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The Role of Local Regulations in Enforcing Waste Disposal Laws in Mangrove Ecotourism Destinations

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Abstract

Mangrove forest tourism has emerged as a natural destination, increasingly visited by people seeking a refreshing atmosphere to relieve work-related stress. As an ecotourism site, the mangrove ecosystem requires strict preservation efforts to ensure its sustainability. However, the limited carrying capacity and inadequate supporting facilities pose significant challenges, as irresponsible human behaviour, particularly through improper waste disposal, can accelerate environmental degradation. Indiscriminate waste dumping not only threatens the natural beauty of the mangrove forest but also disrupts the ecological balance, leading to long-term environmental damage, including soil and water pollution, a decline in biodiversity, and weakened natural coastal protection. These negative impacts ultimately undermine the very essence of ecotourism, which is to promote harmony between humans and nature. Although Indonesia has established a legal framework through national waste management regulations, their effectiveness relies heavily on localised law enforcement and community compliance. Strengthening the role of local regulations and ensuring their enforcement in Batam, particularly in the Nongsa mangrove tourism area, is therefore crucial to maintaining order, ensuring visitor safety, and protecting natural resources. The existence of clear and enforceable local regulations can serve as a preventive measure, deterring harmful behaviour while encouraging environmentally responsible practices. Moreover, such enforcement contributes significantly to ecological sustainability by fostering awareness among visitors and local communities about the importance of preserving mangroves as a buffer against climate change and coastal erosion. This research highlights the urgency of legal measures to address improper waste disposal in mangrove ecotourism destinations, emphasising the strategic role of local regulations in

achieving sustainable tourism. Ultimately, legal enforcement serves not only as a deterrent against environmental violations but also as an instrument to safeguard ecological integrity for present and future generations

INTRODUCTION

Natural tourism areas have an important role in maintaining ecosystem balance while providing economic and social benefits for the surrounding community. The existence of nature-based tourist areas, such as mangrove forests, is not only a tourist attraction but also serves as an ecological fortress that protects coastlines, resists erosion, and provides a habitat for various flora and fauna. Therefore, the sustainability of natural tourism areas is highly dependent on effective management, including the control of environmental pollution (Silitonga *et al.*, 2023). The Bakau Serip mangrove forest, located in Nongsa District, Batam City, is one of the natural tourist destinations that has experienced rapid development in recent years. This area is often a destination for local and foreign tourists because it offers beautiful views and a well-maintained mangrove ecosystem. With its strategic position, this area also contributes to Batam City's tourism sector.

However, the development of this tourist destination also faces various challenges. One of the main problems is the increasing volume of rubbish carelessly discarded by visitors and other irresponsible parties. Garbage that accumulates in mangrove areas not only degrades the environment's aesthetics but also threatens the sustainability of coastal ecosystems. Plastic waste, drink bottles, and food scraps thrown away carelessly can inhibit mangrove growth and disturb the habitat of animals in the area. If this condition continues, the tourist attraction of Mangrove Serip will decline, and the ecological function of mangroves as natural coastal protectors will be threatened. Thus, the waste problem in this tourist area cannot be considered trivial.

The Batam City Government actually has various regulations regarding environmental management and cleanliness. Various regional regulations and technical policies were created to prevent environmental pollution, including prohibitions on littering. However, the implementation and enforcement of laws in the field often face obstacles, particularly regarding supervision and public awareness. Law enforcement against littering is crucial in maintaining the cleanliness of tourist areas. Environmental laws, both statutory and regional, must be enforced to deter violators. Without firm action, the potential for environmental damage will continue and have long-term impacts. (Rosnawati and Multazam, 2022)

One of the factors that influences the effectiveness of law enforcement is public legal awareness. There are still many tourist visitors who do not care about the importance of maintaining environmental cleanliness (Jejak & Ridho, 2025). Low awareness means that existing policies and regulations often do not work optimally. This is where collaboration between the government, tourism managers and the community is important. The Bakau Serip tourist area is a clear example of how a natural tourist destination faces a dilemma between increasing tourist visits and the environmental problems they cause. Without proper management, the economic benefits obtained will be inversely proportional to the environmental damage that occurs.

