



Overload crisis at landfill sites and ecological injustice: A risk society perspective on affected peri-urban communities

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ABSTRACT

Background: This study examines the waste management crisis at Klotok Final Waste Disposal Site/*Tempat Pembuangan Akhir* (TPA), Pojok Village, Mojoroto Sub-district, Kediri City, as a representation of socio-ecological problems arising from uncontrolled urbanization. **Methods:** Employing a qualitative case study approach within Ulrich Beck's risk society theoretical framework, this research analyzes the impact of the landfill's overload condition, persisting for more than three decades, on the buffer community of Pojok Village. Data were obtained through field observation and in-depth interviews with affected residents, supplemented by academic document reviews and government archives. **Findings:** The results indicate that the systemic transition from controlled landfill to open dumping has transformed Pojok Village into a sacrifice zone bearing a disproportionate share of the city's ecological burden. Residents face chronic exposure to respiratory disorders, groundwater contamination, odor pollution, and social space degradation—constituting a form of slow violence that erodes community well-being across generations. Government responses have remained ad hoc and technocratic, failing to address structural roots, while public participation was ignored from the landfill's inception. **Conclusion:** This study affirms that the Klotok Final Waste Disposal Site crisis is a manifestation of organized irresponsibility, demanding a paradigmatic shift toward ecological justice-based governance and meaningful community participation. **Novelty/Originality of this article:** This study offers a novel application of Beck's risk society framework to an underexplored peri-urban landfill context in Indonesia, revealing how manufactured uncertainty and organized irresponsibility operate at the intersection of local governance failure and ecological injustice.

KEYWORDS: Klotok final waste disposal site; risk society; waste overload.

1. Introduction

The global waste crisis constitutes one of the most pressing socio-environmental challenges of the twenty-first century. The accelerating pace of urbanization, population growth, and consumption-driven economic development has generated an exponential increase in solid waste volumes worldwide, straining infrastructure, governance capacities, and ecological systems in both developed and developing nations. In developing countries, solid waste management is further complicated by inadequate infrastructure, weak regulatory enforcement, fragmented institutional frameworks, and persistent resource constraints that collectively undermine the implementation of integrated and sustainable

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waste management systems (Ferronato & Torretta, 2019; Abubakar et al., 2022). Rather than being processed, recycled, or safely contained, an estimated 38% of global waste production in 2020 remained uncontrolled, neither landfilled, recycled, nor processed through waste-to-energy facilities, representing a systemic failure with far-reaching consequences for public health and environmental integrity (de Titto & Savino, 2024).

Countries such as the United States, China, and India stand among the world's largest generators of municipal solid waste, contributing disproportionate volumes of organic matter, paper, metals, and glass to the global waste stream (Nanda & Berruti, 2021). Similar pressures are evident in countries as diverse as Vietnam, Iran, Fiji, and several African nations, where rapid urbanization has outpaced the capacity of local waste governance systems to respond effectively (Nguyen & Nakakubo, 2025; Rouhani & Hejzman, 2025; Prasad et al., 2025; Budjav, 2022). Projections suggest that Africa alone could experience a fourfold increase in waste generation by 2050, underscoring the urgency of structural transformation in waste management paradigms across the Global South (Budjav, 2022). Even in industrialized contexts such as Japan and across Europe, the environmental and social risks associated with landfill operations have long been subjects of policy concern, reflecting how landfill sites, regardless of geographic context, produce risks that transcend their immediate physical boundaries (Avenell, 2017; Sauve & Van Acker, 2020; Vaverková, 2019).

Indonesia is not insulated from this global trajectory. Rapid population growth and escalating consumption patterns have driven a dramatic increase in solid waste volumes across Indonesian cities, generating complex waste streams that encompass household refuse, medical waste, agricultural by-products, and industrial effluents that are frequently co-disposed at the same final disposal facilities (Huda et al., 2023; Anand et al., 2021). Although Indonesia enacted Law No. 18 of 2008 on Waste Management, which mandates improvements in public health, environmental quality, and the transformation of waste into resources, implementation on the ground has remained profoundly inadequate (Mahyudin, 2017). Almost all of Indonesia's Final Waste Disposal Sites/*Tempat Pembuangan Akhir* (TPA) are projected to exceed their operational capacity by 2028, with certain facilities already experiencing overcapacity of more than 1,200%, constituting what national experts have characterized as a state of waste emergency (Expert on Cooperation between the Government and Indonesian Business Entities, 2023). This structural crisis is not confined to megacities; cities such as Jakarta (Bantargebang), Surabaya (Keputih, Sukolilo), and Semarang (Jatibarang) have all witnessed the socio-environmental consequences of unresolved landfill crises, at times escalating into vertical social conflicts (Mahyudin, 2017).

