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## Interrogating Community Readiness in Advancing Sustainable Marine Tourism: Critical Insights from the Mandeh Coastal Region

## Interrogando la Preparación de la Comunidad para Avanzar en el Turismo Marino Sostenible: Perspectivas Críticas de la Región Costera de Mandeh

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### ABSTRACT

The success of sustainable tourism in marine tourism areas is highly dependent on the readiness of local communities. This study aims to analyse the level of community readiness in promoting sustainable marine tourism in the Mandeh Coastal Area, West Sumatra, one of the priority marine destinations in the Indonesian National Tourism Master Plan (RIPPNAS). A qualitative approach was used based on the Community Readiness Model, integrating data with thematic analysis processed using N-vivo. Informants were selected through purposive sampling, including Hexa-helix actors: community, government, business, academia, NGOs and media. The findings confirm that community readiness in the Mandeh coastal area is at a promising early stage, but not yet fully optimised. To realise sustainable marine tourism, there is a need for strategic interventions that focus on increasing community literacy, strengthening local institutional capacity, and facilitating resources by various parties through a collaborative approach. Despite the strong potential of natural and cultural resources, the main challenge lies in community empowerment and integration of roles among stakeholders. The findings provide strategic implications for more inclusive and sustainable tourism development through a community readiness-based approach.

**Keywords:** Community Readiness; Sustainable Tourism; Marine Tourism; Mandeh Coastal Region; Local Engagement; Hexa-helix.

### RESUMEN

El éxito del turismo sostenible en las zonas turísticas marítimas depende en gran medida de la preparación de las comunidades locales. El objetivo de este estudio es analizar el nivel de preparación de la comunidad para promover el turismo marítimo sostenible en la zona costera de Mandeh, en Sumatra Occidental, uno de los destinos marítimos prioritarios del Plan Maestro Nacional de Turismo de Indonesia (RIPPNAS). Se utilizó un enfoque cualitativo basado en el Modelo de Preparación de la Comunidad, integrando los datos con un análisis temático procesado mediante N-vivo. Los informantes fueron seleccionados mediante un muestreo intencional, incluyendo actores de la hexa-hélice: comunidad, gobierno, empresas, academia, ONG y medios

de comunicación. Los resultados confirman que la preparación de la comunidad en la zona costera de Mandeh se encuentra en una fase inicial prometedora, pero aún no está totalmente optimizada. Para hacer realidad el turismo marítimo sostenible, es necesario llevar a cabo intervenciones estratégicas que se centren en aumentar la alfabetización de la comunidad, reforzar la capacidad institucional local y facilitar los recursos de las distintas partes mediante un enfoque colaborativo. A pesar del gran potencial de los recursos naturales y culturales, el principal reto radica en el empoderamiento de la comunidad y la integración de las funciones entre las partes interesadas. Los resultados proporcionan implicaciones estratégicas para un desarrollo turístico más inclusivo y sostenible a través de un enfoque basado en la preparación de la comunidad.

**Palabras clave:** Preparación de la Comunidad; Turismo Sostenible; Turismo Marítimo; Región Costera de Mandeh; Participación Local; Hexahélice.

## INTRODUCTION

Sustainable tourism has become an integral part of the global agenda, as set out in the 2030 Sustainable Development Goals (SDGs). This is particularly evident in goals related to inclusive and sustainable economic growth, responsible consumption and production, and the conservation of marine life.<sup>(1)</sup> The tourism sector, including marine tourism, is experiencing significant growth and is recognised as having the potential to support economic development, environmental conservation and the strengthening of local culture.<sup>(2)</sup> In Indonesia, for example, coastal and marine areas play an important role in national development, and the Mandeh Marine Tourism Area in West Sumatra is one destination that has been developed to support this goal.<sup>(3)</sup> However, efforts to implement sustainability principles are often overshadowed by ecological, social and institutional challenges.<sup>(4)</sup> In this context, local community readiness is one of the factors that can most significantly impact the success of sustainable tourism development in coastal areas.<sup>(5)</sup>

Although the importance of local community involvement in tourism development is widely recognised in literature, most studies focus on community participation, empowerment or perceptions without sufficiently considering the extent to which communities are ready to adopt sustainable practices. The Community Readiness Model, developed by the Tri-Ethnic Centre for Prevention Research, offers a conceptual and practical approach to assessing community readiness. However, its use in marine tourism, particularly in Indonesia's coastal areas, remains limited.<sup>(6,7)</sup> This suggests the need for a more in-depth exploration of the social, cultural, economic, and institutional factors influencing community readiness to sustainably manage tourist destinations.<sup>(8,9)</sup>

Building on the explanation of the previous context, this research specifically aims to critically examine the level of readiness of local communities to support the implementation of sustainable marine tourism in the Mandeh Tourism Area in West Sumatra. In this context, community readiness is understood as a multidimensional condition encompassing collective awareness, knowledge, attitudes, capacity and institutional support for tourism development in line with sustainability principles.<sup>(1,10,11)</sup> This approach considers not only community participation in tourism activities, but also evaluates the extent to which local social and cultural structures support or hinder the adoption of sustainable practices at the site level.<sup>(9)</sup> The research aims to explore the internal dynamics of the community, including perceptions, local leadership, levels of trust between stakeholders and access to resources, all of which play a role in determining the success of community-based development interventions.<sup>(12,13,14)</sup> This will address the question of the extent to which local communities in the Mandeh Tourism Area are adequately prepared to actively, strategically and sustainably participate in the development of environmentally and socially sound marine tourism. By answering these questions, this study is expected to make a significant contribution to community-based tourism literature, particularly with regard to measuring community readiness as an analytical instrument in sustainable tourism development planning. In addition to theoretical contributions, the results of this study are intended to serve as a practical reference for stakeholders – including government, non-governmental organisations (NGOs), and tourism industry players – when designing policies, intervention programmes, and governance models for marine tourism destinations that are more inclusive, participatory, and resilient to environmental and social pressures. Thus, a community-readiness-based approach can form the foundation for developing an equitable, sustainable, long-term marine tourism ecosystem.

