
Participatory Waste Management Governance in Small Island

Tourism Destinations: A Case Study of Gili Trawangan

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Abstrak

Penelitian ini menganalisis penerapan tata kelola partisipatif dalam pengelolaan sampah di Gili Trawangan, sebuah destinasi wisata pulau kecil yang menghadapi tantangan lingkungan serius akibat peningkatan timbulan sampah dari aktivitas pariwisata. Dengan menggunakan metode literatur review dan analisis kualitatif deskriptif, penelitian ini mengevaluasi tingkat keterlibatan masyarakat dan komunitas lokal dalam praktik pengelolaan sampah yang berkelanjutan. Temuan menunjukkan bahwa terbatasnya keterlibatan disebabkan oleh kendala sumber daya dan kurangnya edukasi lingkungan. Namun, pendekatan partisipatif terbukti efektif dalam meningkatkan kesadaran dan kapasitas masyarakat untuk pengelolaan sampah yang berkelanjutan. Selain itu, tingginya volume sampah yang dihasilkan oleh sektor perhotelan menekankan perlunya pendekatan kolaboratif yang secara aktif melibatkan partisipasi pelaku usaha lokal. Penelitian ini menyimpulkan bahwa penguatan tata kelola partisipatif melalui keterlibatan komunitas yang lebih mendalam dan kebijakan yang adaptif berpotensi mengoptimalkan efektivitas pengelolaan sampah di destinasi wisata pulau kecil seperti di Gili Trawangan.

Kata Kunci: Tata Kelola Partisipatif; Pariwisata Pulau Kecil; Pengelolaan Sampah; Gili Trawangan.

Abstract

This research investigates participatory governance in waste management within Gili Trawangan, a small island experiencing escalating waste generation due to tourism activities. A qualitative literature review reveals that resource limitations and inadequate environmental education hinder local community participation. Nevertheless, participatory approaches demonstrate significant potential in enhancing community awareness and capacity for sustainable practices. The findings underscore the importance of collaborative efforts, particularly engaging local businesses in the hospitality sector, to address the growing waste management demands. This study concludes that strengthening participatory governance through deeper engagement and adaptive policy interventions is crucial for optimizing waste management effectiveness in small island tourism contexts.

Keywords: Participatory Governance; Small Island Tourism; Waste Management; Gili Trawangan.

INTRODUCTION

Small island tourism is currently experiencing a significant increase in visitors in various parts of the world, including Gili Trawangan, Indonesia. While this growth brings positive economic impacts, it also presents complex environmental challenges, particularly in the area of waste management. Gili Trawangan, a small island located in the Lombok Utara Regency of West Nusa Tenggara, Indonesia, is one of the primary tourist destinations for international visitors to Indonesia. Data released by the Ministry of Environment and Forestry indicates that 80% of marine waste originates from land-based sources (Nurikah et al., 2022). Based on survey data conducted by the World Bank and reported by travel.tempo.co, 81% of foreign tourists planning to visit West Nusa Tenggara, Indonesia, include Gili Trawangan in their travel itinerary (Najhalidi & Rosilawati, 2023).

Furthermore, data obtained from the North Lombok Regency Tourism Office in 2024 revealed an increasing trend in tourist visits to Gili Trawangan over the past three years, from 2021 to 2023. The data indicates significant growth in both foreign and domestic tourist visits. In 2021, Gili Trawangan recorded 9,113 foreign tourist arrivals, while domestic tourist visits reached 6,822. A sharp increase occurred in 2022, with the number of foreign tourists rising to 159,541, while domestic tourist visits grew to 21,870. This upward trend continued into 2023, with foreign tourist visits reaching 403,557 and domestic tourist numbers increasing to 44,839, reflecting more than a two-fold increase compared to the previous year.

This rise in tourist visits not only signals the recovery of global tourism but also indicates a significant surge in economic activity in the region. While this phenomenon positively impacts local income and the consumption of tourism services, it also presents new challenges in terms of increased waste volume and potential environmental impacts on Gili Trawangan. This data is illustrated in Figure 1, which compares the number of foreign and domestic tourists over the past three years period. The increase in the number of tourists visiting Gili Trawangan is directly proportional to the rise in production and consumption activities on the island, which ultimately leads to an increase in the volume of waste generated. As a small island tourist destination, Gili Trawangan faces increasingly serious challenges in waste management due to the growing waste production. Research conducted by Sekito et al. (2019) indicates that Gili Trawangan

produces approximately 11.8 tons of waste per day. The primary sources of waste on the island come from various sectors, each contributing differently to the total waste volume.

As shown in Figure 2, of the 11.8 tons of waste generated daily, the tourism sector is the largest contributor, accounting for 67.3% of the total waste. This includes waste from large hotels, small hotels, and restaurants. Households contribute 10.2% of the waste, while public facilities, such as traditional markets, public spaces, and mosques, generate 6.4%. Additionally, waste collected by scavengers accounts for 16.1% of the total waste volume produced on the island.

