

Inclusive Waste Governance Beyond Technical Solutions: A Case from Rural Indonesia

Nastasya Aisyah Putri

Independent Researcher

pnastasyaaisyah@gmail.com

ABSTRACT

This study critiques the dominance of technocratic approaches to waste management in Indonesia, which prioritize infrastructure and formal actors while neglecting social, cultural, and ecological dimensions. This case study was conducted in Ponggok Village, a tourist village in Central Java, categorized as developed and rich in water resources. Using the Integrated Sustainable Waste Management (ISWM) framework and an ecological approach, this study highlights the limitations of top-down interventions and calls for a more inclusive and contextual approach to environmental governance. The findings indicate that local ecological knowledge and community-based practices, such as community service and customary practices, remain marginalized in policy, and existing policies have not yet become official regulations. This study proposes a multi-level partnership involving local communities, tourism actors, village governments, and global environmental networks. By situating local waste management practices within the broader discourse on the Sustainable Development Goals (SDGs), specifically Goal 11 (Sustainable Cities and Communities) and Goal 17 (Global Partnership for Goals), this paper contributes to the debate on environmental justice and inclusive sustainability. This research also confirms that recognizing the role of local agents is key to building equitable and resilient environmental partnerships in the Global South.

Keywords: Waste Governance, Community, SDGs, Environmental Justice.

INTRODUCTION

Waste management has become a major challenge to sustainable development in developing countries, including Indonesia. Along with increasing urbanization, consumption, and economic growth, the volume of waste generated by the community continues to grow year after year. Data from the Ministry of Environment and Forestry (KLHK) shows that Indonesia generated approximately 67.8 million tons of waste in 2020, the majority of which came from household activities (KLHK, 2020). This situation is exacerbated by limited waste infrastructure capacity, limited local government funding, and minimal community participation in the formal waste management system (World Bank, 2018).

The dominance of technocratic approaches to waste management in Indonesia further complicates this issue. The government tends to emphasize infrastructure development and technical solutions such as the construction of modern landfills (TPA), the provision of processing technology, or formal recycling campaigns. While important, these approaches often neglect the social, cultural, and ecological dimensions of community practices (Adhuri, 2022). As a result, local knowledge and community-based practices such as communal work (gotong royong), household composting, and other collective

initiatives remain marginalized in official policies. This highlights the gap between formal governance systems and the reality of waste management practices at the grassroots level.

Within the framework of sustainable development, this gap is a fundamental issue. The Sustainable Development Goals (SDGs), particularly Goal 11 on sustainable cities and communities and Goal 12 on responsible consumption and production, emphasize the importance of waste management that is not only technically efficient but also socially just and inclusive of all actors (United Nations, 2015). This is where integrating an environmental justice perspective into waste management analysis becomes crucial.

Environmental justice highlights the unequal distribution of ecological benefits and burdens, while also underscoring the need for recognition and participation of vulnerable communities in decision-making (Schlosberg, 2007). Exclusive environmental protection that focuses solely on technology or large investments risks neglecting the justice dimension, particularly for rural and indigenous communities with close ties to natural resources. Thus, strengthening an inclusive environmental protection paradigm is an urgent need to address sustainability challenges.

Previous studies have also emphasized that successful sustainable waste management cannot be achieved solely by relying on top-down solutions, but rather requires a combination of complementary technical, social, and institutional approaches. Wilson et al. (2012) demonstrated that the integration of institutional and sociocultural approaches is key to the success of Integrated Sustainable Waste Management (ISWM), a framework that analyzes waste management from three dimensions: technical, institutional, and actor roles. In the Indonesian context, social practices such as mutual cooperation (*gotong royong*) and local wisdom in waste management have significant potential to support sustainability goals, yet are still considered inferior to modern technology (Adhuri, 2022; Lestari, 2021).

In the Indonesian context, the complexity of sustainable development can also be seen in the dynamics at the village level. Villages, as the smallest administrative units, are not only arenas for economic development but also ecological and social spaces vulnerable to the impacts of environmental damage. Ponggok Village in Klaten Regency, Central Java, for example, is widely known as a village that has successfully innovated in local resource-based development, particularly through water resource management and tourism development. However, behind these successes, fundamental issues related to environmental governance, particularly waste management and ecosystem maintenance, remain. This highlights the tension between the development logic oriented toward economic growth and the need to maintain ecological and social sustainability equitably.