## Sustainable Marine Tourism and Its Socio-Ecological Foundations

Sustainable marine tourism has emerged as a critical approach to balancing ecological preservation and socio-economic development in coastal regions. It emphasizes the minimization of environmental degradation while promoting inclusive community participation and long-term economic viability.<sup>(15,16,17,18)</sup> Marine tourism is particularly sensitive to environmental changes, and thus, its development must consider the carrying capacity of local ecosystems, the integration of conservation strategies, and the respect for local cultural heritage [x]. This aligns with the principles of sustainable tourism outlined in the UN Sustainable Development Goals (SDGs), particularly Goals 8, 12, and 14, which emphasize sustainable economic growth, responsible consumption, and conservation of life below water.<sup>(19,20,21,22)</sup>

### The Concept of Community Readiness in Tourism Development

Community readiness refers to the extent to which a community is prepared and equipped—socially, economically, and institutionally—to engage in and benefit from tourism development. It encompasses dimensions such as awareness, knowledge, leadership, stakeholder collaboration, resource availability, and organizational capacity.<sup>(23,24,25,26)</sup> The level of readiness often determines whether a tourism initiative will be sustainable and inclusive, or exploitative and unsustainable.<sup>(27,28,29,30,31)</sup> Several models have been developed to assess community readiness, including the Community Readiness Model (CRM), which evaluates stages from “no awareness” to “professionalization” of community-driven action [x]. Understanding the readiness level is particularly important in regions with ecological sensitivity and socio-political complexity, such as coastal and marine environments.<sup>(32,33,34,35)</sup>

### Challenges and Supporting Factors for Community Readiness in Coastal Areas

Community readiness in coastal areas to support sustainable marine tourism faces multifaceted challenges and is influenced by various enabling factors. Key obstacles commonly reported include limited local capacity in terms of knowledge and skills, inadequate financial resources, and weak institutional frameworks that hamper effective stakeholder coordination and governance.<sup>(36,37,38,39,40,41)</sup> Environmental degradation and socio-political conflicts further complicate community engagement, reducing motivation and trust among local actors.<sup>(42,43,44,45,46,47)</sup> Conversely, supportive factors that enhance readiness often involve strong social cohesion, traditional ecological knowledge, and inclusive leadership that fosters participation and collective action.<sup>(48,49,50,51,52)</sup> Governmental policies that promote decentralization and provide capacity-building programs are also critical enablers, as they facilitate community empowerment and access to necessary resources.<sup>(53,54,55,56,57)</sup> Studies underscore that bridging these gaps requires integrated approaches combining education, infrastructure development, and multi-level governance to create resilient coastal communities prepared for sustainable tourism challenges.<sup>(58,59,60,61,62,63)</sup> Understanding the interplay between these barriers and supports is vital for designing context-sensitive strategies that promote both ecological conservation and socio-economic wellbeing.<sup>(64,65,66,67,68,69)</sup>