Figure 1. Graph of Tourist Visits to Gili Trawangan

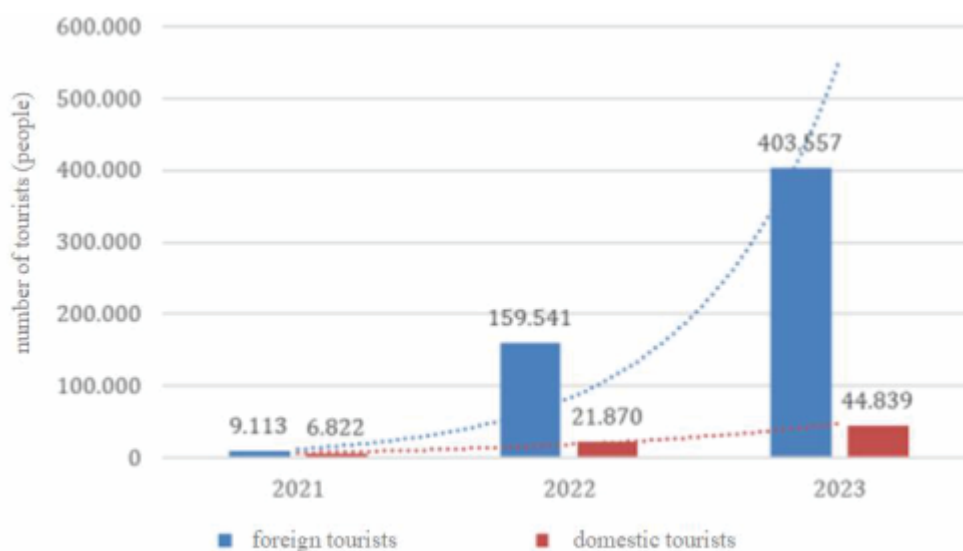
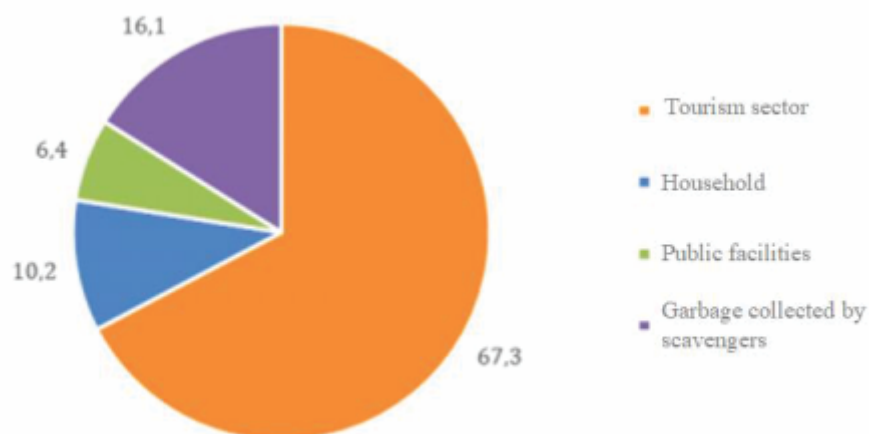


Figure 2. Percentage of Waste Based on Category of Generation Source



Waste management challenges in Gili Trawangan include limited infrastructure at the final disposal site (TPA) and the high volume of single-use plastic waste generated by the hospitality sector. The current TPA on Gili Trawangan has very limited capacity and is projected to operate for only another three years due to inadequate compaction and dumping practices (Selvia et al., 2023). This limitation highlights the urgent need for solutions that are not only technical but also based on active participation from various stakeholders. A participatory approach is critical in this context, given the limitations of the TPA and the need for adaptive waste management practices that fit the local conditions of Gili Trawangan.

The Indonesian government has launched several policies to address the waste management crisis, including the adoption of a participatory governance approach through recent regulations. National waste management policies are outlined in Law No. 18 of 2008, which governs waste management activities in a systematic and comprehensive manner. This law emphasizes the importance of waste management practices that include reduction, collection, sorting, reuse, recycling, and final disposal. At the provincial level, the government of West Nusa Tenggara (NTB) has enacted regulations to improve waste management, such as the Provincial Regulation No. 14 of 2020 on the Policy and Strategy for Waste Management. One of the key strategies emphasized in this regulation is community-based waste management, which seeks to actively involve the community in waste management processes in their neighborhoods. This program encourages the formation of youth groups and local community organizations focused on waste issues, enabling them to contribute to maintaining cleanliness and environmental sustainability.