Within this national landscape, the case of Klotok Final Waste Disposal Site in Pojok Village, Mojoroto Sub-district, Kediri City, East Java, occupies a paradigmatic position. Having commenced operations in 1992 under a controlled landfill system, Klotok Final Waste Disposal Site has progressively deteriorated into an open dumping site due to budgetary limitations and the erosion of institutional capacity over more than three decades (Kediri City Government, 2020; Bacaini.id, 2025). Currently receiving approximately 150 tons of waste per day from households, markets, shops, hotels, and various other sources across Kediri City, the landfill has long since exceeded its design capacity and cannot accommodate the volumes it continues to receive (Kediri City Government, 2020). The transition from controlled landfill to open dumping has not only compromised the functional stability of the facility, defined by the Solid Waste Association of North America (SWANA) as a condition in which waste no longer endangers human health or the environment after closure, but has also transformed the surrounding residential areas into a chronic risk zone (Vaverková, 2019). Unmanaged leachate is frequently discharged directly into local waterways, while gas extraction systems remain inoperative, contributing to atmospheric methane and carbon dioxide emissions that exacerbate broader climate concerns (Bacaini.id, 2025; Anand et al., 2021).

The community most acutely affected by this crisis is Pojok Village itself, particularly residents of Neighborhood Community Unit/*Rukun Warga* (RW) 2, RW 3, and RW 5, who live within 200–300 meters of the landfill's waste mounds. For more than thirty years, these

residents have endured persistent odor pollution, fly infestations, groundwater contamination, respiratory illnesses, skin disorders, and the progressive degradation of their social and ecological spaces, including the transformation of formerly active rivers and public recreational areas into contaminated wastelands (Netralnews.com, 2026; SRTV.co.id, 2025). Although dozens of residents have filed legal challenges demanding the landfill's relocation (SRTV.co.id, 2025), government responses have remained largely reactive and technocratic, failing to address the structural conditions that perpetuate the crisis.

The analytical framework best suited to illuminate these dynamics is Ulrich Beck's theory of the risk society (*risikogesellschaft*). Introduced in 1986 and elaborated across subsequent decades, Beck's framework argues that advanced modernity produces a distinctive new class of hazards, risks generated by industrial production, technological systems, and consumption-driven economies, that cannot be adequately managed, contained, or compensated by the institutional architectures inherited from classical industrial society (Beck, 2008; Sørensen & Christiansen, 2012; Kinasih, 2024). Unlike the hazards of pre-industrial societies, which were experienced as external threats to human communities, the risks of the modern risk society are manufactured from within; they are the unintended yet systemic byproducts of the same processes that generate wealth and social progress (Sørensen & Christiansen, 2012). Beck identifies several defining characteristics of modern risk that are directly relevant to the Klotok Final Waste Disposal Site case; the latency and invisibility of risks, which accumulate slowly and remain undetectable to conventional medical or scientific monitoring until they have already caused significant harm; the manufactured uncertainty (manufactured uncertainty) that arises when technical authorities are unable to guarantee the safety of the very processes they manage; and organized irresponsibility, a structural condition in which the diffuse and systemic nature of risk production ensures that no single actor, no government agency, corporate entity, or regulatory body, can be held concretely accountable for the consequences (Beck, 2008; Sørensen & Christiansen, 2012).

Central to Beck's theory is the insight that risks in the modern world are not randomly distributed but follow social gradients of power and vulnerability; those who benefit least from industrial production and consumption are disproportionately exposed to its hazards. This principle, captured in Beck's formulation that wealth accumulates at the top, risks accumulate at the bottom, frames the ecological injustice experienced by communities adjacent to landfill sites (Beck, 1992). In the context of Pojok Village, the ecological burden of Kediri City's consumption patterns is externalized and concentrated upon a peri-urban community that neither generates nor meaningfully benefits from the waste flows directed to Klotok Final Waste Disposal Site, yet bears the full weight of their environmental and health consequences. This dynamic reflects what environmental justice scholarship identifies as the discriminatory siting of hazardous facilities in proximity to socially and economically marginalized communities, a pattern documented across diverse national contexts and consistent with the experiences described by Pojok Village's residents (Schenck et al., 2019).

Beck's concept of reflexive modernity further enriches this analysis by highlighting the self-confrontational dimension of contemporary risk; modern institutions are increasingly compelled to reckon with the unintended consequences of their own operations, yet are often structurally ill-equipped to do so. The government responses to the Klotok Final Waste Disposal Site crisis exemplify what may be termed the illusion of governance, a repertoire of techno-bureaucratic interventions that signal institutional responsiveness while leaving intact the structural conditions that perpetuate risk accumulation. Programs such as waste bank initiatives, socialization campaigns on waste segregation, and the announcement of new Final Waste Disposal Site construction projects function primarily as legitimating performances, restoring public confidence in state authority without resolving the underlying failures of infrastructure, coordination, and accountability (Chumo et al., 2025; Salam et al., 2025).

