ORIGINAL ARTICLE

Bali Tourism Journal (BTJ) 2025, Volume 9, Number 2, May-August: 45-49
P-ISSN. 2580-913X, E-ISSN. 2580-9148

Coastal Tourism Development and Sustainability: A Global and Indonesian Perspective

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ABSTRACT

Coastal tourism represents one of the fastest-growing segments of the global tourism industry, offering significant economic benefits while simultaneously intensifying environmental and social pressures. This study synthesizes global and Indonesian perspectives on the dynamics of coastal tourism development and sustainability, emphasizing the interplay between climate change, governance, and local community engagement. Using a qualitative synthesis approach, the research integrates findings from peer-reviewed studies, policy reports, and empirical case analyses. Key analytical frameworks, including the SWOT Analysis, Coastal Hazard Wheel (CHW), and Coastal Vulnerability Index (CVI) are examined to assess both environmental hazards and socio-economic dimensions of tourism development. Findings highlight that coastal destinations worldwide face "triple pressures" from mass tourism, climate-induced hazards, and infrastructure overdevelopment. In Indonesia, sites such as Loang Baloq Beach in Lombok illustrate the dual potential of heritage-based and community-driven coastal tourism when aligned with sustainable management principles. The study also explores the emerging concept of blue tourism, which integrates marine conservation with sustainable economic use under the national Blue Economy agenda. This model promotes participatory governance, ecosystem restoration, and low-carbon operations as pathways toward regenerative tourism. It argues that sustainable coastal tourism requires a multidimensional approach that combines scientific assessment tools, local wisdom, and cross-sectoral policy coordination. Such an integrated framework ensures resilience, enhances community welfare, and contributes to achieving the Sustainable Development Goals (SDGs), particularly those related to climate action and ocean sustainability.

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Received: 2025-05-16
Accepted: 2025-07-15
Published: 2025-08-22

Keywords: Coastal Tourism, Sustainability, Blue Economy, Climate Change Adaptation.
Cite This Article: Adnyawati, I.A.A. 2025. Coastal Tourism Development and Sustainability: A Global and Indonesian Perspective. *Bali Tourism Journal* 9(2): 45-49. DOI: 10.36675/btj.v9i2.134

BACKGROUND

Coastal tourism has expanded rapidly over the past decades and now represents a major segment of global tourism demand, delivering important socio-economic benefits (employment, foreign exchange, local entrepreneurship) while simultaneously placing mounting pressure on coastal ecosystems and services. Climate-driven changes such as sea-level rise, intensified storms, and ocean warming, combined with local stressors like urbanization, waste generation, and unregulated coastal infrastructure, amplify both physical and socio-economic vulnerability at many destinations.[1,2]

Empirical and modelling studies demonstrate multiple pathways through which tourism contributes to environmental degradation and creates feedback loops that reduce destination attractiveness. For instance, dynamic models linking visitor numbers, natural resource stocks, and pollution levels show how unchecked tourism growth can elevate contamination rates, decrease carrying capacity, and generate negative economic outcomes unless strict management interventions such as waste control and capacity limits are applied.[3] These findings underline that sustainable coastal tourism is not only an environmental concern but also an economic necessity.

At the destination scale, coastal hazard and vulnerability assessment tools increasingly inform management and adaptation decisions. Frameworks such as the Coastal Hazard Wheel (CHW) and the Coastal Vulnerability Index (CVI) provide standardized methods to categorize coastal systems and identify hazard-prone zones.[4,5] Applications of these tools have revealed complex risk mosaics within urban and rural coastal settings, emphasizing the importance of localized, risk-sensitive planning that integrates both environmental dynamics and tourism pressures.

Parallel to vulnerability diagnostics, the growing discourse on the blue economy and its tourism-focused subset, blue tourism, proposes governance models that reconcile marine conservation with sustainable economic development. Bibliometric studies reveal rising academic interest in linking ocean resource stewardship to tourism, yet they also show that research on coastal tourism within the blue economy remains limited, indicating a need for more operational and policy-driven frameworks.[6,7]

Local case studies from Indonesia illustrate these global dynamics at finer resolution. Analyses of destinations such as Loang Baloq Beach in Lombok and Tanjung Kelayang in Belitung integrate stakeholder surveys, SWOT-based planning, and visitor profiling to identify key opportunities such as cultural heritage,

accessibility, and community engagement, including to address persistent challenges, including waste management and limited infrastructure.[9,10] These site-specific studies underscore that contextually grounded strategies aligned with local heritage, community livelihoods, and national blue economy priorities, are essential to ensure resilience and long-term sustainability.