Law enforcement against littering in this tourist area is a strategic effort to maintain the sustainability of the mangrove ecosystem. Apart from that, law enforcement is also an instrument for changing people's behaviour to be more responsible towards the environment. In the context of sustainable tourism management, legal aspects are as important as ecological and social aspects. Regulations and legal rules not only function as prohibitions, but also as behavioural guidelines aimed at maintaining harmony between humans and nature. Apart from regulations, law enforcement must be supported by an effective monitoring mechanism. Regional government officials, together with tourist area managers, play a key role in conducting ongoing supervision. Without intensive supervision, violations of the rules will continue to occur, reducing the authority of the law itself.

Research on law enforcement against indiscriminate waste dumping in the Bakau Serip mangrove forest tourist area is important for obtaining a factual picture of the effectiveness of existing regulations (Ida Bagus Wyasa Putra, 2003). This research is also expected to find factors that influence success and obstacles in its implementation. Furthermore, this research will contribute to the development of more adaptive and applicable policy strategies to overcome waste problems in natural tourism areas (Febriyanti, Subekti, and Ulfatun Najicha, 2024). The results of the research can serve as recommendations for local governments, tourism managers, and the community to create clean and sustainable tourist areas jointly. The urgency of this research lies not only in the theoretical aspect, but also in the practical aspect. With increasing public attention to environmental issues, research findings can serve as advocacy material to encourage more consistent and transparent law enforcement in the field.

On the other hand, this research will also examine the extent of community involvement in supporting environmental law enforcement (Laily, Farah Nur, and Fatma Ulfatun Najicha, 2022).

Community participation is a key factor in creating a clean tourist environment, because law enforcement will not be effective without support from the community in the tourist area itself. Based on this background, this research focuses on law enforcement against careless dumping of rubbish in the Bakau Serip mangrove forest tourist area in Nongsa District. It is hoped that this research will answer fundamental questions about the extent of law enforcement effectiveness in the area, as well as strategies to optimise environmental protection for sustainable tourism.

Meanwhile, the problem formulation can be described as follows:

1. What is the form of law enforcement against careless dumping of rubbish in the Serip Mangrove Forest tourist area, Nongsa District?
2. What are the factors that become obstacles in enforcing the law against littering in tourist areas?
3. What efforts can be made to optimise law enforcement and increase public awareness in maintaining the cleanliness of the Serip Mangrove Forest tourist area?

METHODS

This research employs empirical legal research using a sociological-juridical approach. This approach was chosen because the problems studied relate to the implementation of law enforcement in the field; it not only analyses laws and regulations but also examines the social reality in the Serip Mangrove Forest tourist area, Nongsa District. The research was conducted in the Serip Mangrove Forest Tourism Area, Nongsa District, Batam City. The choice of this location was based on the fact that the area is a developing natural tourism destination but faces the problem of indiscriminate waste disposal, which requires consistent law enforcement (Pemerintah Tanjab Barat, 2016). Information and sources of information were obtained from informants consisting of (Ida Bagus Wyasa Putra, 2014):

1. Tourism Department
2. Manager of the Bakau Serip tourist area.
3. Surrounding community.
4. Tourists/visitors

The research method can be explained through the following research framework.