A further analytical lens introduced by Rob Nixon's concept of slow violence (Nixon, 2011), which, when applied to Final Waste Disposal Site contexts, enriches the risk society

framework by naming the temporal character of ecological harm in Pojok Village. Unlike sudden disasters that attract media attention and trigger emergency responses, the suffering inflicted by Klotok Final Waste Disposal Site unfolds gradually—through the accumulation of chronic disease, the progressive contamination of soil and water, the erosion of social spaces, and the normalization of daily exposure to pollutants across decades. This form of violence is particularly insidious because its incremental nature renders it illegible to conventional policy frameworks oriented toward visible, acute emergencies, allowing institutional neglect to persist without triggering public accountability.

Despite the growing body of literature on solid waste management in Indonesia, existing scholarship exhibits significant conceptual gaps. Studies predominantly adopt pragmatic and technocratic orientations focused on operational efficiency, waste volume metrics, and engineering solutions, while largely neglecting the sociological dimensions of risk distribution, ecological injustice, and community agency in the context of governance failure. The application of Beck's risk society framework to Indonesian landfill crises remains underdeveloped, particularly in relation to peri-urban communities that occupy ambiguous spatial and political positions between urban consumption centers and rural hinterlands. This study addresses these gaps by examining Klotok Final Waste Disposal Site not merely as a site of infrastructural failure but as a site of modern risk production, a location where the contradictions of reflexive modernity are lived and negotiated on a daily basis by residents whose voices remain largely absent from policy deliberations.

This article makes two primary scholarly contributions. First, it advances the sociological analysis of waste governance in Indonesia by applying Beck's risk society framework to a concrete and underexplored case, revealing how manufactured uncertainty and organized irresponsibility operate in a specific institutional and ecological context. Second, it documents the socio-ecological experiences of Pojok Village's residents in granular detail, centering their narratives as evidence of how risk is perceived, normalized, and negotiated at the community level in the absence of adequate institutional protection. The study thus contributes to debates in environmental sociology, urban governance, and ecological justice with implications extending beyond the specific case to broader questions of how developing nations can transition from reactive, technocratic waste management toward governance frameworks grounded in equity, transparency, and meaningful community participation.

2. Methods

This study employs a qualitative case study approach, selected for its capacity to generate deep, contextual, and nuanced understanding of how environmental risks are produced, perceived, and negotiated by community members within a specific socio-ecological setting. Consistent with the tradition of critical-reflective environmental sociology, Klotok Final Waste Disposal Site in Pojok Village is treated not merely as a waste disposal facility but as a site of modern risk production (site of modern risk production), a location where the interaction between ecological crisis and social inequality within public order can be observed and analyzed (Kusvianti et al., 2023). Applying Ulrich Beck's risk society theoretical framework, the study is designed to capture phenomena of manufactured uncertainty and patterns of risk distribution as they manifest in the lived experiences of affected communities (Kinasih, 2024).

While the primary focus of this article is on conceptual formulation through discourse analysis of the waste emergency and waste governance in Indonesia, the researchers also incorporated direct field observations to ground the discussion in the material realities of waste management. Between May and June 2026, the research team conducted multiple visits to Klotok Final Waste Disposal Site in Kediri City, East Java. These visits served two interrelated purposes; (1) to document the physical and environmental conditions of the landfill through direct observation and photographic documentation, given its severe overcapacity status and open dumping practices; and (2) to situate these conditions within

the analytical constructs of the risk society, governance failure, and community risk negotiation as articulated by affected residents in Pojok Village.

In-depth interviews were conducted with key informants who represent distinct positions within the affected community. These included Mrs. X (Chair of RT 13, Pojok Village, interviewed on 21 May 2026), Mr. Y (Chair of RW 3, Pojok Village, interviewed on 7 May 2026), and Mrs. Z (a housewife residing near the Final Waste Disposal Site location, interviewed on 21 May 2026). Informants were selected purposively based on their prolonged exposure to the landfill's impacts and their roles in community response and articulation of grievances. Interview data were analyzed thematically through the lens of Beck's risk society concepts, including risk production, risk distribution, manufactured uncertainty, organized irresponsibility, and the individualization of risk. Documentary sources, including government press releases, academic literature, journalistic investigations, and legal proceedings initiated by community members, were triangulated with interview findings to construct a multi-layered account of the crisis. Data analysis followed a qualitative approach involving iterative processes of data condensation (thematic coding of interview transcripts and documents), data display (systematic arrangement of findings according to the key theoretical categories of the risk society framework), and conclusion drawing, oriented toward identifying patterns of ecological injustice, governance failure, and community resilience. This methodology enabled the researchers to move beyond descriptive accounts of environmental impact toward a theoretically grounded interpretation of the socio-structural conditions that produce and perpetuate the Klotok Final Waste Disposal Site crisis.

