

Assessing Environmental Sustainability Across Coastal Tourism Routes in North Jakarta

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ABSTRACT

Purpose: This research aimed to compile a ranking of the conditions of existing tourism destinations and assess the level of environmental sustainability across the twelve coastal tourism destination routes in North Jakarta.

Method: The study employed a descriptive research design with a quantitative approach, utilizing scoring techniques based on the Barometer of Tourism Sustainability (BTS) performance scale. Data were collected through observations and in-depth interviews with key informants from the selected twelve coastal tourism destination routes in North Jakarta. The research variables were derived from governmental guidelines pertaining to sustainable tourism destinations, encompassing natural conservation, resource management, and waste and emission management.

Result: The findings identified the Ancol area as the highest-ranked destination in terms of environmental sustainability, thereby positioning it as a desirable location. Conversely, Muara Angke and Bahtera Jaya Yacht Club were ranked as the lowest and deemed unsustainable destinations. Overall, the environmental sustainability level of the twelve coastal tourism destinations was categorized as potentially unsustainable due to notable deficiencies in resource management, waste management, and emission management.

Practical Implications for Economic Growth and Development:

The findings provide significant insights for policymakers. Initiatives promoting renewable energy, encouraging the use of public transportation by visitors, and fostering circular economies through sustainable production practices represent viable actions for stakeholders. Given recent constraints, future research is recommended to explore additional aspects of sustainability and to assess the potential impacts of emerging destinations in North Jakarta.

Originality/Value: This study contributes novel insights into the relationship between destination development guidelines and environmentally sustainable practices within the context of the twelve coastal tourism destinations in North Jakarta.

Keywords: *Environmental Sustainability, Assessment, Tourist Destination, Travel Routes*

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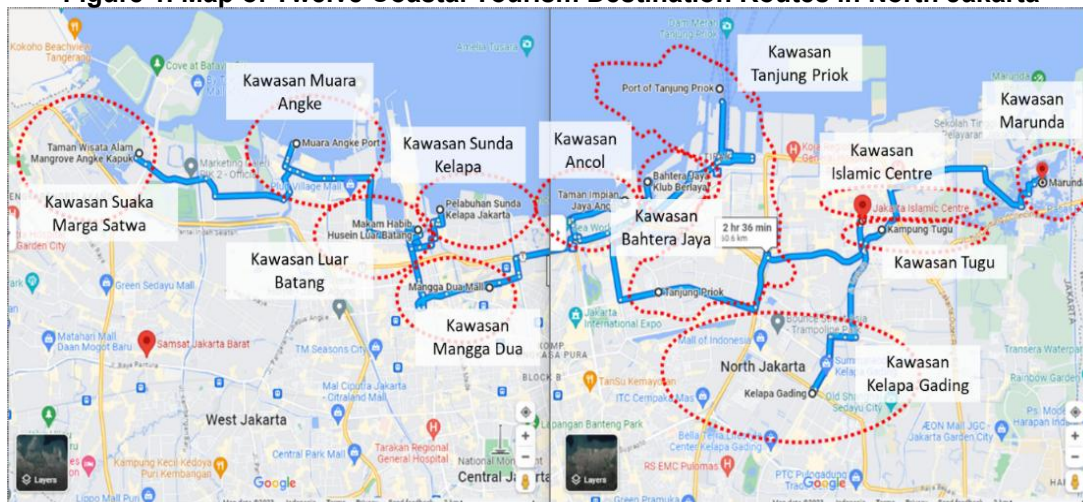


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INTRODUCTION

Jakarta, no longer the capital city of Indonesia, is undergoing a transition from a municipal center to a core of business and trade within the nation. This metropolitan area serves as a critical point of entry and a primary node in the global economic network. According to the Special Region of Jakarta's legislative framework (UU RI No. 2 Year 2024 regarding the Special Region of Jakarta Province), the city functions as a hub for trading, services, finance, and business. In order to enhance its appeal as an international tourist destination, the city aims to attract visitors from around the globe. In 2011, the North Jakarta City Government established twelve coastal tourism destination routes, as delineated in Mayor Decree No. 345 Year 2011 concerning Twelve Coastal Tourism Destination Routes of North Jakarta. These routes include (1) Muara Angke Area; (2) Suaka Marga Satwa Area; (3) Sunda Kelapa Area; (4) Luar Batang Area; (5) Ancol Area; (6) Bahtera Jaya Yacht Club; (7) Tanjung Priok Area; (8) Mangga Dua Area; (9) Monument Area; (10) Islamic Center Area; (11) Kelapa Gading Area; and (12) Marunda Area, as illustrated in Figure 1.