Taken together, global syntheses on climate–tourism linkages, environmental pollution models, coastal hazard assessments, blue-economy governance frameworks, and Indonesian case studies justify a multidimensional research approach. Integrating these perspectives allows for the development of coastal tourism strategies that balance economic growth with environmental integrity, advancing both global sustainability goals and Indonesia's coastal resilience agenda.

METHOD

This study adopts a qualitative synthesis approach to examine the dynamics of coastal tourism development and sustainability. A qualitative synthesis allows researchers to integrate findings from multiple studies, providing a comprehensive understanding of complex phenomena across different contexts.[11,12] Data were obtained from peer-reviewed journal articles, academic reports, and scientific publications focusing on coastal tourism management, climate adaptation, and sustainability frameworks. The synthesis process involved identifying, reviewing, and thematically analysing academic sources related to sustainable coastal tourism. The key analytical tools reviewed and discussed in this study include the SWOT Analysis, the Coastal Hazard Wheel (CHW), and the Coastal Vulnerability Index (CVI). These tools were selected due to their broad applicability in assessing both environmental and socio-economic dimensions of coastal systems.

SWOT Analysis

The SWOT (Strengths, Weaknesses, Opportunities, and Threats) framework is widely used in tourism research to assess internal and external factors influencing destination development.[13] It helps identify strategic priorities by balancing opportunities for tourism growth against potential environmental and social risks. In coastal tourism contexts, SWOT analysis provides insights into how local attractions can leverage cultural heritage and natural beauty while addressing environmental challenges such as erosion and pollution. This method was applied, for example, in evaluating Loang Baloq Beach in Lombok, Indonesia, to determine strategic directions for sustainable tourism development.[9]

Coastal Hazard Wheel (CHW)

The Coastal Hazard Wheel, developed by Appelquist (2013), is a universal coastal classification and management framework used to assess multi-hazards such as erosion, inundation, and seawater intrusion. It provides a standardized approach to categorize coastal environments based on geomorphology, wave exposure, and ecological resilience.[14,15] CHW has been successfully applied in hazard mapping for urban coastal regions, such as Denpasar, Bali, where it aids in identifying zones vulnerable to sea-level rise and human-induced coastal change.[16] This tool supports adaptive management by integrating both environmental and socio-economic data for sustainable planning.

Coastal Vulnerability Index (CVI)

The Coastal Vulnerability Index is a quantitative tool designed to evaluate the relative susceptibility of coastlines to physical hazards, combining factors such as geomorphology, wave climate, tidal range, and sea-level rise.[17,18] It provides a systematic basis for prioritizing disaster mitigation and coastal management strategies. In Indonesia, the CVI framework has been utilized to assess tourism areas along the Gunungkidul coast of Yogyakarta, revealing variations in vulnerability according to geomorphological and hydrodynamic characteristics.[19] By combining these analytical approaches, this study integrates environmental assessment with strategic management perspectives. This multi-method synthesis enables a cross-comparison between global and Indonesian case studies, revealing both universal trends, such as the growing vulnerability of coastal destinations to climate change and site-specific challenges, including differing governance capacities, community participation, and adaptation practices.

DISCUSSION

The dynamics of coastal tourism development worldwide reflect both economic opportunities and sustainability challenges. In European destinations such as the Algarve, Portugal, rapid tourism growth has resulted in severe ecosystem degradation, overcrowding, and a decline in local environmental quality.[20] The Bath Area Registration and Evaluation (BARE) method and importance, performance (I–P) analysis have shown that tourist satisfaction often exceeds environmental concern, signaling a management gap in maintaining ecological integrity.[21] The imbalance between visitor demand and carrying capacity underscores the need for effective environmental governance, particularly in litter control, sanitation, and vegetation restoration.