3. Results and Discussion

3.1 Overload of Klotok Final Waste Disposal Site: Global urbanization and the accumulation of local crisis

The waste crisis unfolding at Klotok Final Waste Disposal Site cannot be understood in isolation from the global dynamics of urbanization that drive it. Across the developing world, medium-sized cities are absorbing the largest increments of population growth, generating waste volumes that far exceed the design capacities of facilities built in earlier decades and the organizational capacities of local governments trained in the logic of incremental service expansion rather than structural transformation (Ferronato & Torretta, 2019). In this context, the trajectory of Klotok Final Waste Disposal Site—from a controlled landfill established in 1992 with a defined operational perimeter to an open dumping site receiving approximately 150 tons of waste per day from diverse urban sources, including households, markets, commercial establishments, hotels, and other facilities—represents a concentrated manifestation of a global pattern of infrastructural exhaustion (Kediri City Government, 2020; Abubakar et al., 2022).

The operational history of Klotok Final Waste Disposal Site reveals a sequence of incremental deterioration consistent with what scholars of waste governance identify as the failure of transitional infrastructures in developing-country contexts. Originally designed as a controlled landfill in which waste was compacted and covered periodically with layers of soil, Klotok Final Waste Disposal Site progressively abandoned these practices due to budgetary constraints and declining institutional capacity, eventually devolving into open dumping, the most environmentally hazardous form of waste disposal, without systematic gas management, leachate collection, or monitoring (Bacaini.id, 2025). This trajectory mirrors experiences documented in Iran, where technological, infrastructural, and management limitations similarly compel continued dependence on open landfiling as the default waste management solution (Rouhani & Hejzman, 2025), as well as in Bantargebang, Indonesia's largest landfill facility, where diverse technological scenarios have been trialed yet open dumping continues to dominate in practice and contamination of surface water bodies with parameters such as Biochemical Oxygen

Demand (BOD) and Chemical Oxygen Demand (COD) exceeding safe thresholds persists (Ardiatma et al., 2023).



Fig. 1. Kediri city landfill area map

The concentration of this crisis upon Pojok Village, a peri-urban area positioned at the interface of the urban core and rural hinterland, is not accidental. Communities in this spatial position are structurally vulnerable to the externalization of urban ecological burdens; they lack the political representation and economic leverage to resist the siting of hazardous facilities in their vicinity, yet they do not receive the full complement of urban services and protections that might partially offset such disadvantages (Salam et al., 2025). The residents of RW 2, RW 3, and RW 5, situated within 200–300 meters of the waste mounds, represent the innermost ring of a sacrifice zone created by decisions made without their knowledge or consent, and maintained by a structure of governance that has proven consistently unable or unwilling to redistribute the ecological costs of Kediri City's consumption patterns (Fitriani et al., 2024).



Fig. 2. Kediri city landfill site

The failure to transition from open dumping to more sustainable disposal methods is thus not merely a technical or financial problem, though these dimensions are significant, operating a standard controlled landfill requires between three and eight times the cost of open dumping in developing-country contexts (de Titto & Savino, 2024). It is, more fundamentally, a failure of policy imagination and political will; an inability to conceptualize waste management as a shared social obligation rather than a disposal problem to be solved at minimum cost and maximum distance from the centers of political attention. The *pola kumpul-angkut-buang* (collect-transport-dump) paradigm that governs current practice at

Klotok Final Waste Disposal Site merely displaces the crisis geographically, concentrating its consequences in the residential spaces of the community least equipped to absorb them (Fitriani et al., 2024; Ardiatma et al., 2023).

3.2 Production of risk and ecological injustice

Within the analytical framework of the risk society, Klotok Final Waste Disposal Site is not merely a malfunctioning infrastructure but a site of modern risk production, a location where hazards generated by the collective consumption and production activities of Kediri City are systematically externalized and concentrated upon a spatially defined and socially vulnerable population. Ulrich Beck's foundational insight is that the transition to second modernity or reflexive modernity is characterized by the emergence of risks that are produced industrially on a massive scale but can no longer be controlled, compensated, or even adequately assessed by the institutional architectures of the nation-state or the mechanisms of conventional insurance and liability (Beck, 2008; Sørensen & Christiansen, 2012). At Klotok Final Waste Disposal Site, this dynamic manifests in the gap between the volume of risk produced, through the release of toxic leachate into groundwater systems, the emission of methane and carbon dioxide from decomposing organic matter, and the proliferation of disease vectors including flies and vermin, and the institutional capacity actually deployed to manage these risks (Anand et al., 2021; Vaverková, 2019).

