and management strategies. This study supports existing arguments that environmental security should not only be conceptualized in terms of large-scale ecological threats but must also be understood through the everyday experiences of individuals who are directly affected by environmental hazards.

The findings of this research further confirm the definitions of environmental security put forth by Barnett (2009) and Belluck et al. (2006), which emphasize the prevention of human-induced environmental degradation as a means of safeguarding human well-being. This study expands upon existing literature by demonstrating the tangible ways in which environmental insecurity manifests in daily life, including the threats posed by environmental pollution, health, and increased disaster risk. Once these threats materialize, they result in the contamination of essential resources such as water, air, and food sources.

Beyond the immediate health, psychological and emotional distress also emerged as major concerns among the informants. Several individuals in the study perceived the waste crisis as an existential threat, indicating the severe psychological toll of prolonged exposure to environmental degradation. This finding resonates with Lavigne et al. (2014), who highlight that large-scale waste

accumulation can generate hazardous gases capable of causing explosions and fatalities. Such findings emphasize the need for a holistic understanding of environmental security that considers both the physical and psychological impacts of waste mismanagement on affected communities.

The study also strengthens existing theories on the connection between waste mismanagement and disaster risk. Consistent with the findings of Lamond et al. (2012) and Marfai (2011), this research highlights how uncollected waste clogs drainage systems, exacerbating the risk of urban flooding. Informants perceived flooding as a direct consequence of inadequate waste management, further supporting the arguments of Nicholas and Proverbs (2002) and Chen et al. (2007), who assert that environmental degradation significantly amplifies disaster risks. Furthermore, this study aligns with Yukalang et al. (2017) by demonstrating how individuals attempt to cope with waste mismanagement by relocating waste elsewhere, a behavior that inadvertently contributes to the worsening of environmental hazards. This behavioral response underscores the paradox of human responsibility in environmental security, as identified by UNDP (1994), where individuals simultaneously contribute to and suffer from environmental degradation.

Another critical contribution of this study is its insight into the impact of waste mismanagement on essential resources such as clean air and water. The findings provide strong support for Wilson et al. (2006), who observed that marginalized communities often bear the brunt of inadequate waste management services. Informants in this study reported significant difficulties in accessing clean water, with some individuals resorting to purchasing bottled or gallon water due to concerns over pollution and contamination. This aligns with the argument put forth by Smith and Ezzati (2005), who suggest that environmental pollution exacerbates economic hardship by imposing additional financial burdens on vulnerable populations. The necessity of purchasing clean water represents an added expense that many affected individuals and families struggle to afford, further highlighting the socioeconomic inequalities associated with environmental insecurity.

In addition to water scarcity, the research findings highlight that air quality has also been severely impacted by waste mismanagement. Informants described persistent foul odors resulting from waste accumulation, making it difficult for them to carry out daily activities without discomfort. This finding supports Bhui et al. (2023), who argue that environmental quality is crucial for social well-being, public health, and community interactions. When air and water are compromised due to environmental degradation, individuals experience not only physical discomfort but also a decline in their overall quality of life.

Moreover, the disruption of essential environmental resources due to waste mismanagement reflects broader systemic challenges in waste governance and urban planning. This research underscores the need for policy interventions aimed at strengthening waste management frameworks, improving sanitation infrastructure, and addressing the environmental injustices disproportionately affecting marginalized communities. The unequal distribution of waste management services, as highlighted in this study, exacerbates social disparities and deepens existing vulnerabilities, necessitating urgent corrective action from policymakers and relevant stakeholders.

To effectively address the environmental insecurities highlighted by this study, there is a pressing need for integrated and sustainable waste management solutions. The implementation of policies and the development of social responsibility are key to establishing waste management at all levels. In this regard, policies encourage people to change their behavior as they are bound by regulations. Meanwhile, social responsibility involves voluntarily and spontaneously doing good for the environment beyond the existing rules (Huang et al., 2019; Kolbe, 2019). In this regard, government institutions must implement stricter waste management policies, enforce existing environmental regulations, and invest in long-term strategies to enhance waste processing and disposal systems. Additionally, raising public awareness about responsible waste disposal practices is essential to ensure community participation in maintaining environmental cleanliness.