## METHOD

### Research Design

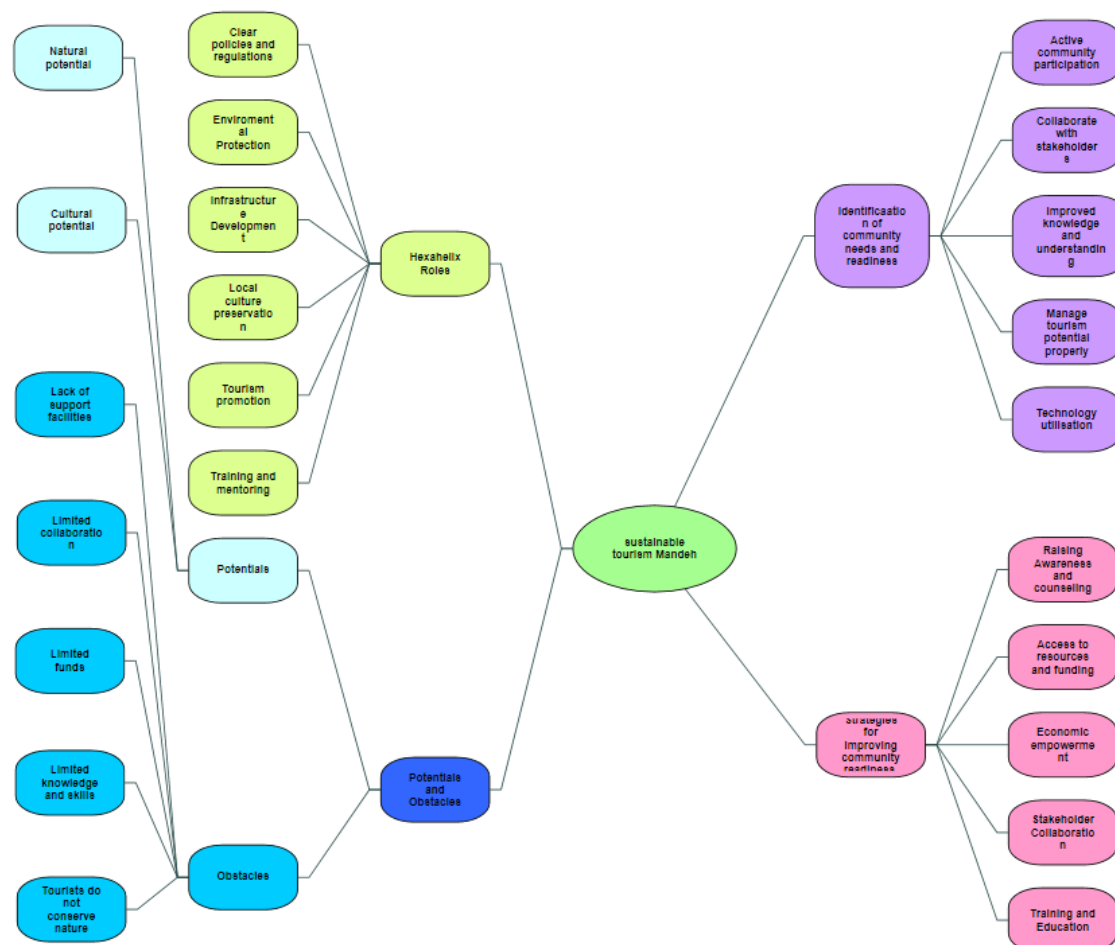


Figure 1. Sustainable tourism Mandeh mind map

This study employed a qualitative case study approach to critically assess the level of community readiness in supporting sustainable marine tourism within the Mandeh Coastal Region, located in West Sumatra, Indonesia. The case study method was selected to allow an in-depth exploration of contextual, cultural, and institutional dynamics that shape the local community's preparedness for sustainable tourism practices.

### Study Area

The research was conducted in the Mandeh Tourism Area, a coastal region encompassing multiple villages within Pesisir Selatan Regency. This area has been designated as a priority destination under Indonesia's national tourism development plan due to its ecological richness, cultural diversity, and growing tourism potential. However, the region also faces complex environmental and socio-political challenges that make it an ideal site for interrogating community readiness in tourism governance.

### Data Collection

Data were collected between May and August 2024 through three primary methods: In-depth interviews were conducted with key stakeholders, including local community leaders, customary (adat) figures, tourism entrepreneurs, local government officials, and NGO representatives. A semi-structured interview guide was used to ensure thematic consistency while allowing flexibility to explore emerging issues. Document analysis was performed on local tourism development plans, community-based tourism reports, environmental assessments, and village regulations relevant to tourism and coastal management.<sup>(19)</sup>

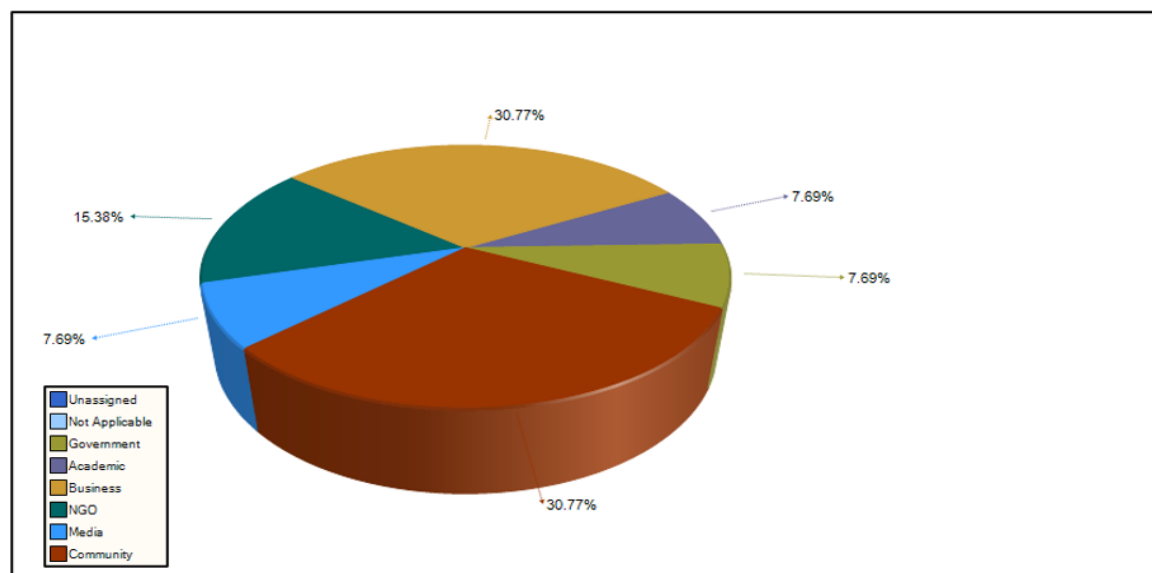


Figure 2. Informant Hexa-helix

### Analytical Framework

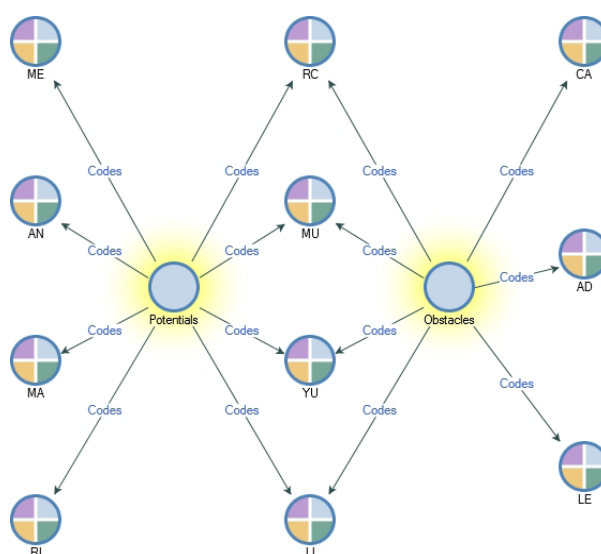


Figure 3. analytical framework base on CRM model analyzed by N-Vivo: comparison diagram