The contamination of soil ecosystems around Klotok Final Waste Disposal Site through the release of potentially toxic elements (PTEs) and polycyclic aromatic hydrocarbons (PAHs) represents a persistent threat to local food chains and groundwater quality that closely parallels conditions documented in comparable landfill contexts globally (Rouhani & Hejman, 2025). Yet the institutional response to this contamination has been conspicuously absent from the daily lives of Pojok Village's residents, who have reported the progressive deterioration of river quality to the point where bodies of water formerly used for bathing and washing are now visibly contaminated and widely avoided (Interview with Mrs. X, 21 May 2026). This degradation of ecological infrastructure constitutes what Beck identifies as the cosmopolitan character of modern environmental risk; hazards that originate in the consumption patterns of an urban population are distributed across ecological systems in ways that disproportionately burden those communities least responsible for their creation (Beck, 1992).

The concept of ecological injustice is thus centrally implicated in the Klotok Final Waste Disposal Site case. Environmental justice scholarship has consistently demonstrated that the siting of hazardous waste facilities, landfills, and other environmental burden-producing infrastructure disproportionately affects communities that are socially marginalized, politically underrepresented, and economically unable to resist or relocate (Schenck et al., 2019). In Pojok Village, the residents of RW 2, RW 3, and RW 5, categorized by the municipal government as the primary impact zone, belong to the lower socioeconomic strata of Kediri City and lack the financial resources to relocate or the political capital to compel the government to relocate the landfill itself (SRTV.co.id, 2025). The stark asymmetry between the generation of ecological burdens, diffused across the entire consuming population of Kediri City, and their concentration at a single marginalized community epitomizes the distributional injustice that Beck identifies as the structural hallmark of the risk society as wealth accumulates at the top, risks accumulate at the bottom (Beck, 1992).

This distributional injustice is further compounded by what Beck terms organized irresponsibility; a structural condition in which the production of risk is so systemically diffuse, and the assignment of liability so institutionally fragmented, that no actor is ultimately held accountable for the harm caused (Kinasih, 2024). In the Klotok Final Waste Disposal Site case, neither the municipal government, nor the relevant environmental agency, nor the landfill management itself has assumed concrete responsibility for the chronic suffering of Pojok Village's residents across more than three decades of operation. Each actor can point to the constraints (budgetary, regulatory, technical) that limit its

individual capacity for remediation, while the aggregate consequence of these interacting limitations is a community consigned indefinitely to conditions that no individual institution is accountable for creating or perpetuating.

3.3 Social, health, and spatial impacts on affected communities

The socio-ecological impacts of Klotok Final Waste Disposal Site's overload condition on Pojok Village's residents are multidimensional, cumulative, and deeply embedded in the rhythms of daily life. Long-term studies of health impacts on communities residing adjacent to municipal solid waste landfills in developing countries document a consistent pattern; elevated prevalence of upper respiratory tract infections/*infeksi saluran pernapasan akut* (ISPA), contact dermatitis, and gastrointestinal disorders attributable to chronic exposure to landfill emissions, particulates, and contaminated water (Ziraba et al., 2016; Vaverková, 2019). Residents of Pojok Village report precisely these conditions, with particular intensity among children and the elderly who spend extended periods in proximity to the landfill and whose immune systems are more susceptible to the effects of chronic environmental pollution (Interview with Mrs. Z, 21 May 2026; Ihsan et al., 2024).

The penetration of environmental contamination into the most intimate spaces of daily life is vividly illustrated by the experience of Mrs. Z, who has resided near Klotok Final Waste Disposal Site for nineteen years. Despite employing every available domestic adaptation strategy—sealing doors and windows, applying fly repellents and air fresheners, cleaning floors with scented products—flies from the landfill continue to infiltrate living spaces without interruption. This account reflects a condition of total environmental exposure that epidemiological research on communities adjacent to landfills identifies as a significant risk factor for respiratory disorders, skin conditions, and gastrointestinal diseases, particularly under conditions of chronic rather than episodic exposure (Njoku et al., 2019). The failure of individual adaptive measures to provide effective protection against landfill-derived pollutants underscores the structural character of the risk; it cannot be managed at the household level, because its source is a systemic failure of institutional governance.

Beyond its physical health dimensions, the Klotok Final Waste Disposal Site crisis has fundamentally restructured the social and spatial landscape of Pojok Village. The site now occupied by the landfill's waste mounds, described by Mr. Y as formerly a football field where children played and a river where residents bathed and washed, represents the annihilation of a social-ecological infrastructure that once served as the foundation of community cohesion and recreational life. This is not merely an aesthetic loss; the destruction of shared public spaces is a form of social capital erosion that contributes to the psychological impacts documented in studies of communities exposed to chronic environmental stressors, including environmental anxiety, persistent helplessness, and a measurable decline in perceived quality of life (Nguyen & Nakakubo, 2025). Research on the psychosocial impacts of living near landfills further identifies the phenomenon of place stigma—shame, diminished self-esteem, and social isolation arising from the identification of one's residential community with pollution and poverty—as a compounding burden faced by residents of landfill-adjacent neighborhoods (Paul et al., 2025).