The context of Ponggok Village can serve as a starting point for understanding how inclusive environmental protection remains a challenge within the framework of sustainable development in Indonesia. While community-based efforts, such as the Green Literature Camp (GLC) initiative, have strengthened public ecological awareness, these programs have not been consistently sustained. Infrastructure limitations, the

weak role of key actors, and incomprehensive policies are factors that hinder the achievement of equitable environmental governance.

Therefore, the issue of inclusive environmental protection needs to be positioned not only as part of the global normative discourse but also as an analytical framework for reviewing sustainable development practices at the local level. This approach emphasizes the importance of involving various actors, from government, civil society, local communities, and the private sector, in formulating environmental policies and actions. Furthermore, environmental justice must be understood as a fundamental principle that ensures that development goes beyond pursuing economic targets and also respects community rights and the sustainability of ecosystems.

Therefore, this research begins with the recognition that inclusive environmental protection is a key prerequisite for truly sustainable development. Studying local practices, such as those seen in Ponggok Village, can make a significant contribution to enriching the discourse on environmental justice. Through a critical reading of local experiences, it is hoped that a more holistic understanding of how the concept of inclusivity can be operationalized in development policies and practices can emerge, thereby bridging the gap between global agendas and local realities.

METHODOLOGY

This research uses a qualitative approach with a case study design to understand the dynamics of inclusive environmental protection in Ponggok Village, Klaten Regency. Case studies were chosen because they allow researchers to delve deeply into the social, political, and cultural complexities of environmental management practices at the local level (Yin, 2018). This approach allows researchers to not only capture actual conditions but also understand the meanings, motivations, and interactions between actors within the context of sustainable development (Creswell & Poth, 2018).

Data collection was conducted through a combination of participant observation, in-depth interviews, and documentation studies. Participant observation was applied to understand the daily practices of the Ponggok community related to environmental management, such as water resource utilization, waste management patterns, and community involvement in environmental programs. In-depth interviews were conducted with various stakeholders, including village officials, Village-Owned Enterprise (BUMDes) managers, local communities, women's groups, and religious leaders. This technique was chosen because it allowed researchers to capture diverse perspectives and analyze power relations in the environmental management process (Kvale & Brinkmann, 2009). In addition, a documentary study was used to supplement the primary data by examining village regulations, policy documents, activity reports, and records of village development programs.

In selecting informants, this study employed a purposive sampling technique with specific criteria relevant to the research focus. The actors were selected based on their involvement in environmental issues, whether as policymakers, program implementers, or directly impacted parties. This was crucial to ensure the representation of diverse perspectives and to avoid elitist bias in data collection (Patton, 2015).

Data analysis was conducted thematically using an inductive approach. The analysis process involved data reduction, categorization, and drawing conclusions based on empirical field data. The researchers attempted to link the findings to theoretical frameworks of environmental justice and sustainable development to explain how social, political, and cultural dimensions intertwine in environmental management practices at the village level (Braun & Clarke, 2006). To maintain the credibility and validity of the findings, source triangulation was used by comparing interview results, observations, and documents, resulting in a more comprehensive data collection (Denzin, 2017).

Overall, this methodology is designed to understand not only environmental management practices but also how issues of equity and inclusivity are realized within the context of sustainable development in Ponggok Village. Thus, this research is expected to provide an empirical contribution to the literature on inclusive environmental protection, while also offering practical insights for policy formulation at the local and national levels.

RESULTS

This research shows that waste management practices in Ponggok Village do not fully reflect the principles of sustainability as outlined in the Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities) and Goal 12 (Responsible Consumption and Production). Waste management remains fragmented, unintegrated, and lacks coordination among stakeholders. This is evident in the village government's weak role in initiating comprehensive policies and the limited capacity of local institutions to ensure program sustainability (Klundert & Anschütz, 2001; Wilson et al., 2012).

Infrastructure-wise, waste management facilities in Ponggok Village are unevenly distributed and tend to only cover specific areas. Residents in areas closer to tourist centers receive relatively more attention in waste management, while other areas still face limited services. This inequality demonstrates a dimension of environmental injustice, where some community groups bear a greater burden of environmental impacts than others (Agyeman, Bullard, & Evans, 2003).