Globally, coastal destinations face a "triple pressure" from mass tourism, climate change, and infrastructure overdevelopment. Research by Hall (2021) highlights that poorly managed tourism intensifies coastal erosion, disrupts marine biodiversity, and reduces community resilience. The Mediterranean and Caribbean regions, for example, have seen beach loss due to sea-level rise and unsustainable shoreline modification.[22]

In Nigeria, a mathematical model developed by Metilelu et al. (2022) demonstrated that pollution from tourist activities significantly contributes to resource depletion and environmental contamination. The model emphasized the importance of maintaining tourism's ecological carrying capacity a threshold beyond which ecosystems can no longer recover. This aligns with the principles of adaptive management proposed by Gössling and Hall (2019), advocating continuous monitoring and policy flexibility to prevent irreversible degradation.[23,24] Similarly, in coastal regions of Thailand and the Philippines, tourism's economic success has come at the expense of coral reef damage and declining fisheries. These global experiences collectively underline the urgency for

integrated coastal zone management (ICZM), community participation, and sustainable infrastructure investment as foundational tools for long-term coastal tourism resilience.

The Indonesian Experience

Indonesia presents a microcosm of global coastal tourism dynamics, marked by vast geographical diversity, deep cultural heritage, and growing environmental vulnerability. With approximately 81,000 kilometers of coastline, one of the longest in the world, Indonesia holds immense potential for tourism development but also faces substantial exposure to climate-related threats such as coastal erosion, tidal inundation, mangrove degradation, and coral reef loss.[26] These challenges mirror the global paradox of coastal tourism: the same natural beauty that attracts visitors is increasingly jeopardized by unplanned growth, environmental neglect, and climate change impacts.[26]

Situated in Kelurahan Tanjung Karang, Mataram City, Loang Baloq Beach exemplifies how coastal destinations can integrate natural, cultural, and religious elements into a distinctive tourism identity. The term Loang Baloq—derived from the Sasak words loang (hole) and baloq (ancestor or crocodile)—reflects both mythological and spiritual dimensions rooted in local tradition. The beach is not only a recreational site but also a pilgrimage destination, hosting the tomb of Syeikh Gauz Abdurrazak, an influential Islamic scholar who played a pivotal role in the spread of Islam in Lombok. This dual function highlights Indonesia's growing niche in religious and heritage-based coastal tourism, where spiritual narratives complement natural landscapes.[27,28]

From a tourism management perspective, Loang Baloq fulfills the "4A" framework of Attraction, Accessibility, Amenities, and Ancillary Services.[29]

- Attraction: The site offers diverse experiences including sightseeing, beach sports, cultural performances, and culinary tourism rooted in Sasak cuisine.
- Accessibility: Located near Mataram's urban core, it is easily reachable through conventional and digital transport services.
- Amenities: Facilities such as food stalls, toilets, rest areas, and local craft markets enhance comfort and local economic participation.
- Ancillary Services: Community engagement in beach management, religious ceremonies, and waste collection fosters stewardship and supports sustainable practices.[30]

A SWOT analysis conducted by Nugroho et al. (2022) identified Loang Baloq's primary strengths as its cultural authenticity, strategic location, and strong community attachment. However, weaknesses included inadequate waste management, shoreline erosion, and limited environmental monitoring. The study proposed an S–O (Strength–Opportunity) growth strategy that emphasizes heritage-based branding, community capacity building, and investment in eco-friendly infrastructure. Such an approach aligns with the principles of community-based tourism (CBT), which prioritize local empowerment and ecological responsibility.[31]

The Loang Baloq case also underscores the interdependence between social capital and environmental sustainability. Local participation not only ensures the continuity of cultural practices but also strengthens adaptive management in response to ecological threats such as erosion and sea-level rise.[32] Integrating indigenous knowledge with scientific coastal management, such as the use of the Coastal Vulnerability Index (CVI) or Coastal Hazard Wheel (CHW) frameworks, could further enhance resilience.[33]

At a broader level, Loang Baloq reflects the "blue tourism" paradigm emerging in Indonesia's maritime policy discourse. Blue tourism links marine conservation with sustainable economic use, encouraging harmony between tourism growth and ocean stewardship. This model envisions coastal areas not merely as economic assets but as ecological commons, requiring collaborative governance that integrates local communities, private stakeholders, and government agencies.[30,34] By embracing blue economy principles, such as low-carbon operations, waste reduction, and participatory planning, destinations like Loang Baloq can evolve into living laboratories for sustainable coastal tourism. In doing so, they contribute both to local prosperity and to Indonesia's broader commitment to achieving the Sustainable Development Goals (SDGs), particularly SDG 14 (Life Below Water) and SDG 8 (Decent Work and Economic Growth).