The disruption of social and religious life is a further dimension of this crisis that receives insufficient attention in policy discourse. Mrs. X, Chair of RT 13, described how activities at the local Al-Qur'an Education Park/*Taman Pendidikan Al-Qur'an* (TPQ), a religious education space for children, must proceed amid air polluted by landfill emissions, as there is no viable alternative location. The penetration of landfill pollution into sacred and communal spaces of religious practice represents a form of cultural harm that, like the destruction of the football field and river, resists quantification within conventional cost-benefit frameworks, yet profoundly shapes the lived experience of risk in Pojok Village. These observations align with research on the social-ecological consequences of co-locating religious activity and waste management facilities, which documents how pollution

interferes with the quality of communal and spiritual life in ways that are real but largely invisible to policy makers (Soekiswati et al., 2024).

The temporal dimension of these impacts is equally significant. Children born and raised in the buffer zone of Klotok Final Waste Disposal Site have been exposed to landfill pollutants from the first day of their lives, accumulating environmental burdens whose developmental consequences may not manifest for years or decades. Research on the long-term health impacts of early childhood exposure to landfill emissions in developing country contexts demonstrates correlations with increased risk of chronic respiratory illness, neurocognitive impairment, and immune system dysfunction that emerge only after extended latency periods (Schenck et al., 2019; Ziraba et al., 2016). This temporal elongation of harm, what Beck identifies as the latent and invisible character of modern risk, fundamentally challenges the reactive and short-term orientation of existing governance frameworks, which are poorly equipped to respond to damage whose consequences are only visible long after the political windows for accountability have closed.

3.4 Community risk negotiation in Pojok Village

Faced with the structural failure of institutional governance to protect them from the consequences of Klotok Final Waste Disposal Site's overload, the residents of Pojok Village have not remained passive. They have developed a repertoire of adaptive strategies that reflect both the creativity and the constraints of community agency operating under conditions of manufactured uncertainty and organized irresponsibility. These strategies encompass individual behavioral adaptations, collective civic action, and community-based innovation in waste management, each representing a distinct modality of what Beck's framework would recognize as the individualization of risk; the transfer of responsibility for managing collectively produced hazards onto the communities and individuals most exposed to them (Beck, 1992; Sørensen & Christiansen, 2012).

At the individual and household level, adaptive responses are oriented toward minimizing exposure within the constraints of residential immobility. Residents describe closing doors and windows throughout the day to reduce fly intrusion and odor penetration, wearing masks during outdoor activities, applying air fresheners and carbon filters to domestic spaces, and avoiding the formerly active river entirely. Mrs. X described how the smell of the landfill, once a source of acute distress, has gradually become integrated into the rhythmic patterns of daily life, intensifying with rainfall, slightly diminishing in dry seasons, but never fully absent. This process of risk normalization, the gradual domestication of environmental danger into the background of everyday experience, is what Beck terms the risk normalization dynamic, and its consequences are serious; as awareness of ongoing exposure diminishes, so does the social pressure for institutional accountability (Kinasih, 2024; Paul et al., 2025).

At the collective level, residents of Pojok Village have pursued both civic advocacy and community-based environmental management. Legal action before the Kediri City District Court, initiated by dozens of residents demanding the relocation of Klotok Final Waste Disposal Site, represents the most formal expression of community environmental agency and procedural justice claim-making (SRTV.co.id, 2025). This legal mobilization reflects a recognition, however frustrated, that individual adaptive strategies cannot address the structural source of the harm, and that formal institutional accountability must be compelled through judicial processes when administrative channels have proven unresponsive across decades.

Simultaneously, community-based waste management innovations, including the continuation of a waste bank (*bank sampah*) program initially established through a university community service/*kuliah kerja nyata* (KKN) initiative, the development of Takakura composting systems using household organic waste, and household waste collection programs, represent pragmatic responses to the gap left by the formal waste management system's failure (Interview with Mrs. X, 21 May 2026). These initiatives exemplify what environmental governance scholarship characterizes as community

environmental agency; the capacity of communities to generate ecological solutions grounded in local knowledge outside formal policy frameworks (Fitriani et al., 2024). They simultaneously demonstrate the limits of that agency in the absence of institutional support.

“We have no power to move the landfill; if the government cannot manage the waste, how to prevent the waste from piling up?” (Interview with Mr. Y, 7 May 2026).