While the provincial government of Nusa Tenggara Barat has made significant strides in promoting participatory governance, the implementation of this model still faces several obstacles, including limited resources and inadequate coordination among stakeholders. These challenges highlight the need for a deeper understanding of the role and dynamics of community participation in waste management governance, particularly in tourist destinations like Gili Trawangan. According to Arnstein's Participation Theory (1969) (Mamokhere & Meyer, 2022), community participation has long been recognized as a key element of environmental governance. Meaningful participation enables local communities to feel ownership, concern, and responsibility for the preservation of their

environment. Various studies have shown that participatory models can enhance the effectiveness of waste management, especially in tourist destinations. However, in the context of small islands, this participation needs to be adapted to local characteristics and resource constraints. Applying Arnstein's Participation Theory provides a useful framework for understanding the levels of participation, ranging from tokenism (the lowest level) to full citizen control, where communities have significant decision-making power.

Previous studies have consistently highlighted the importance of stakeholder collaboration in addressing the challenges of waste management in tourism areas. Jambeck et al. (2015) identified coastal tourism areas as highly vulnerable to plastic pollution and emphasized the need for multi-sectoral collaboration to mitigate this issue. Similarly, research by Nurikah et al. (2022) underscored the significance of community participation in waste management policies to enhance environmental awareness. A study by Falaq Al Amin et al. (2023) in Surabaya demonstrated that integrating private sector involvement with community-driven waste banks significantly improved waste management practices. In the context of coastal tourist destinations, Musleh (2023) highlighted the necessity of a local conservation approach combined with active community participation as a foundation for effective management and sustainable utilization of tourism potential.

Research on other tourist destinations further supports these findings. For instance, Hadi et al. (2024) revealed that waste generation is influenced by public awareness, participation levels, tourist numbers, and the extent to which waste management is conducted transparently and accountably. Margaretha (2024) argued for a capacity development strategy in waste management, focusing on enhanced coordination among government institutions, strengthened supervision, increased local community engagement, technological optimization, and improved tourism literacy and education. Additionally, a sustainable tourism model that prioritizes the participation of local stakeholders has been shown to effectively reduce negative externalities while promoting ethical tourism practices. Such approaches ultimately benefit both the environment and the local economy.

The limited waste management infrastructure and the heavy reliance on tourism in Gili Trawangan further complicate the environmental management challenges. While

Gili Trawangan has a TPA, it is projected to only have three more years of operational life based on its current waste capacity, compounded by inadequate operations involving compaction and dumping (Selvia et al., 2023). Moreover, the geographic isolation of the island and the tourism-driven economy create additional governance complexities, requiring multi-stakeholder partnerships to optimize resource access and community involvement (Willmott & Graci, 2012).

These conditions emphasize the need for waste management models that are not only community-based but also flexible and adaptive. Here, the role of local communities and stakeholders is crucial, as they are the most directly affected by environmental degradation caused by accumulating waste. This study aims to identify the forms of community and stakeholder involvement in Gili Trawangan and the factors that influence their participation in waste governance. A deeper understanding of these factors will provide valuable insights for improving community engagement in waste management on small island tourist destinations. Furthermore, this study will evaluate the impact of participatory governance models on the effectiveness of waste management in Gili Trawangan.

The analysis aims to assess how effective this participatory approach is in reducing waste volume and raising environmental awareness among the community and tourists. By identifying the successes and challenges in implementing this governance model, the study seeks to offer recommendations that could enhance waste management in other small island tourist destinations. Overall, this study is expected to contribute to the development of more inclusive, flexible, and sustainable waste management strategies. By adopting a participatory model that involves local communities, this research aims to offer adaptive solutions that are context-specific and relevant for application in other small island tourist destinations facing similar challenges.

METHODS

This study employs a descriptive qualitative approach to analyze community involvement in waste management governance at the small island tourism destination of Gili Trawangan. This approach was selected to provide a comprehensive theoretical and empirical understanding of the factors influencing community and stakeholder participation in sustainable waste management. By adopting this method, the study aims

to formulate evidence-based and relevant policy recommendations while contributing to the broader discourse on environmental governance within the context of small island tourism.

Research Design

This study employs a qualitative research methodology with a literature review design. The literature review contextualizes the research by summarizing existing knowledge and identifying research gaps (Cihan et al., 2024). It is specifically designed to review and analyze academic literature relevant to participatory governance, waste management, and community participation in small island tourism destinations. A systematic analytical framework was utilized to assess selected literature, addressing the research question of how participatory governance models can be effectively implemented in waste management on Gili Trawangan. This approach enables the identification of common patterns, exploration of research gaps, and the development of a conceptual model grounded in existing evidence.