The data were analyzed using the Community Readiness Model (CRM) by Plested 2009 and developed by the Tri-Ethnic Center for Prevention Research 2014. The CRM comprises five key dimensions: (1) Community Knowledge of the Issue, (2) Community Efforts, (3) Leadership, (4) Community Climate/Problem Existence, and (5) Resources. Each dimension was assessed qualitatively and comparatively. A thematic analysis technique was applied to code and categorize the qualitative data, using both inductive and deductive approaches. NVivo 12 software was utilized to manage the data and ensure consistency in coding procedures.

## RESULTS

### Identification of Community Needs and Readiness

The identification of community needs and readiness emerged as a pivotal foundation in shaping inclusive and sustainable marine tourism development in the Mandeh Coastal Region. As illustrated in figure 4, the process of recognizing local needs and assessing readiness serves as an entry point for fostering active community participation and promoting effective collaboration with relevant stakeholders. These engagements subsequently enhance collective knowledge and understanding, forming the basis for more informed decision-making at the grassroots level.

Figure 4 illustrates the critical role of identifying community needs and readiness as a foundational step in achieving sustainable tourism development. This central element is directly linked to six strategic components: managing tourism potential properly, utilizing technology, encouraging active community participation, fostering collaboration with stakeholders, improving knowledge and understanding, and integrating community insights into planning processes. The model emphasizes that accurate identification of local capacities, limitations, and aspirations enables more inclusive, context-specific strategies. By addressing these interconnected dimensions, communities are better positioned to engage in tourism development initiatives that are sustainable, equitable, and aligned with long-term socio-environmental goals

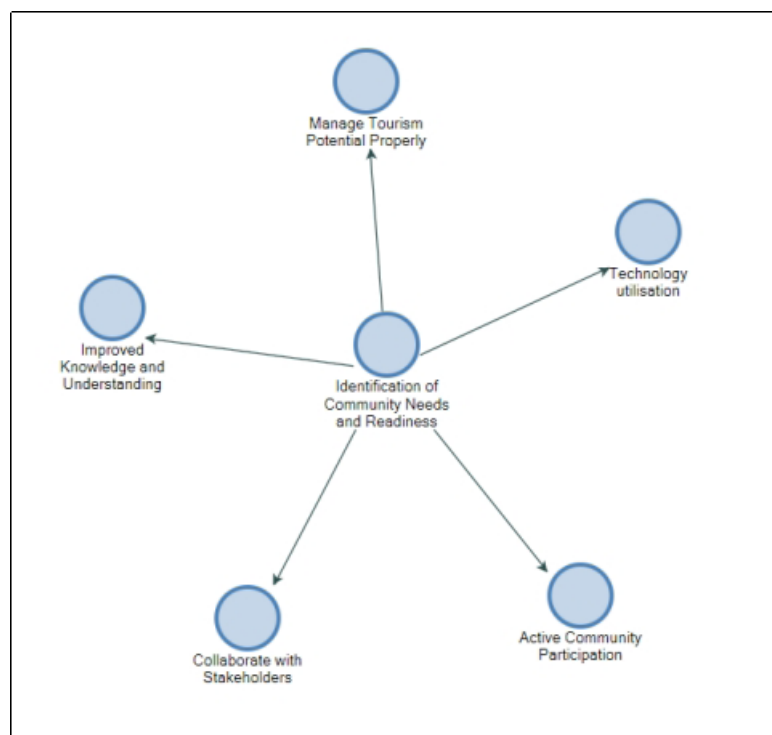


Figure 4. Project map of community readiness

Figure 4 presents the distribution of thematic coding by informants across the six Hexahelix stakeholder groups: government, academia, business, NGOs, media, and community. The stacked bar chart illustrates the relative emphasis placed on five key themes—active community participation, stakeholder collaboration, improved knowledge and understanding, proper management of tourism potential, and technology utilisation. Notably, the community group exhibits the highest overall percentage coverage, indicating a dominant engagement in all five domains, particularly in knowledge enhancement and technology adoption. This pattern suggests that communities are not only central to tourism development initiatives but also possess significant experiential insight and adaptive potential. In contrast, academic and government actors show more limited thematic diversity, highlighting a potential gap in participatory and integrative roles. The findings emphasize the need for balanced and inclusive stakeholder engagement to support sustainable and context-sensitive tourism strategies.