The statement of Mr. Y precisely captures the paradox that Beck identifies at the heart of the risk society; those who bear the greatest burden of risk are those with the least power to define, manage, or redistribute it, while the institutions that possess the power of governance are those most insulated from the consequences of their failures (Beck, 2008). The community's capacity for adaptive resilience is real and significant, but it cannot substitute for the structural transformation of governance that the crisis demands.

3.5 Governance failure and organized irresponsibility

The governance response to Klotok Final Waste Disposal Site's overload crisis exemplifies what Beck's framework identifies as organized irresponsibility operating through the structural mechanisms of second modernity. Across more than three decades, no single governing actor (the Kediri City government, the relevant environmental department, or the landfill management authority) has assumed concrete and sustained accountability for the harm experienced by Pojok Village's residents. This is not simply a failure of individual institutions but a structural feature of a governance system in which responsibility is so diffuse, and the causal chains connecting policy decisions to environmental consequences so complex, that accountability becomes practically impossible to assign (Sørensen & Christiansen, 2012).

The founding moment of this governance failure was established at Klotok Final Waste Disposal Site's inception. As Mr. Y testified, when the landfill began operations in 1990, there was no community consultation, no environmental impact assessment communicated to residents, and no consent process of any kind—the waste was suddenly dumped. Compensation payments to affected communities began only around 2012, more than two decades after operations commenced, and even then fell short of the amounts originally promised. This founding act of procedural injustice, the unilateral imposition of ecological burdens upon a community without consultation or consent, constitutes a violation of the principles of procedural environmental justice that have been extensively elaborated in international environmental governance scholarship, and which form a foundational dimension of the right to a healthy environment recognized under Indonesian constitutional and environmental law (Achmad, 2024; Chumo et al., 2025).

Subsequent government responses to the escalating crisis have exhibited a consistent pattern identified in comparative research on waste governance in developing countries; the prioritization of techno-bureaucratic interventions that restore institutional legitimacy without resolving structural problems (Salam et al., 2025; de Titto & Savino, 2024). Announcements of new Final Waste Disposal Site construction projects in partnership with Kediri Regency have circulated as governmental commitments since at least 2020 without concrete realization, functioning as what might be termed governance theater, performances of institutional responsiveness calibrated to public visibility rather than operational effectiveness (Kediri City Government, 2020). Meanwhile, temporary closures of Klotok Final Waste Disposal Site, intended to facilitate operational management, have produced cascading crises; as described by Mrs. X, after closures of three to four days, the landfill reopens to be inundated immediately by as many as six waste trucks from a single source alone, demonstrating that the underlying volume dynamics driving the crisis are wholly unaddressed by such measures (Interview with Mrs. X, 21 May 2026).

The asymmetry in institutional attention between landfill workers and surrounding residents represents a particularly telling index of organized irresponsibility in the Klotok Final Waste Disposal Site case. Waste pickers (the informal sector) operating within the

landfill site occasionally receive health check services through government programs, while residents of RW 2, RW 3, and RW 5 who live within 200–300 meters of the waste mounds receive no systematic health monitoring whatsoever, despite bearing a comparably or potentially greater chronic pollution burden (Interview with Mr. Y, 7 May 2026). This pattern of differential institutional attention, prioritizing those with visible economic involvement in the landfill system over those subjected to its externalized risks, reflects what environmental health scholarship identifies as institutional neglect directed at communities whose exposure is indirect but no less severe (Schenck et al., 2019).

The temporal dimension of governance failure at Klotok Final Waste Disposal Site is equally significant. The risks experienced by Pojok Village's residents are not acute events that might trigger emergency governmental response; they are the cumulative product of decades of incremental exposure and institutional inaction. Children born today in RW 2, RW 3, and RW 5 inherit an environmental burden that was created before they existed and that current policy trajectories offer no credible prospect of resolving within their lifetimes. Research on the long-term health outcomes of communities adjacent to landfills in developing-country contexts demonstrates that the consequences of such cumulative exposure include elevated risks of chronic respiratory disease, neurocognitive impairment in children, and other health conditions with long latency periods, whose causal attribution to specific landfill exposures is rendered difficult precisely by the temporal and institutional complexity that allows organized irresponsibility to persist unaddressed (Ziraba et al., 2016; Schenck et al., 2019).

The failure to implement meaningful waste reduction strategies, including the 3R (Reduce, Reuse, Recycle) framework mandated by Indonesian waste law, community-based waste segregation programs, or integrated waste-to-energy development, is not incidental but structural; it reflects the path dependency of a governance system organized around the lowest-cost, least-politically-demanding option of continued open dumping, externalized to a community with insufficient political leverage to compel change (Achmad, 2024; Sugandi et al., 2025). Low public participation in waste management, frequently cited in official discourse as a problem of community awareness or behavior, is more accurately understood as a rational response to decades of governance failure: Why invest effort in waste segregation when the result is transported to an open dump that will contaminate groundwater and atmosphere regardless? The absence of trust between community and governance institutions, documented consistently in research on waste management participation in Indonesian cities, reflects not ignorance but accumulated experience of institutional betrayal (Achmad, 2024).