Figure 1. Map of Twelve Coastal Tourism Destination Routes in North Jakarta

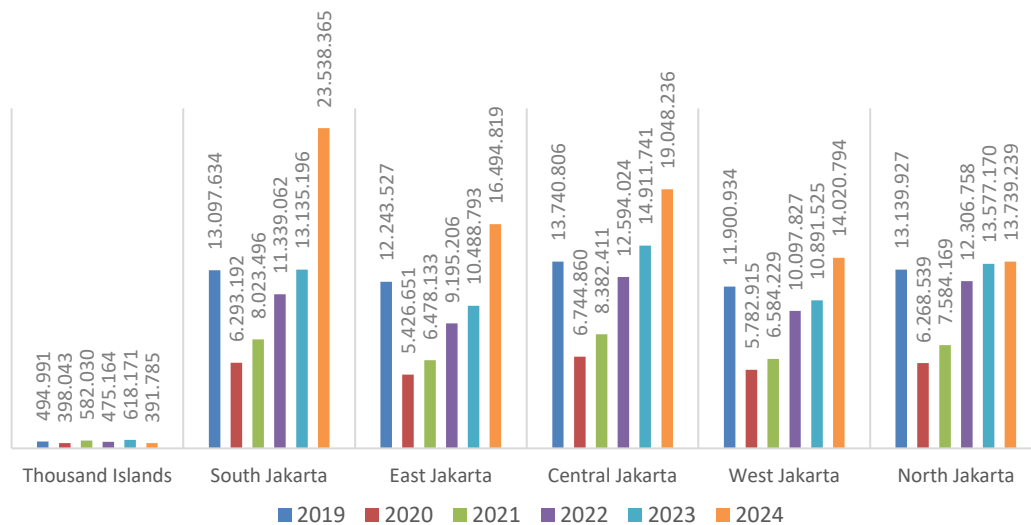


Source: Google Maps (2025)

The objectives of the tourism office in establishing twelve coastal tourist destination routes were to enhance visitor numbers and provide a diverse range of activities in North Jakarta, particularly within its coastal regions. Recently, numerous new tourist attractions have emerged in the North Jakarta area, including the Pantai Indah Kapuk (PIK) and Pluit regions, which have not yet been incorporated into the mapping of coastal tourist areas. Conversely, several attractions listed among the twelve coastal tourism destination routes have not been optimally managed and have not undergone significant development. As illustrated in Figure 2, the annual number of domestic trips to North Jakarta has not shown a noteworthy increase compared to other cities in Jakarta, such as South Jakarta and Central Jakarta, particularly from 2022 to 2024.

Based on the preliminary interview conducted with the Head of the North Jakarta Tourism and Creative Economy Office, it was identified that there is a necessity to revise the policy governing these twelve destination routes in order to align with the significant growth observed over the past decade. Consequently, this research aims to evaluate and assess the environmental sustainability of the twelve existing coastal tourism destination routes.

Figure 2. Domestic Trips Based on Destination in Jakarta during 2019 to 2024



Source: Badan Pusat Statistik (2025)

The tourist destination serves as the central focus of tourism activities and necessitates sustainable management, durability, high performance, and proficiency in technology (Fyall & Garrod, 2020). According to the National Tourism Development Master Plan for 2010-2025, tourism destinations are defined as geographical areas situated within one or more administrative jurisdictions, encompassing tourist attractions, public and tourism facilities, accessibility, and the surrounding community (PP RI No. 50 Year 2011 regarding the National Tourism Masterplan 2010-2025, 2011). It is imperative that all destinations are meticulously planned, organized, and regulated to ensure quality tourism. This development should promote sustainable and digitally-based management practices that confer benefits to the environment. Sustainable tourism destinations are strategically managed to foster quality experiences through innovation and integrated approaches (Dania et al., 2019), thereby addressing the needs of tourists effectively.

Sustainability analysis pertains to the strategic process of translating sustainability imperatives into operational objectives, often encompassing economic, ecological, and social dimensions, aimed at enhancing the sustainability and long-term viability of the industry. Sustainable tourism plays a crucial role in maintaining environmental equilibrium, recognizing the necessity to cultivate a tourism sector that yields both social and economic advantages. The concept of sustainable tourism is intrinsically linked to sustainable development and prioritizes the fulfillment of the needs of both present and future tourists. It provides various benefits that enhance a destination's competitive advantage, mitigate the adverse impacts of tourism, and augment the overall value of the destination (Barcellos-Paula et al., 2024; Pitakaso et al., 2024). The three pillars of sustainability encompass environmental, social, and economic dimensions, with the environmental aspects gaining increasing significance due to their potential to pose substantial risks to the destination (WTTC, 2021).

In practice, environmental sustainability presents a significant challenge for the Indonesian tourism sector, as the issues have not been adequately addressed in existing policies. Environmental factors pertain to the ecological footprint of tourism, necessitating a balance between enjoyment and the preservation of nature for future generations. Environmental sustainability, as defined in previous studies, encompasses the rates of renewable resource harvesting, pollution generation, and non-renewable resource depletion that can be sustained over time (Zhou et al., 2022). Additionally, other research identifies various indicators of environmental sustainability, including energy performance, waste management, air quality and pollution, water quality and pollution, land use, biodiversity, and soil (Latief et al., 2024;

Saviolidis et al., 2021; Thelen & Kim, 2024). In this study, the indicators of environmental sustainability are based on the Sustainable Tourism Destination Guidelines (Permenparekraf No.9 Year 2021) established by the Ministry of Tourism and Creative Economy (MOTCE).