Furthermore, research findings reveal a gap between formal policies and on-the-ground practices. While sustainable development rhetoric is embedded in village planning documents, implementation is inconsistent. Sustainability-related programs, such as the Green Literature Camp (GLC), initially attracted community enthusiasm, but were discontinued due to a lack of funding and weak institutional management. This situation emphasizes that sustainability cannot be achieved through short-term programs alone but requires strong institutional integration and sustained political support (UNDP, 2015).

From an environmental justice perspective, research findings indicate that certain community groups, particularly women and those with limited economic access, face greater barriers to involvement in waste management. They are often marginalized in decision-making, despite playing a crucial role in household waste sorting and

processing in daily practice. This phenomenon reinforces the argument that sustainability must be understood intersectionally, taking into account social, gender, and economic dimensions (Agarwal, 1992; Schlosberg, 2007).

Overall, the results of this study confirm that sustainable development at the village level cannot be separated from local political dynamics, the distribution of power among actors, and the socio-cultural values that influence community practices. Ponggok Village, as a tourist village with abundant water resources, has great potential to realize an inclusive, sustainable waste management model. However, without strengthened governance, collective awareness, and program sustainability, this potential is difficult to optimize. Therefore, these results support the importance of an environmental justice approach in analyzing and formulating waste management strategies at the local level.

DISCUSSION

The results of this study on waste management in Ponggok Village reveal a gap between the ideals of sustainable development as reflected in the Sustainable Development Goals (SDGs) and the empirical reality at the local level. At the normative level, the SDGs, particularly Goal 11 (Sustainable Cities and Human Settlements), Goal 12 (Responsible Consumption and Production), and Goal 13 (Addressing Climate Change), emphasize the importance of equitable and inclusive environmental management. However, as found in this study, field practices demonstrate fragmentation, limited resources, and weak integration between stakeholders in waste management.

From an environmental justice perspective, the problems that emerged in Ponggok represent a general pattern of environmental injustice in rural areas. Schlosberg (2007) states that environmental justice relates not only to the distribution of environmental burdens and benefits but also to the dimensions of recognition and participation. In the context of Ponggok, the distribution of waste management infrastructure is uneven: only some areas have access to waste sorting and transportation facilities, while others still rely on open dumping. This creates a disproportionate burden on certain community groups, particularly low-income households, who bear the health and environmental impacts of waste accumulation.

Furthermore, the dimension of recognition also appears to be unfulfilled. Local communities, despite their collective traditions and local wisdom practices in preserving natural resources, have not been fully recognized in the formulation of waste management policies. The Green Literature Camp (GLC) program, which was implemented, was indeed an initial effort to involve residents in environmental awareness. However, the lack of sustainability of this program indicates the weakness of the long-term institutionalization of community participation. According to Fraser (2008), social recognition of local community voices is a fundamental requirement for justice in environmental governance.

In terms of participation, this research shows that existing policies and programs remain largely top-down, dominated by village officials and external actors, while communities are positioned as mere recipients of programs. This situation contradicts the principles of environmental democracy, which require active citizen involvement in the

formulation, implementation, and evaluation of environmental policies (Agyeman, 2005). Thus, the problem in Ponggok is not only technical but also political, as it concerns who has the power to determine the direction of environmental management.

Further analysis from a sustainable development perspective confirms the imbalance between environmental, social, and economic dimensions. From an economic perspective, Ponggok's status as a water-based tourism village provides a significant source of income for the village. However, the focus on economic gains through tourism development is not balanced with serious attention to waste management systems. This creates a paradox: the village's economic success actually has the potential to create environmental degradation due to increased waste production from tourism activities. This aligns with Escobar's (1995) critique of modern development discourse, in which the ecological dimension is often sacrificed for shortterm economic interests.

Meanwhile, from a social perspective, unequal community participation demonstrates a gap between groups involved in environmental management and those marginalized. On the one hand, there are groups of residents actively involved in village clean-up activities and waste banks, but on the other hand, many households lack the capacity, knowledge, or access to adequate waste management mechanisms. This reinforces Bina Agarwal's (2001) argument that participation in natural resource management is often influenced by power relations, access to resources, and existing social structures within the community.