Data Sources

This study relies entirely on secondary data derived from various academic sources and policy documents. These secondary sources include peer-reviewed journal articles, academic books, research reports, and publicly accessible policy documents. Leveraging secondary data allows for the examination of diverse perspectives and empirical findings from prior research, as well as policies pertinent to participatory governance and waste management in small island tourism destinations. The literature was gathered from reputable academic databases such as ScienceDirect and Google Scholar, using keywords such as community engagement, waste management, small island tourism, participatory governance, and sustainable tourism. The selection criteria focused on articles and documents published within the last decade to ensure that the analysis reflects current conditions in Gili Trawangan and similar tourism destinations. These secondary data sources are critical in enriching both theoretical and practical insights into participatory governance models that have been proposed or implemented in various small island tourism contexts.

Research Context and Scope

Although this study is based on a literature review, its context and focus are directed toward the specific conditions of Gili Trawangan, Indonesia. As a small island tourism destination, Gili Trawangan faces complex environmental challenges, particularly regarding waste management. The rising volume of waste generated by tourism activities often exceeds the local capacity to manage it effectively. By focusing on the unique characteristics and challenges of Gili Trawangan, this study seeks to produce more relevant and actionable recommendations for similar small island destinations.

Research Objective

The primary aim of this study is to understand how participatory governance models can be effectively implemented in waste management at small island tourism destinations. Specifically, the study aims to:

1. Analyze the forms of community and stakeholder involvement in waste management governance at small island tourism destinations.
2. Identify the factors influencing community participation in sustainable waste management.
3. Evaluate the impact of participatory governance models on the effectiveness of waste management in Gili Trawangan.

Formulate recommendations to enhance environmental sustainability in small island tourism destinations through optimized participatory governance models.

RESULTS AND DISCUSSION

Forms of Community and Stakeholder Engagement

Community and stakeholder engagement in waste management on Gili Trawangan highlights the critical role of multi-actor collaboration as a key factor in addressing waste management challenges on the island. The engagement includes the active involvement of several key actors, namely the local community represented by the Environmental Care Community Forum (FMPL), the non-governmental organization Gili Eco Trust (GET), the local government, tourism entrepreneurs, local residents, and expatriates.

FMPL, as a local community organization, plays a central role in waste management by providing waste collection and disposal services. The organization initiated a waste management system that, while initially simple, established the foundation for a more comprehensive system. This initiative reflects the community's direct involvement in maintaining a clean environment and fosters a sense of ownership over the waste management program. GET, in contrast, serves as a facilitator that promotes participatory and sustainable approaches. Its responsibilities include managing ecotourism taxes collected from tourists to fund environmental projects, including waste management. In this capacity, GET supports infrastructure development, resource procurement for FMPL, and educates communities and tourism industry stakeholders on best practices in waste management (Willmott & Graci, 2012).

Local government authorities play a crucial role by providing regulatory and policy frameworks that enable effective collaboration between FMPL, GET, and other industry players. The government acts as a policymaker and administrative supporter, ensuring that waste management systems operate in alignment with regulatory requirements and the needs of the community. Furthermore, tourism entrepreneurs, such as dive shop owners and accommodation providers, contribute to the waste management network by supporting programs through the payment of ecotourism taxes and active participation in environmental initiatives. This collaboration demonstrates the synergy between economic interests and environmental sustainability (Willmott & Graci, 2012).

These collective efforts have resulted in significant improvements in the waste management system on Gili Trawangan. These include enhanced waste separation at the source, expanded collection services, and recycling initiatives that have reduced pollution and increased community awareness. However, despite these achievements, local community participation in the program remains relatively low. The primary reasons for this include a lack of awareness and understanding of the importance of sustainable waste management, limited resources to comprehensively educate the community, and economic priorities that often take precedence over environmental initiatives. This limited participation adversely affects the effectiveness of program implementation, consistent with findings from Batam City, where inadequate community involvement in waste sorting and disposal has similarly hindered waste management efforts (Istiqqa et al., 2024).

Without sufficient empowerment and education, communities may fail to recognize their critical role in maintaining environmental cleanliness and sustaining the tourism destinations they inhabit. A dynamic and participatory governance approach is, therefore, essential to addressing these challenges. This finding aligns with research by Salsabila et al. (2024), which emphasizes that community empowerment improves cooperation among various stakeholders, including local governments, non-governmental organizations, and communities themselves. By enhancing communication and collaboration, waste management initiatives can become more effective and responsive. This is consistent with the principles of governance, which assert that sustainable natural resource management requires active participation from all related parties.

The analysis of waste management models in other regions further illustrates the importance of community involvement. For example, the establishment of a waste bank in Madiun City demonstrated how strong relationships between local authorities and community leaders contributed to the success of waste management programs (Widiyanti et al., 2024). This approach combines community empowerment with regulatory and technical support, increasing community awareness and active participation. By adopting similar strategies, Gili Trawangan can strengthen relationships between FMPL, GET, and local community leaders to enhance community involvement in waste management programs. This could include establishing a waste bank program that provides direct incentives for communities to separate and manage waste, as well as implementing structured training programs to increase education and awareness. Through this participatory model, the role of the community in environmental initiatives can be strengthened, thereby improving the long-term effectiveness of waste management on the island.