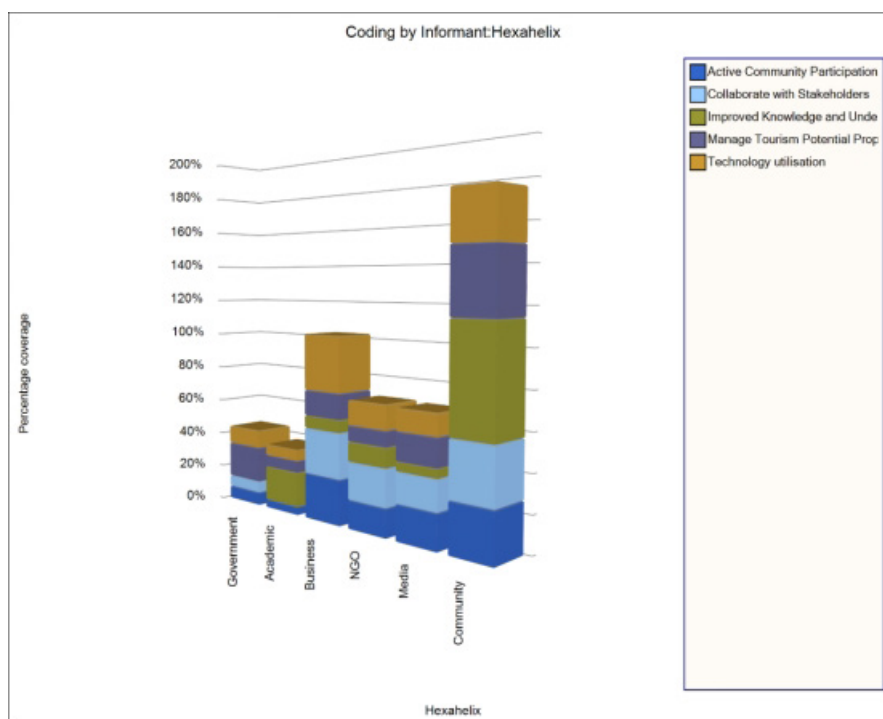


Figure 5. Percentage coverage of Hexa-helix Mandeh

### Community Perceptions of Potentials and Obstacles

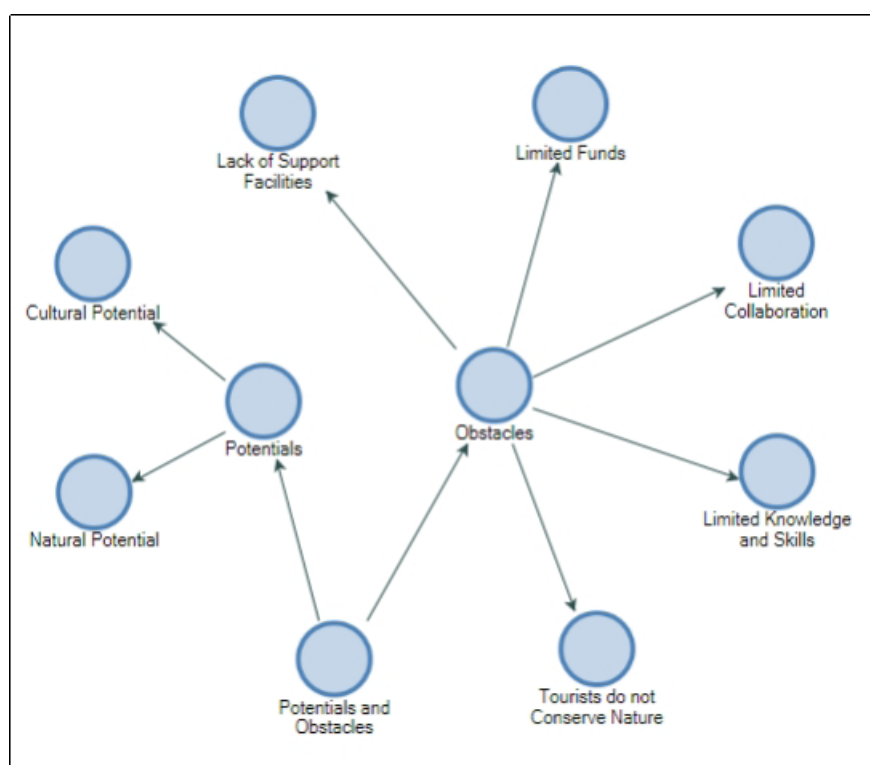


Figure 6. Potential and Obstacles in Mandeh

### Role and Support of Hexa-helix on Community Readiness

The implementation of the Hexa-helix model—encompassing collaboration between government, academia, industry, media, NGO, and the local community—has been pivotal in accelerating community readiness for sustainable marine tourism in the *Mandeh* Coastal Region.<sup>(70)</sup> This integrated framework has enabled multidimensional support such as tourism promotion, which increased destination visibility and diversified local market opportunities through strategic media and digital engagement.<sup>(27,28)</sup> Training and mentoring programs,



spearheaded by academic institutions and NGOs, have enhanced local capacity in hospitality, conservation, and entrepreneurship, equipping communities with the skills needed to manage tourism sustainably.<sup>(29)</sup> Furthermore, the development of clear policies and regulations by local government actors has provided a more structured and legally supportive ecosystem for tourism activities.<sup>(30)</sup> Environmental protection initiatives, including coral reef monitoring and coastal cleanups, have been implemented collaboratively, reinforcing ecological sustainability.<sup>(31)</sup> Infrastructure development, such as road access and clean water systems, has advanced through public-private partnerships, improving tourist satisfaction and community welfare.<sup>(32)</sup> At the same time, community leaders and cultural stakeholders have ensured that local culture is preserved and valorized within tourism offerings, allowing heritage-based tourism to flourish.<sup>(33)</sup> These intersectoral contributions exemplify how the Hexahelix model can foster systemic readiness and resilience in communities situated within emerging coastal tourism destinations.