Visitor Characteristics and Socio-Economic Impact

Survey data from 253 respondents show that Loang Baloq attracts predominantly young and educated local tourists, reflecting a shift toward experience-based tourism in Indonesia's domestic market. However, the COVID-19 pandemic severely impacted small and medium enterprises (SMEs) in the area, with 77.9% reporting decreased income and increased operational costs. This mirrors findings by Prayag (2024), who notes that post-pandemic recovery in tourism depends on local entrepreneurship, digital adaptation, and destination resilience planning. Despite economic setbacks, local entrepreneurs at Loang Baloq demonstrated adaptive capacity through product diversification and stronger social capital, reinforcing the significance of community empowerment in sustaining coastal economies.[35]

Beyond Lombok, coastal destinations such as Tanjung Kelayang in Belitung and Denpasar in Bali highlight similar tensions between economic expansion and environmental vulnerability. Hengky and Kikvidze (2020) found that in Tanjung Kelayang's Special Economic Zone, socio-economic benefits were prioritized over ecological concerns, suggesting the need for policy realignment toward green and inclusive growth. In Denpasar, a Coastal Hazard Wheel (CHW) analysis revealed increasing multi-hazards, including erosion, inundation, and seawater intrusion, primarily driven by urban development. Collectively, these cases demonstrate Indonesia's urgent need to adopt integrated coastal governance, linking local wisdom with scientific tools to achieve sustainable and resilient tourism. Recent studies emphasize that successful coastal management in Indonesia depends on intersectoral coordination among tourism, environment, and marine.

The Blue Tourism Framework

The concept of blue tourism represents a paradigm shift toward viewing marine and coastal areas as living systems rather than extractive spaces. Rooted in the blue economy approach, it integrates ecological conservation with economic and social objectives (Kabil et al., 2021). According to Supriyanto (2022), blue tourism emphasizes sustainable governance, stakeholder collaboration, and ecosystem restoration as the foundation for long-term tourism resilience.

In Indonesia, blue tourism has gained traction as part of the government's broader "Ekonomi Biru" (Blue Economy) agenda, aiming to harmonize marine conservation and tourism productivity (KKP, 2023). Its core principles include circular resource use, renewable energy integration, and education-driven awareness among coastal communities. By embedding these principles into destination planning, Indonesia can transition from exploitative tourism to regenerative tourism, ensuring that coastal ecosystems regenerate faster than they are consumed.

This approach reframes marine ecosystems as active partners in economic development essential to food security, climate regulation, and cultural identity. As noted by Ghozali et al. (2023), blue tourism's success relies on multi-stakeholder governance, integrating local communities, academia, and policymakers to ensure equitable and sustainable benefits. Thus, blue tourism not only promotes conservation but also fosters social inclusion and long-term prosperity for coastal populations.

CONCLUSION

Coastal tourism stands at the intersection of opportunity and vulnerability, serving as a major economic driver while simultaneously facing mounting environmental and socio-economic pressures. The synthesis of global and Indonesian perspectives in this study reveals that unregulated tourism growth, climate change, and inadequate governance collectively threaten the sustainability of coastal destinations. Tools such as the SWOT analysis, Coastal Hazard Wheel (CHW), and Coastal Vulnerability Index (CVI) have proven essential for identifying risks and guiding adaptive management strategies.

Empirical evidence from Indonesia, particularly at destinations like Loang Baloq Beach, demonstrates that community-based approaches and heritage-driven development can enhance resilience when aligned with scientific assessments and participatory governance. These findings reinforce that sustainable coastal tourism requires not only environmental preservation but also active social inclusion, capacity building, and policy coherence across sectors.