Factors Affecting Participation

Participatory involvement in waste management is influenced by various complex factors. In the context of this study, which focuses on participatory governance in waste management on Gili Trawangan, several main factors influencing local community participation include socio-economic aspects, environmental awareness, policy support, infrastructure limitations, stakeholder involvement, and social dynamics.

1. Socio-Economic Aspects

Data from the socio-economic report on Gili Trawangan shows that the local economy is heavily reliant on the tourism sector (Al-Muhajir SAM, 2022). The community tends to prioritize activities that directly generate income, such as accommodation services, tourism-related businesses, and trade. These economic priorities often sideline participation in waste management programs, particularly when such programs do not provide immediate economic benefits. As a result, active participation remains limited, especially in the absence of clear economic incentives. This finding aligns with a study by Nugroho et al. (2022), which revealed that the lack of incentives for environmentally friendly practices is a significant barrier to sustainable waste management. Consequently, many residents continue to rely on conventional waste disposal methods due to a lack of motivation.

2. Environmental Awareness

Public awareness of the importance of sustainable waste management in Gili Trawangan remains relatively low. Limited access to information and minimal environmental education campaigns are key contributing factors (Najhalidi & Rosilawati, 2023). High levels of awareness, however, have been shown to significantly enhance community participation. Previous research indicates that raising awareness can lead to substantial increases in participation, with community empowerment potentially resulting in a 50% reduction in waste production (Asmarawati & Wibowo, 2024).

3. Infrastructure Limitations

Infrastructure limitations significantly hinder community participation in waste management programs on Gili Trawangan. The landfill system on the island relies on the open dumping method, where waste is piled without compaction or soil covering. This outdated approach discourages community efforts toward sustainable waste management (Selvia et al., 2023). The inadequacy of waste segregation and treatment facilities creates a perception among residents that their participation will not have a meaningful impact. This observation aligns with research findings indicating that the absence of adequate infrastructure, such as effective waste collection systems and treatment facilities, significantly hampers community participation in waste management (Abdulnabi Ali et al., 2023).

4. Stakeholder Involvement

Stakeholder engagement, particularly the collaboration between FMPL and GET, has been pivotal in waste management initiatives on Gili Trawangan. The level of involvement from community leaders and local authorities plays a critical role in fostering support and participation. When local leaders and authorities exhibit strong commitment to waste management programs, community participation tends to increase. For instance, research conducted in Cilegon City, Indonesia, demonstrated that strong community leadership can significantly enhance participation in waste bank programs. Community leaders acted as agents of change, motivating active participation in environmental initiatives (Nurce Arifiati & Fauzul Hayat, 2023). This suggests that increased support from local leaders on Gili Trawangan could optimize waste management efforts.

5. Social Dynamics and Resource Limitations

The unique social dynamics and limited resources on Gili Trawangan, stemming from its geographical isolation, necessitate tailored approaches to waste management. These approaches should include efficient waste collection systems and strategies for reducing plastic waste that are specifically designed to meet local needs (Wang et al., 2021). Developing strategies that consider the island's social and environmental characteristics is essential for optimizing the effectiveness of sustainable waste management. Such approaches are expected to significantly influence the level of community participation in these programs.

Addressing these factors allows waste management strategies on small islands like Gili Trawangan to be adjusted for better outcomes, enhanced community participation, and improved sustainability and capacity of waste management systems. These findings highlight that multiple interrelated factors shape community engagement in waste management. A holistic and adaptive approach is essential to overcoming existing challenges and effectively fostering greater community involvement in waste management efforts on Gili Trawangan.

The Impact of Participatory Governance Model on Waste Management Effectiveness

The participatory governance model plays a significant role in optimizing waste management effectiveness within the tourism context on small islands such as Gili

Trawangan. This model fosters collaboration among various stakeholders, including local communities, government authorities, and the tourism industry. Stakeholder involvement in jointly designing waste management strategies leads to tailored solutions that address specific local challenges, such as the high volume of waste generated by tourism activities and the prevalence of single-use plastics (Guittard et al., 2023). The implementation of this approach is not only pertinent to analyzing forms of community and stakeholder engagement but also provides a foundation for creating more effective waste management solutions.

Participatory approaches have been demonstrated to enhance community awareness and capacity, which are critical for implementing sustainable waste management practices. Government-led programs that actively involve communities in the waste management process help deepen their understanding of waste reduction's importance and the use of environmentally friendly materials (Guittard et al., 2023). These efforts align with the study's objective of identifying and examining factors that influence community and stakeholder participation, emphasizing that building community capacity and awareness is essential for encouraging more active engagement.