From an academic standpoint, extensive scientific research on environmental sustainability in tourism within Jakarta has been conducted. Notable studies include investigations into visitor satisfaction regarding environmental sustainability in the Low Emission Zone of the Kota Tua area (Istanto et al., 2023) and analyses of the relationship between LEZ policy and environmental concerns in Jakarta (Rizki et al., 2022). However, research focusing on the twelve coastal tourism destination routes remains scarce, as evidenced by the fact that between 2011 and the present, only four unpublished student theses and one article published in a national journal have addressed the influence of the Abang Nong branding in promoting these twelve coastal tourist routes (Sarudin, 2021). Consequently, this research serves as a foundational reference for drafting an academic manuscript intended for submission regarding the policy revision of the twelve coastal tourism destination routes in North Jakarta. Given the practical and scientific gaps identified, the purpose of this study is to assess the current conditions of tourist areas along these twelve routes and to evaluate the prospective level of environmental sustainability.

METHOD

The methodology employed in this study involved descriptive research with a quantitative approach utilizing scoring analysis techniques. The research was conducted across twelve coastal tourism destination routes in North Jakarta. Data collection occurred in two phases: (1) observation and (2) interviews with stakeholders involved in tourism within these twelve coastal routes. Environmentally sustainable tourism is posited as a solution to address the diverse needs of stakeholders, aiming to minimize the adverse impacts of tourism while maximizing benefits to the destination. To investigate an environmentally sustainable tourism destination, a contextual analysis was performed with managers responsible for adapting to sustainability parameters. These parameters feature indicators and measurement instruments that are adaptable to various contexts (Pellegrini et al., 2023). Consequently, a purposive sampling technique was employed, with respondents selected based on the criterion of being active managers or supervisors within the twelve coastal tourism destination routes in North Jakarta.

Observations were conducted to evaluate the conditions of existing tourist areas across the twelve coastal routes. In-depth interviews were utilized as a supplementary cross-reference to validate findings related to environmental sustainability. Key informants included representatives from the North Jakarta regency government, specifically from the Economic and Development Assistance Office, the Tourism and Creative Economy Office, the Cultural Office, and the subdistricts of Cilincing, Koja, Pademangan, Tanjung Priok, and Kelapa Gading. Additionally, representatives from attractions such as Ancol Dreamland, Bahtera Jaya, the Marine Museum, Luar Batang Mosque, Priok Rail Station, the Fishery Center of Muara Angke, Angke Wildlife Reserve, Tugu Church, Si Pitung Houses, and Jakarta Islamic Centre were involved. A checklist instrument based on a point rating system (PRS) underwent testing for validity and reliability. The product-moment correlation technique was employed for validity testing, while Cronbach's alpha was utilized for assessing reliability. Scoring methods were then applied, with the interpretation indicating that a higher score correlates with greater support for sustainable tourism development. Data processing was conducted to map the existing conditions of tourist areas in North Jakarta using an interval scale, and the determination of the sustainability score in this study was achieved through a multi-stage equation as outlined by Sariasih et al. (2023).

$$\text{Dimension Score} = \frac{\text{Total Score of Indicator}}{\text{Number of Indicators} \times \text{Number of Samples}}$$

$$\text{Variable Score} = \frac{\text{Total Score of Dimensions}}{\text{Number of Dimensions}}$$

$$\text{Sustainability Score} = \frac{\text{Total Score of Variable}}{\text{Number of Variables}}$$

The indicator for assessing environmental sustainability within the current conditions pertains to the guidelines for sustainable tourism destinations as regulated by the Ministry of Tourism and Creative Economy (MOTCE). In evaluating environmental sustainability, three variables derived from the Sustainable Tourism Destination Guidelines (Permenparekraf No. 9 Year 2021) were adopted: (1) natural conservation, (2) resource management, and (3) waste and emission management. The first variable, natural conservation, encompasses two dimensions: the protection of sensitive areas and visitor management. The second variable, resource management, includes three dimensions: energy conservation, water management, and air quality. The final variable, waste and emission management, comprises five dimensions: liquid waste management, solid waste management, greenhouse gas emissions, low-emission transportation, and light and noise pollution. Data compilation is subsequently processed and interpreted based on the Barometer of Tourism Sustainability (BTS), which serves as a tool to measure environmental sustainability and inform decision-making. Previous studies utilizing the BTS have demonstrated results indicating a comprehensive level of sustainability (Pellegrini et al., 2023). In this study, the performance scales of the BTS were employed as follows:

Table 1. BTS Performance Scales

Interval	Definition	Interpretation
1.00 – 1.74	Unacceptable	Unsustainable
1.75 – 2.49	Undesirable	Potentially unsustainable
2.50 – 3.24	Acceptable	Potentially sustainable
3.25 – 4.00	Desirable	Sustainable

Source: Adapted from Pellegrini et al (2023)

RESULT AND DISCUSSION

Geographically, North Jakarta possesses advantageous attributes for the development of travel routes. The region boasts natural assets, including panoramic sea and beach views, which are not available in other administrative cities within Jakarta. This research identifies twelve coastal tourism destination routes in North Jakarta, which include Kawasan Muara Angke, Kawasan Pluit, Kampung Luar Batang, Kampung Bandan, Kawasan Mangga Dua, Kawasan Ancol, Kawasan Tanjung Priok, Kawasan Marunda, Jakarta Islamic Center, Kampung Tugu, and Kawasan Kelapa Gading.

The outcomes of comprehensive interviews with key informants resulted in an assessment of twelve coastal destinations concerning existing conditions and environmental sustainability. Most subdistrict heads highlighted the vulnerability of coastal environments to natural disasters, such as annual flooding and tidal inundation. The primary objective was to protect these areas, with efforts including reforestation of mangroves, construction of coastal embankments, and the establishment of new reservoirs in the form of lakes. Guidelines are necessary to sustain these efforts and enhance community involvement.

Another topic of discussion centered on resource management. A majority of key informants concurred that water quality in North Jakarta presents significant challenges, particularly regarding the community's access to clean water. The government should consider options such as water purification and desalination plants, given North Jakarta's proximity to the sea.

The final topic addressed waste and emission management in North Jakarta. Solid waste, especially plastic waste, remains a pressing issue. The Kampung Proklim (Climate Village Program) has been implemented as a community-based initiative aimed at promoting environmental sustainability through measures such as recycling banks, maggot-based organic waste processing, and waste segregation.

In addition to the interviews, the key informants conducted a self-assessment of the environmental sustainability levels of each destination area. The results were as follows:

Table 2. Existing Conditions of Twelve Coastal Tourism Destination Routes Ratings

No.	Destination Area	Total Score	Average	Rating
1	Ancol	200	3.77	Very High
2	Suaka Marga Satwa Angke	165	3.04	High
3	Kelapa Gading	141	2.72	High
4	Mangga Dua	138	2.69	High
5	Tanjung Priok	128	2.33	Low
6	Sunda Kelapa	126	2.30	Low
7	Marunda	111	2.02	Low
8	Luar Batang	104	2.00	Low
9	Jakarta Islamic Center	103	1.95	Low
10	Tugu	104	1.91	Low
11	Muara Angke	64	1.24	Very Low
12	Bahtera Jaya Yacht Club	52	1.10	Very Low

Source: Processed data (2023)

It is evident from Table 2 that the Ancol area ranks highest in terms of environmental sustainability. The Ancol area is managed by PT Pembangunan Jaya Ancol Tbk, a publicly listed company that has been committed to implementing sustainability practices in the operation of recreational areas since 1966. The company annually publishes sustainability reports addressing economic, environmental, and social dimensions (PT Pembangunan Jaya Ancol, 2023). Following Ancol, three other destinations—Suaka Marga Satwa Angke (Angke Wildlife Reserve), Kelapa Gading, and the Mangga Dua area—are also recognized for their high levels of environmental sustainability. Angke Wildlife Reserve, a wetland ecosystem, is managed by the Nature Conservation Agency of Jakarta, an organization dedicated to the protection of the natural environment (Saviolidis et al., 2021). Consequently, it is expected that the level of environmental sustainability in this area is high. In contrast, Kelapa Gading and Mangga Dua are predominantly developed areas focused on enhancing shopping experiences. The implementation of regulations mandating the use of reusable bags in shopping areas has been established by the government, thereby obligating the management of both locations to uphold environmental sustainability, particularly in the realm of plastic waste management (Peraturan Gubernur Provinsi DKI Jakarta Nomor 142 Tahun 2019 Tentang Kewajiban Penggunaan Kantong Belanja Ramah Lingkungan Pada Pusat Perbelanjaan, Toko Swalayan Dan Pasar Rakyat, 2019). A previous study indicates that environmental policies tailored to shopping malls foster sustainable solutions consistent with the principles of a circular economy (Pongpunpurt et al., 2024).

Conversely, the areas with the lowest rankings in terms of environmental sustainability are Muara Angke and the Bahtera Jaya Yacht Club, both of which are coastal regions. Muara Angke serves as a connecting point between the Thousand Island region and North Jakarta. This area is regarded as having the lowest environmental sustainability, as noted in other research, which describes the conditions of Muara Angke as poor, with coastal challenges posing significant obstacles to tourism development (Sution et al., 2023). Meanwhile, the Bahtera Jaya Yacht area, once a popular holiday destination for the Dutch during colonial times, was accessible only to affluent European elites who enjoyed yachting. In the 1960s, residents were evicted, resulting in the abandonment and deterioration of buildings (Kusumo, 2021). Since that time, no entity has assumed responsibility for managing the area, and the facilities at Bahtera Jaya are in disrepair and require renovation, particularly for marine and sports tourism. Thus, it is understandable that this area ranks low in terms of environmental sustainability, corroborated by another study that identified the Bahtera Jaya Yacht Club as the least socio-economically sustainable (Kartika et al., 2024).