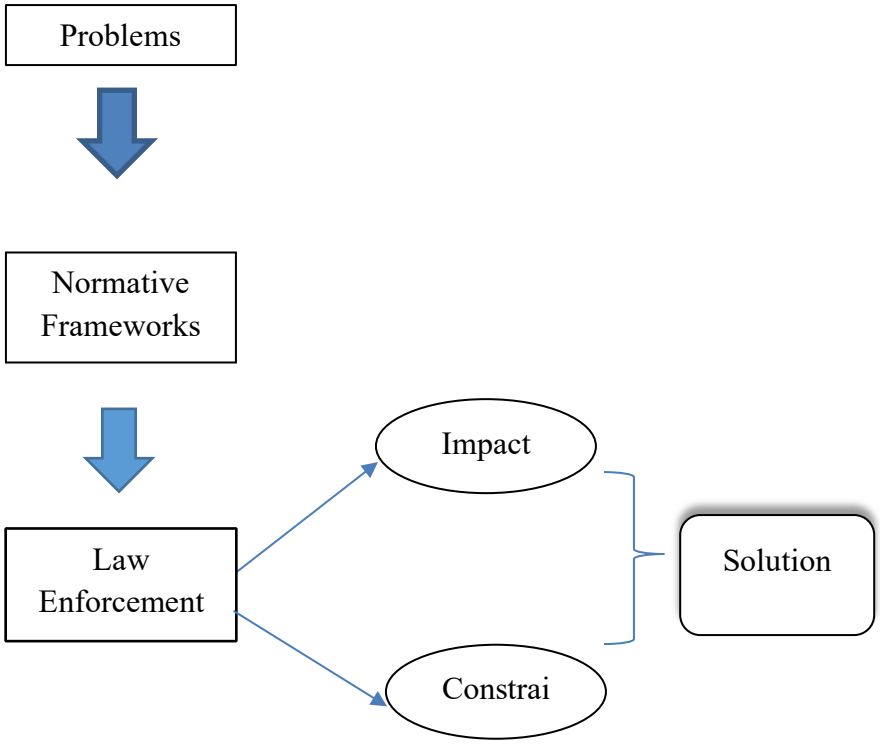


Figure 1. Frameworks

DISCUSSION AND ANALYSIS

1. Tourism Destination Environmental Law Enforcement

This research departs from real-world conditions in the field, namely the problem of littering in the Serip Mangrove Forest tourist area in Nongsa District. This problem causes environmental pollution, damages the mangrove ecosystem, and reduces the quality of tourist attractions. In a legal context, various regulations prohibit littering. These regulations include, among others, Law no. 18 of 2008 concerning Waste Management, Law no. 32 of 2009 concerning Environmental Protection and Management, and Batam City Regional Regulations regarding cleanliness. These legal rules become the normative basis for law enforcement in the field (Pemerintah Pusat, 2020).

Based on this normative basis, law enforcement is carried out with two approaches: Preventive, in the form of education, outreach, providing rubbish bin facilities, and cleanliness campaigns to increase public awareness. Repressive, in the form of taking action against violations

of the law committed by visitors or other parties, either through warnings, administrative sanctions or minor criminal penalties

In practice, law enforcement faces several obstacles, such as low public legal awareness, a limited number of supervisory officers, minimal waste management facilities, and weak coordination between agencies. This obstacle means that existing laws are not fully and effectively enforced. If the waste problem and weak law enforcement are not immediately addressed, various negative impacts will emerge, including (Jejak & Ridho, 2025):

1. Damage to the mangrove ecosystem and disruption of flora and fauna habitat.
2. Reduced tourist attractions, thereby reducing the number of tourist visits.
3. Loss of economic potential of the surrounding community.
4. Decline in public trust in environmental management in Batam City.

By identifying obstacles and impacts, this research aims to formulate strategic solutions, including strengthening law enforcement and supervision, improving waste management facilities, and involving the community and tourists in maintaining environmental cleanliness. Multi-stakeholder collaboration (government, tourism managers, communities and tourists) is the key to creating a clean and sustainable tourist area (Hasyim & Aprita, 2021).

2. Connection to the Implementation of Tourist Areas with Regulations

The mangrove tourist area is an ecotourism destination that offers natural beauty and important ecological functions. However, the increasing number of tourist visits to this area is often directly proportional to the increasing volume of waste produced. Single-use plastic waste, drink bottles, and leftover food are common finds along tracking routes and in tourist gathering areas.