Building trust and reciprocity between stakeholders, facilitated by participatory governance, further strengthens collaboration and drives innovative solutions in waste management. Financial incentives for recycling and the development of public-private partnerships have proven effective in motivating both communities and tourism industry players to contribute more actively to waste management efforts (Koiwanit & Filimonau, 2023). Evaluating the impact of participatory governance models on waste management effectiveness in Gili Trawangan highlights the potential for strong collaboration to generate innovative and sustainable initiatives.

Incorporating participatory governance into the waste management framework not only addresses immediate waste-related challenges but also aligns with broader sustainability goals. Through the adoption of this model, Gili Trawangan can enhance the effectiveness of its waste management program, supporting the study's aim of assessing the impact of participatory governance on environmental cleanliness and sustainability. The recommendations derived from this research consider the unique social, cultural, and institutional characteristics of Gili Trawangan, ensuring that the optimization of participatory governance is both appropriate and relevant to the local community. This

study, therefore, offers valuable insights into the challenges faced and presents practical solutions that can be implemented to achieve greater environmental sustainability.

The Relationship between Forms of Involvement and Participation Theory in Governance

The relationship between the form of involvement in waste management and Arnstein Sherry's Participation Theory is clearly evident in the context of Gili Trawangan, where collaboration between stakeholders and community involvement are crucial. Arnstein's theory of the ladder of participation emphasizes various levels of community involvement, ranging from manipulation to full control by residents (Horn & Draude, 2023), which aligns with the findings related to management in Gili Trawangan. Various participatory initiatives, such as FMPL, have involved the local community using a community-based approach that combines the business sector and activism (Anugrah, 2022). While this initiative demonstrates an effort to directly engage residents in waste management, the level of involvement remains limited. According to Arnstein's model, community involvement is typically still at the level of consultation or tokenism, indicating the need for a stronger partnership between the community and government to achieve more significant control over decision-making.

Similarly, the social marketing strategy implemented by Gili Eco Trust, aimed at raising public awareness and changing behavior in waste management, aligns with the principles of education and community mobilization (Rosilawati & Dirjan, 2021). This approach demonstrates a higher level on the Arnstein scale, namely the partnership level, where the community is empowered to take a more active role. However, the challenge of sustaining community commitment remains, posing an obstacle to achieving the stage of full citizen control. A study on grassroots community initiatives in Pahawang Island further illustrates a shift towards empowering local communities through capacity building and bottom-up governance (Nurhasanah & Van den Broeck, 2022). This approach reflects a higher level of participation on Arnstein's ladder, where communities not only participate in the process but also have greater control over decisions that affect their environment. In the context of Gili Trawangan, implementing similar models could enhance the effectiveness of waste management by empowering communities to play an active role in designing and implementing waste management strategies.

Moreover, research on the SARAH program in Prabumulih highlights how a community-based approach can generate significant social, economic, and environmental benefits, underscoring the importance of collaboration among stakeholders (Wahyu Tomo et al., 2023). This approach aligns with the research objective of evaluating the impact of participatory governance models on waste management effectiveness, where strong collaboration leads to more innovative and sustainable initiatives. Overall, the implementation of participatory governance emphasizes the need for an inclusive governance framework that fosters active community participation, thus optimizing the sustainability of waste management in the context of small island tourism. By integrating Arnstein's theory of participation into waste management practices in Gili Trawangan, valuable insights can be gained into the challenges faced. Additionally, it offers practical solutions that can be implemented to achieve better environmental sustainability. The relationship between the form of involvement and the theory of participation serves as a crucial foundation for formulating recommendations that optimize the participatory governance model, tailored to the social, cultural, and institutional characteristics of Gili Trawangan.

Challenges in Local Community and Stakeholder Participation

Challenges in local community and stakeholder participation in waste management on Gili Trawangan stem from several critical issues, including the misalignment between government plans and the local community's execution capabilities. Although there have been initiatives by the government and related parties to improve waste management such as the construction of landfills and infrastructure support, the execution capacity at the local level remains inadequate. Research by Selvia et al. (2023) shows that the Gili Trawangan landfill still operates with an open dumping system, a very basic method that does not meet the standards required by Law No. 18 of 2008, which mandates the use of a sanitary landfill system. This gap highlights the disconnect between well-intended policies on paper and their ineffective implementation in the field, where limited human and financial resources pose significant obstacles.

The current condition of the landfill, which is nearing full capacity with only a few months of operational life remaining, underscores the urgency of the situation. In the long term, without efforts to increase capacity and develop sustainable planning, the

landfill will face severe environmental risks, including water and soil pollution from leachate and the potential for fires in the waste piles. This situation serves as a warning to all stakeholders including the local government, FMPL, and Gili Eco Trust to formulate more comprehensive and strategic actions.

Another challenge to participation is the misuse of community involvement, which often results in superficial engagement. While the collaboration between FMPL and Gili Eco Trust aims to involve the community in waste management, it is often reduced to a formality (Willmott & Graci, 2012). This level of participation typically remains at the consultation stage, without any real role or responsibility in the program's implementation. As a result, the community does not feel genuinely engaged in the decision-making process, which undermines the overall effectiveness of the waste management program.