The emerging blue tourism framework offers a transformative pathway by embedding ecological restoration and circular economy principles into coastal development. By integrating local wisdom, technological innovation, and stakeholder collaboration, Indonesia, and other coastal nations, can advance toward regenerative models of tourism that protect marine ecosystems while sustaining livelihoods. Ultimately, the future of coastal tourism depends on balancing economic growth with ecological integrity, ensuring that coastal areas remain both vibrant destinations and resilient habitats in the face of a changing climate.

REFERENCES

1. Arabadzhyan, A., Lam-González, Y. E., Figini, P., García, C., & León, C. J. (2020). Climate change, coastal tourism, and impact chains: A literature review. Tourism Review, 75(4), 902–918. https://doi.org/10.1108/TR-05-2020-0222
2. United Nations World Tourism Organization (UNWTO). (2023). Tourism and climate action: Towards a net zero pathway. UNWTO. https://www.unwto.org/
3. Metilelu, O. O., Adeniyi, M. O., & Ekum, M. I. (2022). Modeling the dynamic effect of environmental pollution on coastal tourism in Nigeria. Environmental Science and Policy, 137, 112–124.
4. Widantara, K. W., & Mutaqin, B. W. (2024). Coastal hazards and multi-hazard assessment in Denpasar, Indonesia. Natural Hazards, 117(2), 1139–1156. https://doi.org/10.1007/s11069-024-06506-3
5. Widura, E., & Mardiatno, D. (2021). Assessment of the Coastal Vulnerability Index (CVI) for disaster mitigation strategies in coastal tourism areas in Gunungkidul, Yogyakarta, Indonesia. IOP Conference Series: Earth and Environmental Science, 749(1), 012002.
6. Kabil, M., Priatmoko, S., Magda, R., & Dávid, L. D. (2021). Blue economy and coastal tourism: A comprehensive visualization bibliometric analysis. Sustainability, 13(7), 3650. https://doi.org/10.3390/su13073650
7. Supriyanto, E. E. (2022). Blue tourism: Treating marine ecosystems and increasing the potential of maritime tourism in Indonesia. Journal of Maritime Studies, 4(2), 45–57.
8. Gambar 1
9. Nugroho, M. S., Mas'ud, R., Khalik, W., Fahdiansyah, R., Azizoma, R., Romdhini, M. U., & Aminy, M. M. (2022). Coastal tourism: Development strategy of Loang Baloq Beach in Lombok Island, Indonesia. ASERS Publishing.
10. Hengky, S. H., & Kikvidze, Z. (2020). Sustainable coastal tourism in Tanjung Kelayang, Indonesia. Tourism Planning & Development, 17(3), 365–370. https://doi.org/10.1080/21568316.2020.1763444
11. Bearman, M., & Dawson, P. (2013). Qualitative synthesis and systematic review in health professions education. Medical Education, 47(3), 252–260. https://doi.org/10.1111/medu.12092
12. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
13. Gürel, E., & Tat, M. (2017). SWOT analysis: A theoretical review. Journal of International Social Research, 10(51), 994–1006.
14. Appelquist, L. (2013). Coastal Hazard Wheel System: A universal coastal classification and management framework. Journal of Coastal Conservation, 17(1), 65–88. https://doi.org/10.1007/s11852-012-0223-3
15. Appelquist, L., & Balstrøm, T. (2014). Application of the Coastal Hazard Wheel in multi-hazard assessment and management. Ocean & Coastal Management, 87, 1-12. https://doi.org/10.1016/j.ocecoaman.2013.10.020
16. Widantara, K. W., & Mutaqin, B. W. (2024). Coastal hazards and multi-hazard assessment in Denpasar, Indonesia. Natural Hazards, 117(2), 1139–1156.
17. Gornitz, V. (1991). Global coastal hazards from future sea level rise. Palaeogeography, Palaeoclimatology, Palaeoecology, 89(4), 379–398. https://doi.org/10.1016/0031-0182(91)90173-O
18. Pendleton, E. A., Thieler, E. R., & Williams, S. J. (2005). Coastal Vulnerability Index (CVI): Assessing vulnerability to sea-level rise. U.S. Geological Survey Open-File Report 2005–1147.
19. Widura, E., & Mardiatno, D. (2021). Assessment of the Coastal Vulnerability Index (CVI) for disaster mitigation strategies in coastal tourism areas in Gunungkidul, Yogyakarta, Indonesia. IOP Conference Series: Earth and Environmental Science, 749(1), 012002.
20. Bursa, B., Mailer, M., & Axhausen, K. W. (2022). *Intra-destination travel behavior of alpine tourists: A literature review on choice determinants. Journal of Sustainable Tourism.*
21. Lucrezi, S., Saayman, M., & Van der Merwe, P. (2016). An assessment tool for sandy beaches: A case study for integrating beach description, human dimension, and economic factors to identify priority management issues. *Ocean & coastal management*, *121*, 1-22.