In the evaluation of environmental sustainability, three variables derived from the guidelines for sustainable tourism destinations were identified: (1) natural conservation, (2) resource management, and (3) waste and emission management. The results of the scoring are presented as follows:

Table 3. Natural Conservation Scoring in Environmental Sustainability

Variable	Ave	Dimension	Ave	Indicators	Score
Natural Conservation	2.58	Protection of Sensitive Area	2.50	Vulnerability statuses and protection efforts	2.58
				Impact identification, monitoring, and mitigation	2.58
				Risk reduction through public announcement	2.50
				Scale and carrying capacity	2.50
				Destination control system	2.42
				Revenue-based conservation mechanism	2.42
		Visitor Management	2.65	Visitor flow mechanism	2.92
				Prevention management	2.75
				Guideline for tourist behavior	2.58
				Code of conduct for tour operators and guides	2.58
				Environmental risk coordination	2.58
				Training for guides and communities	2.50

Source: Processed data (2023)

Regarding the natural conservation of twelve coastal tourism destination routes in North Jakarta, the assessment indicated a potentially sustainable or acceptable status, with an average score of 2.58. This score surpasses that of both resource management dimensions, which received a score of 2.25, and waste and emission management, which scored 2.24, indicating a potentially unsustainable or undesirable condition. Natural conservation efforts in North Jakarta have been implemented through the development of the mangrove ecosystem along the northern coast, which may yield benefits such as the enhancement of green-blue carbon development and the expansion of green belts, as well as contributing to a circular creative economy (Usman et al., 2023). Conversely, resource management in North Jakarta, particularly concerning energy conservation and the maintenance of water and air quality, remains a significant challenge. A prior study indicated that Jakarta faces resource scarcity exacerbated by its continually growing population (Edelman & Gunawan, 2020) and its trajectory toward becoming a global city. Waste management and emission control persist as critical issues in Jakarta, as the city continues to generate substantial amounts of plastic and food waste. Moreover, emission control remains problematic despite increasing community awareness and advancements in the technical aspects of waste-to-energy development (Suryawan & Lee, 2024).

Table 4. Resource Management Scoring in Environmental Sustainability

Variable	Ave	Dimension	Ave	Indicator	Score
Resource Management	2.23	Energy Conservation	2.21	Energy consumption target	2.25
				Energy efficient program	2.25
				Incentive for monitoring and energy reduction	2.25
				Investment in renewable energy	2.08
		Water Management	2.22	Guideline for monitoring water usage reduction	2.25
				Program of water contamination risk management	2.25
				Water safe publication	2.25
				Water quality monitoring and assurance	2.25
				Monitoring water capacity usage	2.08
		Air Quality	2.25	Air quality monitoring	2.25
				Air condition report	2.25
				Air quality standard	2.25
				Air quality improvement	2.25
				Air quality information	2.25

Source: Processed data (2023)

Table 5. Waste and Emission Management Scoring in Environmental Sustainability

Variable	Ave	Dimension	Ave	Indicator	Score
Waste and Emission Management	2.21	Liquid Waste Management	2.19	Regulation on waste management	2.25
				Law enforcement system	2.17
				Monitoring of waste risk	2.17
				Sustainable liquid waste treatment	2.17
		Solid Waste Treatment	2.23	Solid waste monitoring program	2.33
				Waste reduction or single-used plastic prohibition	2.25
				Waste management program	2.25
				Waste bank and recycling system	2.25
				Garbage collection and public area cleaning	2.25
				Separated rubbish bin	2.25
				Waste management campaigns including food waste	2.17
				Waste residue safeness	2.08
		Greenhouse Gas Emission	2.22	Climate change monitoring and mitigation	2.25
				Emission reduction and mitigation campaign	2.25
				Emission reduction program	2.25

Variable	Ave	Dimension	Ave	Indicator	Score
				Carbon offset program	2.25
				Emission reduction report	2.08
		Low-Emission Transportation	2.22	Investment of low emission transportation	2.25
				Information on alternative transportation toward & within the destination.	2.25
				Visitor transportation mode	2.25
				Cycling and walking within the destination	2.25
				Prioritize sustainable market transportation	2.25
				Low-emission operational transportation usage	2.08
		Light and Noise Pollution	2.19	Guideline for light and noise pollution prevention	2.25
				Follow-up mechanism on light and noise pollution	2.25
				Monitoring potential sources of light and noise pollution.	2.08

Source: Processed data (2023)

The environmental sustainability of the twelve coastal tourism destinations in North Jakarta received an average score of 2.34, indicating a potential for unsustainability or undesirability. It is imperative for North Jakarta to address this condition and the performance outcomes that demonstrate lower sustainability, particularly concerning resource management, waste management, and emission control. The environmental suitability initiatives implemented along the route are developed on an individual basis. Each stakeholder, such as PT. Pembangunan Jaya Ancol, engages in best practices or necessary activities that may serve as models for others. The highest score was recorded in natural conservation, specifically within the visitor management dimension, while the lowest score was observed in waste and emission management, particularly concerning liquid waste treatment, as well as light and noise pollution.