A lack of awareness and preparedness among local communities also presents a significant challenge to sustainable waste management efforts. Existing environmental education and awareness programs are insufficient to foster widespread behavioral changes within the community. The limited knowledge of the importance of waste separation at the source and recycling practices further hinders waste reduction efforts in Gili Trawangan. Data from Selvia et al. (2023) reveal that, without adequate educational support and community empowerment, the pile of waste in the landfill continues to grow, exacerbated by increased tourism and population, with no proper support for recycling or waste separation at the source.

To address these challenges, a holistic approach that aligns policies with local capabilities is essential. This approach should include comprehensive educational programs, capacity building, training provisions, and incentives for communities to make their participation more meaningful. In this way, community involvement can evolve beyond a mere formality, contributing significantly to the long-term sustainability of the waste management program in Gili Trawangan.

Analysis of the Effectiveness of Participatory Governance Model on Waste Management

The participatory governance model in waste management on Gili Trawangan has shown varying effectiveness in its implementation. Based on research by Willmott &

Graci (2012), the collaboration between the Environmental Care Community Forum (FMPL) and Gili Eco Trust (GET), along with support from the local government, has resulted in several significant advances in waste management. Initiatives including waste separation at the source, expansion of collection services, and recycling projects have been successfully implemented, increasing the capacity and efficiency of waste management on the island.

The active participation of the community and private sector in this program has made a positive contribution, particularly in strengthening the accountability and transparency of the management process. However, the effectiveness of this model also faces a number of obstacles. The findings indicate that local community participation is often still at a superficial level, with involvement limited to the consultation stage, without a meaningful role in implementation. This reduces the full potential of the participatory governance model, which should prioritize comprehensive collaboration from all actors. Factors such as low environmental awareness and limited community readiness to engage actively also hinder the effectiveness of the program, despite efforts by FMPL and GET to improve education and awareness campaigns.

The gap between government policies prioritizing the sanitary landfill system and the continued use of the open dumping method in practice is also a significant challenge. This suggests that although the participatory model improves coordination and collaboration between stakeholders, limited infrastructure and resources remain major obstacles to achieving sustainable waste management. This aligns with findings in Bengkulu City, where community involvement is influenced by the willingness, ability, and opportunities available. The study underscores the importance of adequate infrastructure to support active community participation (Darmi & Aryanti, 2022).

An evolutionary governance approach is also key to addressing the challenges faced by small islands like Gili Trawangan, particularly in waste management amidst tourism pressures. An adaptive governance framework allows for a faster response to local dynamics and emerging challenges, such as increasing tourist numbers and the resulting waste generation (Wang et al., 2021). Thus, this governance model can be tailored to the specific needs of the community, optimizing the effectiveness of waste management as a whole.

In conclusion, the effectiveness of the participatory governance model in Gili Trawangan shows that while there are benefits in increasing transparency and stakeholder engagement, the sustainability of the program depends on strengthening local commitment and capacity. Enhancing education and increasing incentives to encourage active community involvement are crucial considerations for future steps. In addition, systematic improvements that integrate participatory approaches with adequate regulatory and infrastructure support are necessary to maximize the effectiveness of participatory governance in waste management on the island.

Practical Implications for Optimizing Participatory Governance

Optimizing participatory governance in Gili Trawangan's waste management has significant practical implications for enhancing environmental sustainability and fostering community engagement. Based on the analysis conducted, several recommendations can be implemented to achieve this goal.

1. Development of Supporting Infrastructure

One of the most crucial initial steps is the development of adequate infrastructure to facilitate waste management. Community involvement is influenced by the capabilities and opportunities available. Therefore, investment in infrastructure, such as organized waste disposal sites, efficient collection systems, and recycling facilities, should be prioritized. With proper infrastructure in place, communities will be more motivated to actively participate in waste management efforts.

2. Increasing Public Awareness and Education

Education and increasing public awareness about the importance of responsible waste management are vital aspects of optimizing participatory governance. Extension programs that emphasize the benefits of waste reduction, source separation, and recycling can significantly increase community involvement. As previous studies have shown, local initiatives can encourage communities to participate more effectively in waste management programs.

3. Building Networks and Stakeholder Collaboration

Establishing a solid network between stakeholders—including government, the private sector, and local communities—is essential to achieving effective waste management. Strong collaboration facilitates information exchange, better policy

development, and more efficient resource management. Therefore, building effective partnerships and supporting cooperation between stakeholders should be a key focus in the implementation of participatory governance.

4. Implementation of the Evolutionary Governance Approach

An adaptive, evolutionary governance approach must be implemented to address the unique challenges faced by Gili Trawangan as a small island, particularly in the context of rapidly growing tourism. As noted by Wang et al. (2021), a flexible governance framework allows for the adjustment of strategies according to local conditions and changing dynamics. This approach is crucial to ensure that waste management policies remain relevant and effective in addressing existing challenges.