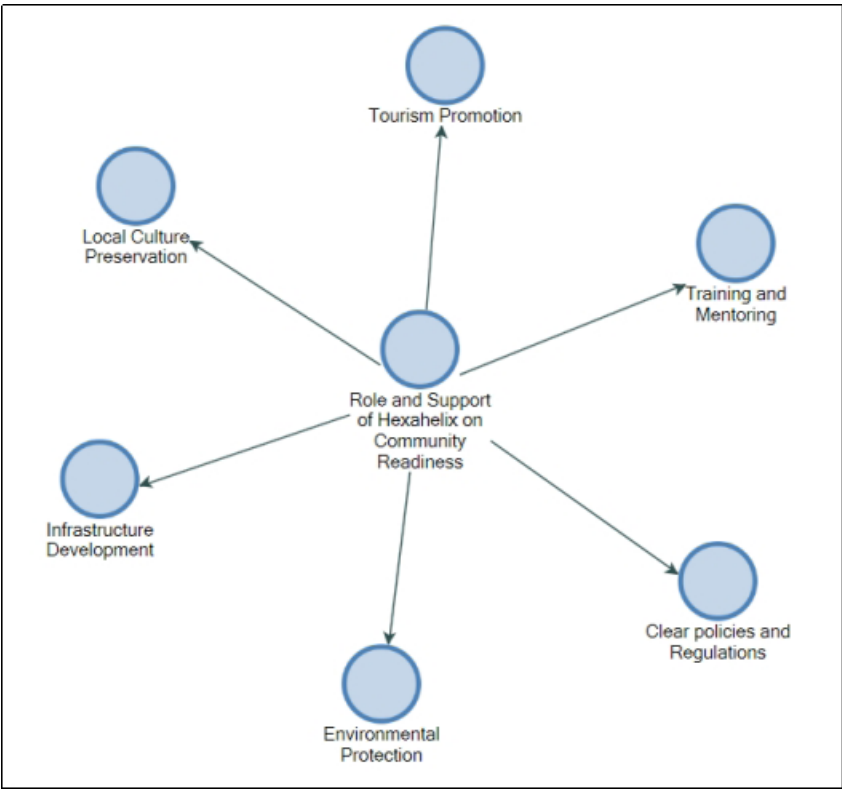


Figure 7. Roles of Hexahelix

In the context of community-based tourism development, the role and support of the Hexahelix model are essential in fostering comprehensive community readiness.<sup>(24)</sup> This model, which involves collaboration among six key actors—government, academia, business sectors, civil society, media, and community groups—functions as a multidimensional framework that enables communities to respond effectively to tourism-driven transformation. As illustrated in figure 1, the central axis of this model is connected to six strategic components: tourism promotion, training and mentoring, clear policies and regulations, environmental protection, infrastructure development, and local culture preservation. Each component reflects a critical dimension of community empowerment. Tourism promotion enhances the visibility and competitiveness of local destinations, while training and mentoring initiatives contribute to capacity building and knowledge transfer. The establishment of clear policies and regulations ensures legal certainty and transparent governance, whereas environmental protection maintains the ecological balance necessary for sustainable development. Infrastructure development strengthens accessibility and public services that support tourism growth, and the preservation of local culture safeguards community identity and heritage. Collectively, these interlinked domains demonstrate how the Hexahelix model facilitates inclusive, participatory, and sustainable tourism practices.

In the Mandeh coastal region, the application of the Hexahelix collaboration model—integrating government, academia, industry, media, non-governmental organizations (NGOs), and the local community—has been instrumental in bolstering community readiness for sustainable marine tourism. Government initiatives have focused on infrastructure development and policy formulation to support tourism growth.<sup>(30,37,42,48)</sup> Academic institutions have contributed through research and capacity-building programs aimed at enhancing local competencies in tourism management.<sup>(34,35,36,39)</sup> The industry sector has engaged in developing tourism services

and products, fostering economic opportunities for the community.<sup>(29,38)</sup> Media outlets have played a role in promoting the Mandeh region, increasing its visibility as a tourist destination.<sup>(28)</sup> NGOs have been active in environmental conservation efforts, such as coral reef protection and waste management initiatives.<sup>(31)</sup> The local community has participated through the preservation of cultural heritage and the provision of tourism services, ensuring that tourism development aligns with local values and traditions.<sup>(33,40,41)</sup> This collaborative approach has facilitated a comprehensive strategy for sustainable marine tourism, addressing economic, environmental, and socio-cultural dimensions.