The accumulation of rubbish shows a direct relationship between tourism activities and the degradation of environmental quality. The more tourists come without awareness of where to dispose of rubbish, the greater the potential for pollution in the mangrove area. This shows that tourism, if not managed well, can actually become a threat to environmental sustainability, which is the main attraction (Azhar, Sobri, and Halim, 2020). From a destination management perspective, the limited availability of hygiene facilities, such as an inadequate number of rubbish bins and the absence of a sorting system, further worsens conditions. Tourism managers often emphasise tourism promotion aspects rather than arranging waste management infrastructure. As

a result, management capacity is not matched by the high volume of waste generated by tourist visits.

This condition has direct implications for the mangrove ecosystem. Plastic waste, for example, can become trapped in mangrove roots, disrupting plant growth and reducing the plant's ecological functions as a barrier against abrasion and a habitat for marine biota. Apart from that, accumulated organic waste can cause unpleasant odours and promote the growth of bacteria that can harm the health of local people. The reciprocal relationship between tourist visits and destination management is clearly evident when the increase in visits is not matched by adequate waste management. In the long term, accumulated waste not only degrades ecosystem quality but also damages the aesthetics of tourist areas. Tourists who find destinations dirty tend to be reluctant to return, thereby reducing the number of visits and impacting the local community's economy (Rahman & Putra, 2023).

Apart from that, the environmental impact of tourist waste also affects the sustainability of tourism itself. Mangrove ecotourism, which should be a means of education and conservation, has turned into a source of pollution. This is contrary to the principles of sustainable tourism, which emphasise a balance between economic, social and environmental aspects. Thus, the accumulation of waste from tourist activities in mangrove areas indicates a mismatch between the increase in visitor numbers and the environmental management system. Without law enforcement mechanisms, visitor education, and adequate waste management facilities, tourist areas risk losing their appeal and damaging the ecological functions of mangroves (Febriyanti, Subekti, and Ulfatun Najicha, 2024). In conclusion, there is a strong relationship between tourist visits, destination management, and the environmental impact of waste in mangrove tourism areas. The volume of waste that increases with visits, without proper management, will have a serious impact on the ecosystem, aesthetics, and the sustainability of tourism. Therefore, integration of environmentally friendly tourism management and waste-related law enforcement is necessary to maintain the sustainability of mangrove areas as leading ecotourism destinations.

3. Synchronisation of Tourism, Ecology and Regulation

Tourism and the environment are closely related sectors. The success of tourism, especially mangrove ecotourism, is very dependent on environmental sustainability. Therefore, the legal framework in Indonesia has provided two main umbrellas: tourism law through Law no. 10 of

2009 concerning Tourism, and environmental law through Law no. 32 of 2009 concerning Environmental Protection and Management. Both must be integrated to create sustainable tourism destination management (Kemenparekaf, 2021). The Tourism Law mandates that the development of tourist destinations must adhere to the principles of sustainability, including a balance among economic, social, and environmental aspects. This means that the management of tourist areas, including mangroves, must not solely pursue economic profits from tourist visits, but must also ensure environmental preservation.

On the other hand, the Environmental Law emphasises the importance of preventing pollution, controlling waste, and preserving ecosystem functions. In the context of mangrove areas, this regulation provides a legal basis for efforts to protect mangrove forest ecosystems from the threat posed by waste generated by tourism activities. Thus, environmental law provides guidelines that destination managers must comply with (Suyatna *et al.,* 2023). These two regulations are reinforced by regional regulations, such as Batam City Regional Regulation No. 11 of 2013 on Waste Management, which prohibits littering and requires sorting and the provision of cleaning facilities. This regional regulation is relevant to the management of mangrove tourism in Batam because it can serve as a basis for taking action against tourists or managers who neglect to maintain the area's cleanliness.

An ideal mangrove tourism destination management model needs to integrate these three legal instruments. At the tourism level, managers must ensure comfort and attractiveness for tourists. At the environmental level, managers are obliged to maintain the ecosystem so that it remains sustainable. Meanwhile, at the regional level, specific waste regulations serve as practical guidelines for destination cleanliness management. One of the important pillars in this model is legal protection for the environment. This can be achieved by ensuring that every violation, such as littering, is addressed in accordance with regulations. Consistent law enforcement sends a strong signal that the cleanliness of tourist areas is not just a moral responsibility but a legal obligation.