5. Continuous Evaluation and Monitoring

Finally, it is essential to conduct continuous evaluation and monitoring of the waste management initiatives in place. Systematic measurement of the results and impacts of the implemented programs will allow stakeholders to identify areas for improvement and adjust existing strategies. This ongoing process will not only optimize the effectiveness of waste management but also strengthen public trust in the governance system. By implementing these recommendations, it is expected that participatory governance in waste management on small islands can be optimized, fostering environmental sustainability and improving the quality of life for local communities.

The implementation of these practical steps will support the achievement of sustainable development goals and provide a model that can be adopted by other small islands around the world.

CONCLUSION

This study confirms that participatory governance in waste management on Gili Trawangan is not merely a concept, but a necessity for creating environmental sustainability. Through a participatory approach, local communities are given the opportunity to engage in decision-making, which optimizes transparency and accountability in resource management. The study findings show that when local communities are actively involved, they are more likely to comply with waste management policies and contribute to recycling practices. Moreover, effective communication between the government and the community plays a vital role in building

trust and fostering collaboration, ultimately contributing to reduced waste generation and improved environmental quality.

Furthermore, local community participation in waste management presents opportunities for local innovation. Those involved in the process tend to develop creative and adaptive solutions that are better suited to their cultural and social context. The study found that programs integrating community ideas are not only more relevant but also more easily accepted and implemented. Therefore, it is essential for the government and stakeholders to create spaces for active community participation in all stages of waste management, from planning to evaluation. This will not only strengthen community capacity but also lead to the development of more innovative and sustainable waste management solutions.

Based on the research findings, several recommendations for sustainable waste management in Gili Trawangan are as follows:

1. Community-Based Waste Infrastructure Development

To optimize waste management capacity, it is recommended to develop waste bank facilities and recycling centers fully managed by the local community. This can be done through collaboration between the local government and environmental organizations such as Gili Eco Trust, which has experience in environmental education in Gili Trawangan. This infrastructure will serve as a means to collect, sort, and recycle waste, thereby reducing dependence on landfills, which are nearing full capacity. For long-term sustainability, the government can provide incentives in the form of operational subsidies or technical assistance for waste management communities, as well as encourage the tourism sector to contribute financially to this infrastructure.

2. Economic Incentives to Increase Community Participation

For community involvement in waste management to be more significant, an economic-based incentive program is recommended. Communities that are active in waste management activities should receive direct benefits. For example, a point-based reward program can be implemented, where citizens who contribute to waste collection and sorting receive points that can be exchanged for basic necessities or discounts on public services. This incentive will strengthen community involvement at the level of true partnership, according to Arnstein's ladder of participation, making them key actors in sustainable waste management solutions.

3. Formulation of Waste Reduction Policy in the Tourism Sector

The tourism sector, which produces significant waste, particularly in the form of single-use plastics, must be managed through strict waste reduction policies. It is recommended that the government formulate policies regulating plastic use, by providing incentives for hotels and restaurants that adopt environmentally friendly alternatives. Additionally, policies based on waste quota control for each tourism business can be implemented, such as tax reductions for businesses that successfully reduce their waste production. This policy can strengthen the evolutionary governance framework, allowing for adjustments to tourism pressures and changes in consumption patterns, making waste management more adaptive to local dynamics.

4. Sustainable Environmental Education and Private Sector Involvement

There is a need to enhance environmental education programs through collaboration with the private sector, especially hotels and tour operators, to instill an understanding of the importance of waste management among both tourists and workers. The private sector can play a role by providing regular training for staff on waste management practices and participating in environmental awareness campaigns. Furthermore, the private sector can be a partner in financing educational programs that target local residents and tourists to raise awareness of waste management, such as through zero-waste campaigns in hotels and restaurants. This collaboration will encourage long-term community involvement in sustainable waste management, in line with the principle of co-creation.

5. Participatory Monitoring and Evaluation System

To ensure the effectiveness of sustainable waste management, a participatory monitoring and evaluation system is essential. It is recommended to establish a working group composed of representatives from the government, community, private sector, and environmental organizations to regularly monitor the implementation of waste management policies. This monitoring system should use success indicators, such as the volume of waste reduced, the level of community participation, and the number of tourism businesses meeting sustainable waste management standards. Regular evaluations will allow for the swift identification of bottlenecks and areas for improvement, while also building community trust in the policies being implemented.

This recommendation is expected to strengthen participatory governance in Gili Trawangan, positioning the community as the primary partner in adaptive and sustainable waste management. The implementation of the participatory governance model is anticipated to optimize the effectiveness and sustainability of waste management in Gili Trawangan and other small island tourist destinations.

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