Table 6. Variables and Dimensions Scoring in Environmental Sustainability

Variable	Score	Interpretation	Dimension	Score	Interpretation
Natural Conservation	2.58	Potentially Sustainable	Visitor Management	2.65	Potentially Sustainable
Resource Management	2.23	Potentially Unsustainable	Protection of Sensitive Area	2.50	Potentially Sustainable
Waste and Emission Management	2.21	Potentially Unsustainable	Air Quality	2.25	Potentially Unsustainable
Sustainability	2.34	Potentially Unsustainable	Solid Waste Treatment	2.23	Potentially Unsustainable
			Water Management	2.22	Potentially Unsustainable
			Greenhouse Gas Emission	2.22	Potentially Unsustainable

Variable	Score	Interpretation	Dimension	Score	Interpretation
			Low-emission Transportation	2.22	Potentially Unsustainable
			Energy Conservation	2.21	Potentially Unsustainable
			Liquid Waste Management	2.19	Potentially Unsustainable
			Light and Noise Pollution	2.19	Potentially Unsustainable

Source: Processed data (2023)

Current regulations governing twelve coastal tourism destination routes have been effectively implemented, particularly in the realm of visitor management. However, certain factors such as waste management, as well as light and noise pollution, warrant additional attention across all attractions in North Jakarta. While some destinations exhibit high levels of sustainability, others demonstrate significantly lower sustainability metrics. Should the current destinations reach saturation and be unable to expand, it is imperative for the government to reassess North Jakarta's beach tourism policy and to develop alternative routes that prioritize regenerative and sustainable tourism. Economic development is inextricably linked to environmental sustainability, and social disparities often arise as a consequence of environmental pollution (Bhuiyan et al., 2024). Previous research has further indicated that social and environmental factors play a critical role in sustainable development (Yuedi et al., 2023).

In conclusion, the impact assessment conducted in this study identified and mitigated environmental effects, categorizing them from high-risk to low-risk for each attraction. This assessment may influence policy-making and project planning within the tourism sector. At a minimum, four contextual layers must be considered in the follow-up to the assessment results: individual capacity, interpersonal relationships, institutional frameworks, and the broader infrastructural system. Enhancements in these areas are essential to maximize benefits (Warne & Thompson, 2022). The adoption of environmentally sustainable practices is vital for improving the sustainability levels of tourism destinations. This includes the processes of resource renewal, pollution reduction, and the elimination of environmentally harmful practices. Environmental assessment is increasingly recognized as crucial, particularly concerning environmental thresholds that may jeopardize the tourism industry and pose significant risks to destinations (Barcellos-Paula et al., 2024; Pellegrini et al., 2023). Although the findings are specific to the twelve coastal tourism destination routes in North Jakarta, other cities may draw inspiration from these methodologies to promote environmentally friendly tourism.

CONCLUSION

This study addresses the existing gap in the assessment of environmental sustainability practices in tourism destinations by analyzing the implementation and effectiveness of these practices. It recognizes the critical characteristics of sustainable destinations and emphasizes the adherence to government guidelines for sustainable tourism. The theoretical implications of this research contribute significantly to the field. Firstly, it expands the discourse surrounding environmental sustainability variables. Additionally, this study offers novel insights by strengthening the connection between destination development guidelines and indicators of environmentally sustainable tourism practices within the twelve coastal tourism routes in North Jakarta.

From a practical standpoint, the findings of this study provide valuable insights for policymakers. It alerts government officials, managers, and policymakers to the risks associated with unsustainable destinations that may lead to adverse consequences. For example, the city may need to enhance its focus on resource management within tourism

destinations. Initiatives such as renewable energy projects, promotion of efficient public transportation usage, and encouragement of circular economies and sustainable production practices represent potential strategies for stakeholders. The implementation of environmental sustainability practices in the Ancol area can serve as a model for others. Furthermore, this research underscores the critical role of stakeholder engagement in achieving sustainable tourism and mitigating environmental impacts. For instance, collaboration between the government and the tourism industry can facilitate energy conservation, enhance waste management systems, and ensure sustainable development.