Apart from repressive aspects, preventive aspects must also be a priority. Educating tourists about the importance of maintaining cleanliness, installing prohibition signs, promoting zero-waste tourism campaigns, and providing adequate trash facilities are preventive strategies aligned with sustainability principles (Ari Rama dan Bagus Gede, 2025). Good governance also requires synergy between the government, tourism managers, and the community. The local government is responsible for formulating policies and supervising their implementation; tourism managers

provide sanitation facilities and infrastructure; while local communities can be involved in waste management activities and tourist education. This collaborative model aligns with the principle of participation in environmental law (Hasyim & Aprita, 2021). From the perspective of tourist needs, the cleanliness of the mangrove tourism area is one of the indicators of visitor satisfaction. Tourists tend to feel more comfortable and express greater appreciation for destinations that are clean and environmentally friendly. Thus, proper waste management not only fulfils legal obligations but also supports the competitiveness of tourist destinations.

The integration of tourism and environmental law creates a balanced model of destination management. Tourists gain comfort, the environment receives protection, and tourism managers achieve business sustainability (Purba & Erliyana, 2020). In the long term, this integration can enhance the image of Batam's tourism as a responsible, environmentally conscious ecotourism destination. Therefore, it can be concluded that the management of mangrove tourism destinations must be based on an integrative legal model: combining the principles of the Tourism Law (Rostami and Faghani, 2025), the Environmental Law (Putra, 2025), and the Regional Regulation on Waste Management (Peraturan Walikota Batam, 2023). This model places legal protection, waste governance, and the fulfilment of tourist needs within a unified framework, thereby achieving the main goal of sustainable tourism: alignment with legal norms and environmental conservation values.

CONCLUSION

Law enforcement against littering in the Mangrove Forest Tourism Area of Bakau Serip is normatively supported by a clear legal basis. At the national level, Law No. 18 of 2008 on Waste Management and Law No. 32 of 2009 on Environmental Protection and Management regulate waste management obligations and prohibit littering. At the regional level, the Batam City Government has issued Regional Regulation of Batam City No. 11 of 2013 on Waste Management, which emphasises the community's obligation to dispose of waste in designated places and provides the basis for imposing sanctions on violators. However, in practice, enforcement remains weak due to limited supervision, inadequate facilities, and low compliance, resulting in sanctions being applied inconsistently.

In terms of regulatory harmonisation, the current state remains partial. Normatively, there is already alignment between Batam City Regional Regulation No. 11 of 2013 and Law No. 10 of

2009 on Tourism, which emphasises the importance of environmental preservation as an integral part of tourism activities. Nevertheless, synchronisation has not been fully realised in technical regulations, such as the Mayor's Regulations or implementing guidelines that govern the obligations of tourism destination managers regarding waste control, as well as the sanction mechanisms for tourists who violate the rules. Therefore, further harmonisation is needed among national and regional regulations and operational policies at the destination level, so that legal protection of the environment in the Bakau Serip Mangrove Tourism Area can be effectively implemented and aligned with the principles of sustainable tourism.

Relevant provisions from the Regional Regulation of Batam City No. 11 of 2013 on Waste Management regarding the prohibition of littering and its sanctions include:

Article 64 paragraph (1):

a. Every person is prohibited from littering on the roadside, parks, or other public places
b. It is prohibited to dispose of waste into rivers, ponds, drainage, river/drainage borders, reservoirs, and coastal areas.
c. It is prohibited to dispose of waste into seawaters within the region.
d. It is prohibited to burn household waste that does not comply with technical waste management requirements.
e. It is prohibited to burn non-household waste that does not comply with technical waste management requirements

Article 69 paragraph (1) stipulates administrative fines for violations of the Waste Regulation. For example, media reports have stated that violators may be fined up to IDR 2,500,000 for littering.

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