Addressing organized irresponsibility at Klotok Final Waste Disposal Site requires more than the construction of new facilities or the announcement of stricter enforcement. It requires a fundamental reorientation of the governance paradigm, from the management of waste disposal problems to the redistribution of ecological risks; from technocratic planning to participatory co-production of solutions; and from reactive crisis management to anticipatory prevention oriented by principles of ecological justice and intergenerational responsibility. The experiences of Pojok Village's residents document in vivid detail what is at stake when this reorientation does not occur; the reproduction of ecological injustice across generations, in silence and in plain sight.

4. Conclusions

This study has demonstrated that the crisis at Klotok Final Waste Disposal Site in Pojok Village, Mojoroto Sub-district, Kediri City, is not reducible to a failure of technical infrastructure or operational capacity. It is, at its core, a manifestation of ecological injustice, a condition in which the ecological burdens of urban consumption and economic production are systematically externalized onto a socially and politically marginalized peri-urban community that bears disproportionate costs while receiving minimal compensatory benefits or protective mechanisms from the governance system responsible for their generation. Analyzed through the framework of Ulrich Beck's risk society, Klotok Final

Waste Disposal Site represents a site of modern risk production where manufactured uncertainty, organized irresponsibility, and the latent accumulation of ecological harm operate in concert to reproduce conditions of chronic suffering across more than three decades. The transition from controlled landfill to open dumping, driven by budgetary constraints and institutional incapacity, has transformed Pojok Village into what this study characterizes as a sacrifice zone; a community consigned by governance decisions made without its participation to absorb the environmental consequences of a city's waste flows. Residents of RW 2, RW 3, and RW 5 experience the daily reality of slow violence; an accumulation of respiratory illness, groundwater contamination, fly infestations, odor pollution, the destruction of social and recreational spaces, and the progressive normalization of environmental danger that erodes the social fabric, community health, and quality of life across generations.

The governance responses to this crisis have exemplified the illusion of governance; a repertoire of techno-bureaucratic interventions, waste bank programs, socialization campaigns, and promises of new Final Waste Disposal Site construction that perform institutional responsiveness while leaving intact the structural conditions of risk accumulation and distributional injustice. The absence of community consultation at Klotok Final Waste Disposal Site's founding, the inadequacy of compensation arrangements that arrived two decades after harm had begun, the systematic exclusion of affected residents from waste governance decision-making, and the differential provision of health services that prioritizes landfill workers over affected neighbors, all constitute dimensions of organized irresponsibility that this study documents in detail. This analysis carries implications that extend beyond the specific case of Klotok Final Waste Disposal Site. Across Indonesia, the approaching overcapacity of Final Waste Disposal Site facilities creates conditions in which similar sacrifice zones will proliferate unless the current paradigm of waste governance is fundamentally transformed. The path forward requires moving from reactive crisis management to anticipatory governance grounded in ecological justice; from technocratic planning to meaningful co-production of solutions with affected communities; and from the externalization of ecological burdens to their equitable redistribution across the societies that generate them. This transformation requires not merely new infrastructure but new principles (procedural justice, transparency, accountability, and recognition of the rights of communities) for a healthy environment and a meaningful voice in the decisions that shape it. Pojok Village's experience demonstrates with painful clarity what is lost when these principles are absent, and what must be recovered if the cycle of ecological injustice is not to reproduce itself indefinitely in the shadow of bureaucratic silence.

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Author Contribution

Conceptualization, M.D.F. and F.R.; Methodology, M.D.F. and A.Z.; Investigation, M.D.F. and F.R.; Resources, M.D.F.; Data Curation, F.R.; Writing – Original Draft Preparation, M.D.F.; Writing – Review & Editing, F.R. and A.Z.; Visualization, F.R.; Supervision, A.Z.; Project Administration, M.D.F. All authors have read and agreed to the submitted version of the manuscript.

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Ethical Review Board Statement

The study was conducted in accordance with the ethical guidelines of Universitas Islam Negeri Sayyid Ali Rahmatullah Tulungagung and the applicable Indonesian research ethics

regulations. Ethical review and approval were obtained from the relevant institutional authority prior to fieldwork commencement.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from all interview participants to publish this paper.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Interview transcripts are not publicly available due to privacy considerations.

Conflicts of Interest

The authors declare no conflict of interest.

Declaration of Generative AI Use

During the preparation of this work, the authors used Claude (Anthropic) to assist in improving academic language, structural organization, and English translation of certain passages. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

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