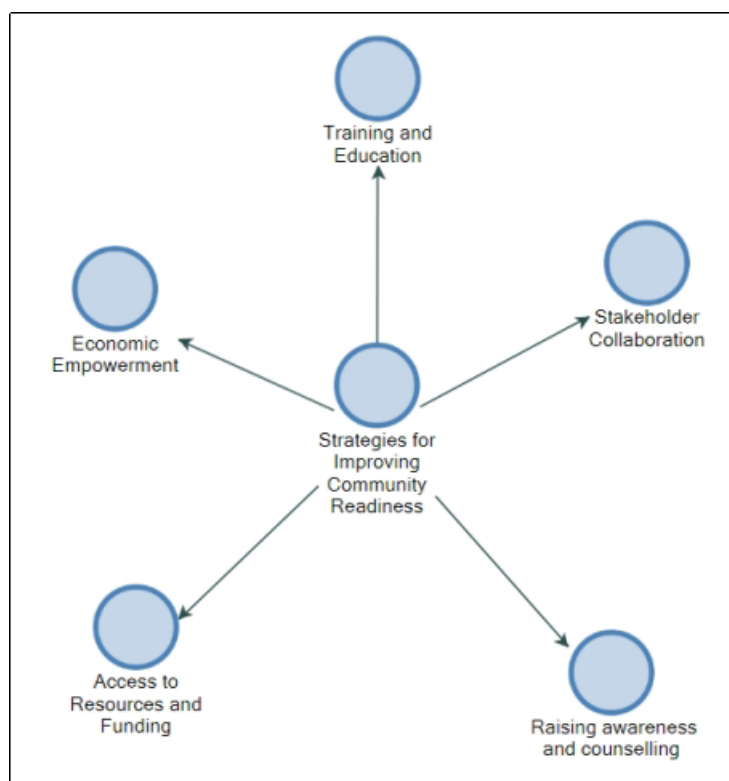


Figure 8. Project Map strategies for Community readiness

## DISCUSSION

Community preparedness in Mandeh, West Sumatra, is distinguished by its integrative approach rooted in the Hexahelix collaboration model, which emphasizes the synergy between government, academia, private sector, media, civil society, and local communities. Unlike many Southeast Asian cases where tourism development is often top-down and externally driven, Mandeh's readiness is shaped by strong local participation, cultural preservation, and environmental consciousness. This bottom-up orientation fosters a deeper sense of ownership among community members, aligning tourism growth with local values and sustainability goals. While other regions may focus primarily on infrastructure or marketing, Mandeh emphasizes balanced development through inclusive training, policy alignment, and ecological stewardship, setting it apart as a model for socially responsive and community-empowered tourism planning.

When communities are adequately informed and supported, they are better positioned to manage tourism potential in a responsible and sustainable manner.<sup>(15,17)</sup> This includes optimizing local resources, preserving ecological assets, and ensuring that tourism contributes to long-term community welfare.<sup>(16)</sup> Notably, the integration of technology in tourism development becomes more feasible once foundational readiness is established, enabling communities to adopt digital tools for promotion, management, and monitoring.<sup>(18)</sup> These findings underscore the interconnectedness between early readiness assessment and broader goals of sustainability, emphasizing that community readiness is not a static condition but a dynamic process that evolves through engagement, empowerment, and systemic support.<sup>(19)</sup>

The area's rich cultural traditions and pristine coastal ecosystems offer a strong foundation for tourism development that is locally grounded and environmentally valuable.<sup>(20,21,22,23)</sup> These resources are frequently cited as unique selling points for attracting tourists and promoting regional identity.<sup>(71)</sup>

On the other hand, respondents also highlighted a number of persistent obstacles that hinder the realization of these potentials. These include limited knowledge and skills related to tourism management, lack of financial capital, and minimal collaboration among stakeholders.<sup>(24,25,26)</sup> Additionally, inadequate infrastructure and



supporting facilities remain a barrier, especially for community-led initiatives. Another key concern voiced by residents is the irresponsible behaviour of some tourists who fail to conserve the natural environment, thereby threatening ecological sustainability.

This perceived disconnect between available resources and existing constraints reveals a gap that must be bridged through integrated capacity-building programs, improved stakeholder collaboration, and infrastructural investment.<sup>(53,54,55,56)</sup> Understanding these perceptions is crucial in designing context-sensitive interventions that build upon strengths while addressing key limitations.

This study explored the multidimensional nature of community readiness in supporting sustainable marine tourism development in the Mandeh Coastal Region. The findings highlight that readiness is not a static or binary condition, but a continuum shaped by various interrelated components: community knowledge, previous efforts, local leadership, problem identification, and access to resources.

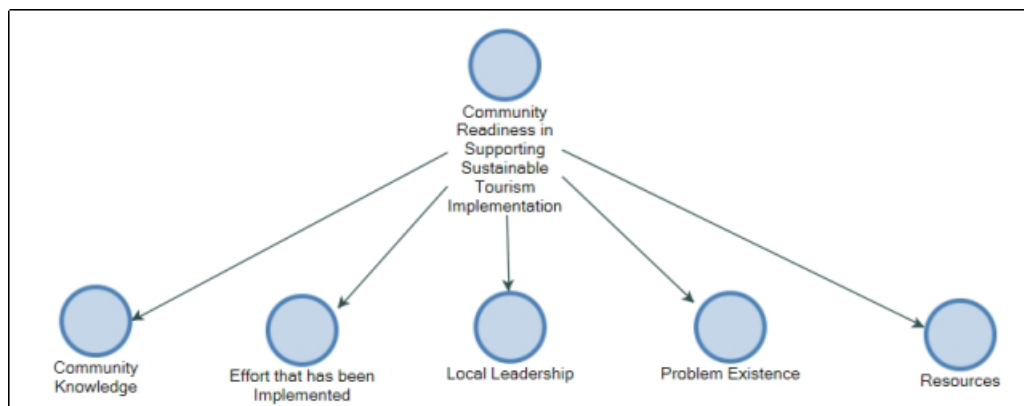


Figure 9. CRM based on Plested 2006

Firstly, community knowledge concerning sustainable tourism practices was found to be fragmented. While certain community segments show awareness of the environmental implications of tourism development, this knowledge has not yet translated into collective action. This confirms previous findings that knowledge alone is insufficient without adequate motivation and structural support.

Secondly, the efforts that have been implemented are often externally initiated and lack long-term continuity. Most activities are project-based and short-term in nature, limiting their integration into broader local development frameworks. This reflects a limited sense of ownership among community members, which may hinder sustainable outcomes.