Community-led initiatives also play a crucial role in mitigating the negative impacts of waste mismanagement. Programs focusing on waste segregation, composting, and recycling can empower local residents to take an active role in environmental preservation (Defitri, 2023). Furthermore, partnerships between governmental agencies, non-governmental organizations, and private

https://doi.org/10.22225/.politicos.5.1.2025.57-70

sector stakeholders can enhance waste management efficiency, promoting long-term sustainability and resilience against environmental hazards.

Ultimately, the findings of this research provide insights into the profound impact of waste mismanagement on environmental security. The Jogja Waste Emergency serves as a compelling case study that illustrates how environmental insecurity manifests in daily life, affecting health, access to essential resources, and further affect overall community resilience. This study contributes to ongoing academic discourse by reinforcing the notion that environmental security must be understood not only in the context of large-scale environmental threats but also through the lived experiences of individuals who endure the consequences of environmental mismanagement. By integrating environmental security principles into policy frameworks and fostering community engagement, it is possible to develop a more equitable and sustainable approach to waste management. Recognizing waste management as a fundamental human security issue is essential in ensuring a healthier and more resilient future for affected populations.

Conclusion

The increasing accumulation of waste each year has positioned waste management as a crucial issue in efforts to create a more sustainable and livable environment for all of humanity. Numerous researchers argue that environmental problems often begin at the local level but generate a domino effect that extends to the national and even global levels (Allenby, 2000; Turner et al., 1993). This study has demonstrated that ineffective waste management, which has culminated in what is now referred to as the Jogja Waste Emergency, has evolved into a broader crisis. The findings indicate that the problem is not merely a technical or logistical issue related to waste collection and disposal but rather a significant challenge that poses severe risks to environmental security. The inability to manage waste effectively has led to cascading negative consequences that directly impact the well-being and security of individuals and communities in Yogyakarta.

The first discussion in this study reveals that the Jogja Waste Emergency has impacted environmental pollution, health, and disaster risks. While the severity of these effects may vary among different individuals and communities, all informants reported experiencing negative repercussions in some form. These impacts have manifested both physically and psychologically. From an environmental change perspective, human psychological responses are often shaped by their surrounding conditions, and as environmental degradation intensifies, so do feelings of stress, anxiety, and uncertainty about the future (Wei et al., 2017). Fear, in particular, emerges as a dominant emotional response to various types of environmental threats, dangers, and risks (Soyk, 2011). The persistence of waste-related hazards, including water contamination, air pollution, and the spread of diseases, contributes to heightened psychological distress, further reinforcing the idea that the waste crisis is not just a physical issue but also a deeply human one.

Furthermore, the second finding in this study reveals that the Jogja Waste Emergency has had severe consequences for essential resources that are fundamental to human survival. Interviews conducted with affected residents shed light on the extent of these disruptions. For instance, some informants detailed how waste mismanagement has compromised local food sources, making access to clean and safe food increasingly difficult. Others highlighted the deterioration of water quality, with some residents being forced to purchase bottled water due to concerns over contamination. Nearly all informants reported experiencing worsening air quality due to the stench from uncollected waste and open burning practices, which release toxic fumes into the atmosphere. As widely recognized, humans have an inherent right to live without deprivation and to access basic necessities such as food, clean water, shelter, healthcare, and other fundamental resources (Siahaan, 2004). The Jogja Waste Emergency, however, has significantly undermined these basic rights, making it clear that waste mismanagement is not merely an inconvenience but a direct violation of environmental security principles.

Given the far-reaching implications of the Jogja Waste Emergency, it is imperative that this crisis is no longer perceived solely as a problem of inefficient waste management. Instead, it must be acknowledged as a multidimensional challenge that intersects with issues of environmental

security and human well-being in everyday life (Tadjbakhsh, 2014). Addressing this issue requires a holistic and collaborative approach, one that involves government institutions, local communities, non-governmental organizations, and other relevant stakeholders working together to develop sustainable waste management solutions. Policymakers must prioritize the establishment of effective waste governance frameworks, while communities need to be actively engaged in implementing waste reduction, recycling, and proper disposal practices. Furthermore, awareness campaigns and education programs should be strengthened to instill a culture of environmental responsibility among citizens. Without a comprehensive and long-term approach, the adverse effects of waste mismanagement will continue to pose a persistent threat to the stability of the environment, the health of individuals, and the overall quality of life in Yogyakarta and beyond. Only through collective action and sustainable interventions can the region hope to mitigate the ongoing waste crisis and move towards a more secure and environmentally resilient future.

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