22. Alam, S., Manzur, T., Borquist, E., Williams, J., Rogers, C., Hall, D., ... & Matthews, J. (2021). In-situ assessment of soil-root bonding strength to aid in preventing soil erosion. *Soil and Tillage Research*, *213*, 105140.
23. Metilelu, O. O., Adeniyi, M. O., & Ekum, M. I. (2022). *Modeling the dynamic effect of environmental pollution on coastal tourism in Nigeria. Environmental Science and Policy, 137*, 112–124. Nugroho, M. S., Mas'ud, R., Khalik, W., Fahdiansyah, R., Azizoma, R., Romdhini, M. U., & Aminy, M. M. (2022). *Coastal tourism: Development strategy of Loang Baloq Beach in Lombok Island, Indonesia. ASERS*
24. Gössling, S., & Michael Hall, C. (2019). Sharing versus collaborative economy: how to align ICT developments and the SDGs in tourism?. *Journal of Sustainable Tourism*, *27*(1), 74-96.
25. Roisah, K., Rahayu, R., Yusliwidaka, A., Mubarok, Z., & Buditama, A. (2023). Legal Development in the Overcoming Overfishing in Indonesian Coastal Areas. *JILS*, *8*, 1065.
26. Arabadzhyan, A., Lam-González, Y. E., Figini, P., García, C., & León, C. J. (2020). *Climate change, coastal tourism, and impact chains–A literature review. Tourism Review, 75*(4), 902–918.
27. Nugroho, M. S., Mas'ud, R., Khalik, W., Fahdiansyah, R., Azizoma, R., Romdhini, M. U., & Aminy, M. M. (2022). Coastal tourism: Development strategy of Loang Baloq Beach in Lombok Island, Indonesia. ASERS Publishing.
28. Udin, M. S., & Hakim, L. (2020). The fuzzy sacredness aura and cyber-based da'wah: redrawing karamah of tuan guru within the belief system of Sasak muslims. *Journal of Indonesian Islam*, *14*(2),
29. Cooper, C. (2022). Essentials of tourism. 457-476.
30. Supriyanto, E. E. (2022). *Blue tourism: Treating marine ecosystems and increasing the potential of maritime tourism in Indonesia. Journal of Maritime Studies, 4*(2), 45–57.
31. Putra, B. K., Azizah, N., Izzati, I., Laili, Y. N., Aini, D., Maulana, A., ... & Saputra, S. A. (2024). Mekarsari village towards sustainable tourism village: A literature review. *Environmental, Social, Governance and Sustainable Business*, *1*(2), 130-146.
32. Widura, E., & Mardiatno, D. (2021). *Assessment of the Coastal Vulnerability Index (CVI) for disaster mitigation strategies in coastal tourism areas in Gunungkidul, Yogyakarta, Indonesia. IOP Conference Series: Earth and Environmental Science, 749*(1), 012002.
33. Widantara, K. W., & Mutaqin, B. W. (2024). *Coastal hazards and multi-hazard assessment in Denpasar, Indonesia. Natural Hazards, 117*(2), 1139–1156.
34. Kabil, M., Priatmoko, S., Magda, R., & Dávid, L. D. (2021). *Blue economy and coastal tourism: A comprehensive visualization bibliometric analysis. Sustainability, 13*(7), 3650. https://doi.org/10.3390/su13073650
35. Prayag, G., Jiang, Y., Chowdhury, M., Hossain, M. I., & Akter, N. (2024). Building dynamic capabilities and organizational resilience in tourism firms during COVID-19: A staged approach. *Journal of Travel Research*, *63*(3), 713-740.