The study acknowledges its limitations, particularly its concentration solely on the environmental sustainability aspect, while the overall sustainability of tourism across the twelve coastal tourist routes can significantly stimulate the local economy and foster growth in creative industries, trade, and services. The influx of tourists, fueled by environmental sustainability, can provide opportunities for promoting and selling local products, thereby increasing revenue for local businesses.

Future research should consider examining the economic and socio-cultural dimensions of sustainability, especially within the twelve coastal tourist destinations in North Jakarta, to serve as a scholarly resource and reference for government policymakers in evaluating future initiatives. This study also broadens the discourse on the sustainability assessment of existing destinations. As Jakarta aspires to become a global city, it is imperative to consider various potential destinations. Future investigations could focus on assessing the environmental impacts associated with new developments in the reclamation areas of North Jakarta and analyzing how the government prioritizes and reconciles sustainability efforts.

The examination of environmental sustainability practices across the twelve coastal tourism routes in North Jakarta aligns with established guidelines for sustainable destination development. Both theoretical and practical contributions have been made to the government of North Jakarta. The sustainability indicators discussed herein aim to provide policy recommendations concerning resource management, renewable energy utilization, and community engagement. This study clearly underscores the necessity for future research on additional aspects to further support Jakarta's aspirations as a global city.

REFERENCES

- Barcellos-Paula, L., Castro-Rezende, A., & Gil-Lafuente, A. M. (2024). Application of the affinities theory to the environmental sustainability of tourist destinations: The case of Ljubljana. *Cleaner and Responsible Consumption*, 14, 100216. <https://doi.org/10.1016/j.clrc.2024.100216>
- Bhuiyan, M. A., Paiano, A., & Crovella, T. (2024). Exploring the nexus between economic and environmental issues in the tourism sector at the country level: A replicable framework. *Heliyon*, 10(5), e26510. <https://doi.org/10.1016/j.heliyon.2024.e26510>
- Dania, T., Mlejnková, K., & Rašovská, I. (2019). Quality destination management. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 67(4), 1027–1037. <https://doi.org/10.11118/actaun201967041027>
- Edelman, D. J., & Gunawan, D. S. (2020). Managing the urban environment of Jakarta, Indonesia. *Current Urban Studies*, 8(1), 57–106. <https://doi.org/10.4236/cus.2020.81003>
- Fyall, A., & Garrod, B. (2020). Destination management: A perspective article. *Tourism Review*, 75(1), 165–169. <https://doi.org/10.1108/TR-07-2019-0311>
- Istanto, I., Djamhur, I., & Sapitriyadi, I. (2023). Implementation of SDGs 11 and LEZ policy toward visitor satisfaction in Kota Tua area. *Jurnal Kepariwisata Indonesia*, 17(2), 256–271. <https://doi.org/10.47608/jki.v17i22023.256-271>
- Kartika, D. G., Djamhur, I. G., & Ismayanti, I. (2024). Coastal tourism destinations of North Jakarta. *Journal of Enterprise and Development*, 6(3), 555–564. <https://doi.org/10.20414/jed.v6i3.11215>