From an environmental perspective, weak waste management infrastructure leads to pollution that potentially threatens water resources. Ironically, water resources are the primary basis of Ponggok's identity and economy as a tourist village. This threat to ecological sustainability demonstrates that waste management cannot be viewed solely as a technical issue, but rather involves a long-term, existential dimension of sustainability for the village. Nixon (2011) refers to this phenomenon as slow violence, a form of ecological violence that occurs slowly and invisibly, but has cumulative impacts that damage the ecosystem and human well-being.

Within a political ecology framework, the relationship between actors is a determining factor explaining why waste management in Ponggok remains unintegrated. The village government, while possessing authority, is often limited in technical capacity and budget. Civil society actors, including youth groups and environmental literacy communities, have initiatives but lack sustained support. Meanwhile, external actors, such as the district government and the private sector, focus more on the economic aspects of tourism than on environmental issues. This lack of synchronicity demonstrates what Bryant and Bailey (1997) call the political ecology of waste, where waste management reflects an arena of contested interests between actors with varying capacities and resources.

From a political perspective, the Ponggok case demonstrates the close relationship between environmental governance and the dimension of distributive justice. Waste, as a public issue, should be managed within an inclusive, rights-based policy framework that considers vulnerable groups. However, this research's findings indicate that existing

policies have not been able to realize the principles of environmental justice as mandated by the SDGs. Thus, a shift in policy paradigm from a technocratic orientation to a more democratic and holistic approach is needed. The recommendations drawn from this discussion are the importance of establishing waste management governance based on three key principles. First, the principle of integration: waste management cannot be separated from tourism governance, village planning, and water conservation. This aligns with the Integrated Sustainable Waste Management (ISWM) approach, which emphasizes the importance of interconnectedness between technical systems, actors, and environmental aspects (Klundert & Anschütz, 2001). Second, the principle of inclusive participation: communities must be involved not only as implementers but also as decision-makers. This involvement is crucial to ensuring program sustainability while recognizing the local knowledge held by communities. Third, the principle of environmental justice: policies must ensure that the burden of waste management is not borne unfairly by certain groups, and that environmental benefits are shared equally. If these three principles can be implemented, Ponggok can not only strengthen its position as a competitive tourism village but also as a model of sustainable development rooted in environmental justice. This will align Ponggok with the SDGs vision and demonstrate that true sustainability can only be achieved when social, political, economic, and ecological dimensions work in harmony.

CONCLUSION

This research confirms that waste management in Ponggok Village still faces serious challenges in realizing the principles of sustainable development as reflected in the Sustainable Development Goals (SDGs) agenda. Field findings demonstrate policy fragmentation, limited infrastructure, and weak coordination between actors, resulting in incompletely integrated waste management practices. Although a number of local initiatives exist, such as collective community activities and community-based programs, unsustainable institutions and a lack of political support prevent these practices from being sustainable in the long term.

From an environmental justice perspective, this situation demonstrates dimensions of injustice in terms of the distribution of environmental burdens, recognition of the role of local communities, and participation in decision-making. Certain community groups, particularly women and those with limited economic resources, continue to bear a greater burden in waste management, while their voices have not been adequately accommodated in village policies. This situation reinforces the importance of an analytical framework that emphasizes not only technical aspects but also the social, political, and cultural dimensions of environmental governance.

Thus, the issue of inclusive environmental protection needs to be viewed not merely as a global normative discourse, but as an analytical framework capable of bridging the gap between the ideals of sustainable development and empirical realities at the local level. The case of Ponggok demonstrates that successful sustainable waste management requires the implementation of three key principles: system integration, inclusive

participation, and environmental justice. Integration ensures that waste management is not isolated from village development and tourism agendas; inclusive participation ensures that local voices are recognized at every stage of policymaking; and environmental justice ensures the equitable distribution of environmental benefits and burdens.

This study contributes to the academic debate on environmental politics in Indonesia by demonstrating that sustainable development practices can only succeed if they are interpreted as political processes involving the negotiation of interests and recognition of the diversity of local knowledge. Furthermore, these findings demonstrate that local experiences, such as those in Ponggok, can enrich the global discourse on environmental justice by bringing perspectives from the Global South.

Therefore, inclusive environmental protection is a key prerequisite for truly sustainable development. Ponggok's experience demonstrates that sustainability cannot be achieved through a purely technocratic approach but requires synergy between the government, society, communities, and the private sector. By placing environmental justice as a foundation, Ponggok has the potential to become a model for a sustainable village that is not only economically empowered but also socially and ecologically just.

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