Thirdly, local leadership emerged as a critical enabling factor. In the Mandeh region, customary leaders and informal actors serve as gatekeepers and influencers within the social fabric. However, leadership roles remain unevenly distributed, and institutional capacity at the community level is often weak. Strengthening leadership and fostering shared visions are therefore essential to enhancing community readiness.

Fourthly, the existence of socio-environmental problems, such as land tenure disputes, marine resource degradation, and perceived inequalities in benefit distribution, diminishes trust and limits active participation. These issues are consistent with earlier studies emphasizing the importance of addressing structural challenges before implementing sustainable tourism strategies.<sup>(57,58,59,60,61)</sup>

Finally, access to resources—both material and immaterial—remains a major constraint. The availability of funding, technical knowledge, and institutional networks is uneven, posing a barrier to scaling up community-led initiatives. Strengthening multi-stakeholder collaboration and ensuring equitable access to resources are critical steps toward improving community capacity.

The findings of this study highlight a series of strategic recommendations essential for improving community readiness in advancing sustainable marine tourism, particularly within the Mandeh Coastal Region. These recommendations emphasize the importance of promoting economic prosperity through inclusive, community-driven business models that empower local communities and enhance their socio-economic resilience.<sup>(42)</sup> Environmental conservation emerges as a critical pillar, underscoring the need for continued marine ecosystem protection and the integration of environmental education into local policy frameworks.<sup>(43)</sup> The development of robust and adaptive infrastructure is also identified as fundamental in facilitating access and enhancing tourist experiences, while simultaneously addressing the basic needs of local residents.<sup>(44)</sup> Cultural authenticity and preservation of local identities must be integrated within tourism narratives, which not only strengthens cultural pride but also attracts niche tourist segments seeking meaningful engagement.<sup>(45)</sup> Moreover, multi-stakeholder collaboration—anchored in the Hexahelix model—should be institutionalized to support coordinated governance, innovation, and sustainable financing mechanisms.<sup>(46)</sup> These components collectively contribute

to the realization of a sustainable destination, where community readiness is not merely a passive state but a dynamic process of empowerment, resilience, and co-creation aligned with long-term environmental and economic goals.<sup>(47,70,71,72,73,74)</sup> The integration of these recommendations into local tourism policies and capacity-building programs is imperative for achieving sustainable marine tourism in emerging coastal areas.<sup>(75,76,77,78,79)</sup>

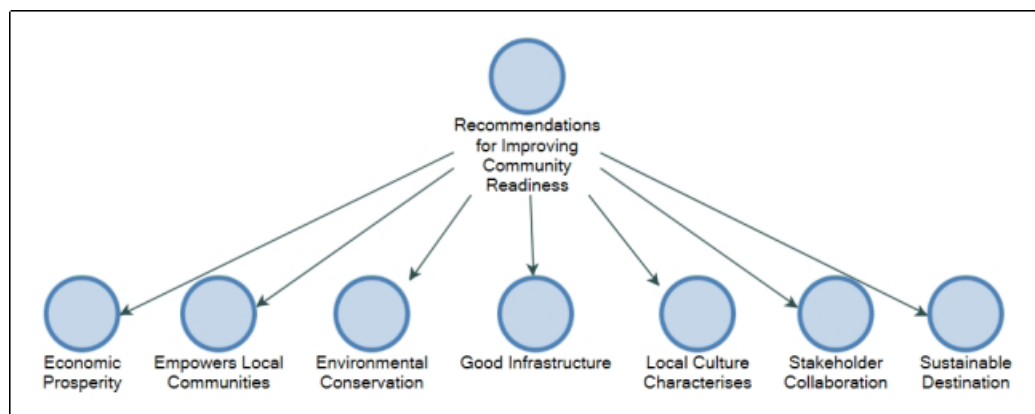


Figure 10. Implication of research

Dominant terms such as Community, Tourism, Sustainable, Readiness, and Mandeh reflect the central focus of the research, which examines the preparedness and capacity of local communities to engage in sustainable tourism development.<sup>(80,81)</sup> Words like Government, Empowerment, Implementation, Marine, and Collaboration indicate the involvement of multi-stakeholder governance, the role of institutions, and the importance of integrated strategies in fostering inclusive and environmentally responsible tourism. This visualization affirms the study's emphasis on community agency, local knowledge, and institutional support as essential components in realizing sustainable marine tourism within the Mandeh coastal area.<sup>(82)</sup>



Figure 11. Words Cloud

## CONCLUSIONS

This study concludes that community readiness plays a fundamental role in determining the success of sustainable marine tourism development in coastal areas such as the Mandeh region. Readiness is a composite construct that reflects the alignment between community awareness, leadership, social capital, and institutional support systems. The current level of readiness in Mandeh is characterized by limited coordination, insufficient community ownership, and constrained access to resources. These conditions pose challenges for the implementation of long-term sustainable tourism practices. Therefore, policies and programs must go beyond the conventional focus on physical infrastructure or natural attractions and instead prioritize community empowerment, leadership development, and inclusive governance structures. From a theoretical perspective, this study advances the discourse on community-based tourism by emphasizing readiness as a diagnostic tool for planning interventions. From a practical standpoint, the findings offer actionable insights for policymakers, NGOs, and tourism stakeholders to design adaptive strategies that are responsive to the social and institutional capacities of local communities. Future research should adopt longitudinal and comparative approaches to monitor changes in readiness levels across different coastal contexts. The integration of community readiness into the early stages of tourism planning can serve as a foundation for developing marine tourism ecosystems that are socially inclusive, ecologically resilient, and economically viable.

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## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare. All co-authors have reviewed and approved the content of the manuscript.

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