- Kementerian Pariwisata dan Ekonomi Kreatif RI. (2021). *Permenparekraf No. 9 Tahun 2021 tentang pedoman destinasi pariwisata berkelanjutan*.
<https://peraturan.bpk.go.id/Details/203906/permenpar-no-9-tahun-2021>
- Kusumo, R. (2021, October 30). Pantai Sampur, tempat wisata favorit orang Batavia yang tenggelam oleh zaman. *Good News From Indonesia*.
<https://www.goodnewsfromindonesia.id/2021/10/30/pantai-sampur-tempat-wisata-favorit-orang-batavia-yang-tenggelam-oleh-zaman>
- Latief, R., Pei, Y., Ahmad Javeed, S., & Sattar, U. (2024). Environmental sustainability in the Belt and Road Initiative (BRI) countries: The role of sustainable tourism, renewable energy and technological innovation. *Ecological Indicators*, 162, 112011.
<https://doi.org/10.1016/j.ecolind.2024.112011>
- Mayor Decree No. 345 Year 2011 about twelve coastal tourism destination routes of North Jakarta, Kantor Walikota Jakarta Utara 3 (2011).
- Pellegrini, M., Padilha, A. C. M., Binotto, E., Casarotto, E. L., Jorge, J. P. da C. S., Hoff, D. N., & de Souza, M. (2023). Environmentally sustainable: How are the practices in the organic food tourist route? *Heliyon*, 9(7), e17546.
<https://doi.org/10.1016/j.heliyon.2023.e17546>
- Pemerintah Provinsi DKI Jakarta. (2019). *Peraturan Gubernur Provinsi DKI Jakarta Nomor 142 Tahun 2019 tentang kewajiban penggunaan kantong belanja ramah lingkungan pada pusat perbelanjaan, toko swalayan, dan pasar rakyat*.
<https://jdih.jakarta.go.id/dokumen/detail/3851>
- Pemerintah Republik Indonesia. (2011). *PP RI No. 50 Tahun 2011 tentang Rencana Induk Pembangunan Kepariwisata Nasional 2010–2025*.
<https://peraturan.bpk.go.id/Details/5183>
- Pemerintah Republik Indonesia. (2024). *UU RI No. 2 Tahun 2024 tentang Daerah Khusus Provinsi Jakarta*. <https://peraturan.bpk.go.id/Details/283616>
- Pitakaso, R., Srichok, T., Khonjun, S., Gonwirat, S., Nanthasamroeng, N., & Boonmee, C. (2024). Multi-objective sustainability tourist trip design: An innovative approach for balancing tourists' preferences with key sustainability considerations. *Journal of Cleaner Production*, 449, 141486. <https://doi.org/10.1016/j.jclepro.2024.141486>
- Pongpunpurt, P., Janjaroen, D., Painmanakul, P., Guiraud, P., Tiruta-Barna, L., Chawaloessphonsiya, N., Poyai, T., Rungsithong, R., & Leknoi, U. (2024). Exploring the circular business model for sustainable plastic waste management in shopping malls: Challenges, opportunities, and impacts in Thailand. *Case Studies in Chemical and Environmental Engineering*, 10, 100872.
<https://doi.org/10.1016/j.cscee.2024.100872>
- PT Pembangunan Jaya Ancol. (2023). *Sustainability report 2023*.
<https://korporat.ancol.com/shared/file-manager/SR%20PJAA%202023.pdf>
- Rizki, M., Irawan, M. Z., Dirgahayani, P., Belgiawan, P. F., & Wihanesta, R. (2022). Low emission zone (LEZ) expansion in Jakarta: Acceptability and restriction preference. *Sustainability*, 14(19), 12334. <https://doi.org/10.3390/su141912334>
- Sariasih, L., Rudiarto, I., & Hermawan, D. F. (2023). Keberlanjutan ekonomi, sosial dan lingkungan pengembangan pariwisata berbasis komunitas di Kelurahan Kauman Kidul Kota Salatiga. *Prosiding Nasional Sinars 2023*, 193–204.
<https://unars.ac.id/ojs/index.php/prosidingSDGs/article/view/3342/2418>
- Sarudin, R. (2021). Pengaruh branding Abang Nene Jakarta Utara terhadap peningkatan promosi 12 destinasi wisata pesisir Jakarta Utara. *JMPP*, 4(2).
- Saviolidis, N. M., Cook, D., Davíðsdóttir, B., Jóhannsdóttir, L., & Ólafsson, S. (2021). Challenges of national measurement of environmental sustainability in tourism. *Current Research in Environmental Sustainability*, 3, 100079.
<https://doi.org/10.1016/j.crsust.2021.100079>
- Suryawan, I. W. K., & Lee, C.-H. (2024). Exploring citizens' cluster attitudes and importance-performance policy for adopting sustainable waste management practices. *Waste Management Bulletin*, 2(3), 204–215.
<https://doi.org/10.1016/j.wmb.2024.07.011>

- Sution, E., Prianto, Y., Rangga, I., Putra, W., & Gea, A. B. (2023). Muara Angke sebagai penopang wisata pesisir di Kepulauan Seribu. *Jurnal Serina Sosial Humaniora*, 1(2), 169–177. <https://doi.org/10.24912/jssh.v1i2.27822>
- Thelen, T., & Kim, S. (2024). Towards social and environmental sustainability at food tourism festivals: Perspectives from the local community and festival organizers. *Tourism Management Perspectives*, 54, 101304. <https://doi.org/10.1016/j.tmp.2024.101304>
- Usman, U., Hilmi, E., & Iqbal, A. (2023). The external-internal factor and ecosystem services to support mangrove rehabilitation planning on the north coast of Jakarta. *Proceedings of the 5th International Conference on Multidisciplinary Approaches for Sustainable Rural Development (ICMA-SURE-2023)*.
- Warne, S. J., & Thompson, M. (2022). Future approaches to evaluating tourism in the developing world: Assessing realism in the Solomon Islands. *Journal of Hospitality and Tourism Management*, 50, 391–399. <https://doi.org/10.1016/j.jhtm.2022.01.004>
- World Travel & Tourism Council. (2021). *A net zero roadmap for travel & tourism: Proposing a new target framework for the travel & tourism sector*. <https://wttc.org>
- Yuedi, H., Sanagustín-Fons, V., Galiano Coronil, A., & Moseñe-Fierro, J. A. (2023). Analysis of tourism sustainability synthetic indicators: A case study of Aragon. *Heliyon*, 9(4), e15206. <https://doi.org/10.1016/j.heliyon.2023.e15206>
- Zhou, Z., Mehmood, S., Khan, A. A., Ahmad, Z., & Khan, S. (2022). Revival of sun-and-beach tourism through the lens of regulatory and risk dimensions of environmental sustainability. *Heliyon*, 8(10), e10893. <https://doi.org/10.1016/j.heliyon.2022.e10893>