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Sustainable Tourism Development Strategy on Sumba Island: Utilising Cultural and Natural Resources for Local Economic Resilience

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ABSTRACT

This study aims to explore sustainable tourism development strategies on Sumba Island, focusing on community involvement, infrastructure improvement, and natural resource management to strengthen the local economy while preserving the environment and culture. A qualitative approach utilising case study analysis, in-depth interviews with local stakeholders, and a literature review was employed to examine the theories of creative economy and ecotourism management. Key findings reveal that community engagement and training are crucial elements for sustainable tourism development. Strategic natural resource management and infrastructure improvement can enhance tourist attraction and economic resilience. The study contributes original insights by integrating an ecosystem-based approach into tourism strategies on Sumba. Limitations of the research include the lack of quantitative data and accessibility challenges to remote locations on the island. The implications of the study emphasise the importance of further collaboration among the government, local communities, and the private sector. This research also recommends the development of policies and investments that support the local ecosystem, as well as ongoing training programmes to improve managerial and service skills in the tourism sector. Additionally, the study suggests further research on the impact of climate change on Sumba's tourism industry and the role of technology in supporting sustainable tourism initiatives.

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1. Introduction

Sumba Island, located in eastern Indonesia, boasts immense natural potential as a tourist destination. Its stunning landscapes, including pristine beaches, tropical forests, and vast savanna fields, create a unique allure for visitors. Among its key attractions are the underexplored white sandy beaches such as Marosi, Weekuri, and Tarimbang, which hold great promise for marine and adventure tourism (Killa & Tawa, 2024). Equally captivating are the scenic hills of Piarakuku and Wairinding. Beyond its natural beauty, Sumba is home to rich cultural heritage, including traditional ceremonies like Pasola and historic villages such as Praiijng, Prailiu, and Tarung, offering vibrant opportunities for cultural tourism. These assets present a significant opportunity to develop Sumba's tourism sector, potentially boosting local and national economies (Solikhah & Fatimah, 2020).

However, Sumba faces substantial challenges in managing its natural resources sustainably. Limited infrastructure and poor accessibility hinder the full utilization of its remote tourist destinations (Wanti et al.,

2022). Unsustainable practices, such as logging for agriculture and infrastructure development, further threaten fragile ecosystems (Arida, 2017). To address these issues, a more strategic and balanced management approach is essential, ensuring that resource utilization aligns with environmental conservation.

Unmanaged tourism also poses risks, including environmental degradation. The growing popularity of mass tourism can lead to coral reef damage and beach pollution caused by plastic waste (Nugroho & Harrison, 2021). A sustainable tourism approach is critical—not only to increase tourist arrivals but also to involve local communities in the planning and implementation of resource management (Wisnawa et al., 2021).

The urgency of sustainable tourism development on Sumba Island is heightened by rising global awareness of environmental conservation. Sustainable tourism encompasses ecological, social, and economic dimensions, demanding inclusive strategies that engage all stakeholders, including local communities, government, and private sectors (Chamidah et al., 2020). Such an approach seeks to ensure equitable economic benefits for local communities while preserving the environment and culture (Wisnawa et al., 2021). Sumba Island has the potential to serve as a model for sustainable tourism in Indonesia.

To achieve this, empowering local communities is paramount. They must become active participants in managing and promoting tourist destinations while recognizing the importance of environmental preservation (Wisnawa et al., 2023). This empowerment should be complemented by infrastructure development, such as waste management systems, community-based homestays, and improved transportation access to tourist sites (Killa & Tawa, 2024). Through a comprehensive and sustainable approach, Sumba Island can emerge as a destination that delivers long-term benefits for all stakeholders.

This study aims to explore the internal and external factors influencing sustainable tourism development on Sumba Island and to identify strategies that can be implemented to promote its development. Exploring these issues is crucial, as Sumba's remarkable tourism potential is accompanied by significant challenges in resource management and socio-economic disparities. Without strategic interventions, excessive exploitation and environmental degradation could compromise Sumba's future as a sustainable destination. Furthermore, the disparity between local communities and tourism industry players highlights the need for inclusive development strategies.

This research aims to develop strategies for sustainable and inclusive tourism management on Sumba Island. Using a qualitative approach, it identifies key factors affecting resource management and examines the island's potential and challenges. The study contributes to the literature by emphasizing collaboration among the government, local communities, and private sectors in sustainable tourism development. Its findings are expected to inform tourism policies in Indonesia and offer practical recommendations for destination managers on Sumba Island to enhance global competitiveness. Ultimately, this research seeks to balance the utilization and conservation of natural resources, ensuring long-term benefits for future generations.

2. Literature Review

Research conducted by Ngongo & Ngongo (2021) on tourism development in Sumba Island highlighted the importance of local traditions, particularly the Marapu farming system, which is still preserved by the local community. This research shows that although Marapu traditions remain practised by local communities, they have also begun to adapt their farming systems to meet market demands, by integrating cash crops into their traditional farming systems. In this case, mixed farming systems and diversity of food commodities became the strategies adopted to minimise risks in a vulnerable ecosystem. The findings illustrate how environmentally friendly farming traditions and practices can be maintained while responding to market demands. A significant difference with this study is that it emphasises the integration of resource management with sustainable tourism that involves all stakeholders, including

local communities. Recent research underlines the importance of an inclusive approach to tourism planning, which not only involves the government and private sector, but also provides space for local communities to play an active role in the management and development of tourist destinations. This is important to ensure that the economic benefits of tourism can be enjoyed by local communities, while environmental and cultural preservation is maintained. One of the striking differences between these two studies is the focus on tourism sustainability and inclusivity. While the first study highlights the relationship between traditional agriculture and tourism in the context of local cultural preservation, the more recent study emphasises the importance of a more holistic management strategy, which includes sustainable resource management, protection of ecosystems, and strengthening the capacity of local communities to deal with the impacts of tourism. In addition, this research also suggests the need for stronger regulations to integrate nature conservation with economic development, with more attention to social aspects and cultural diversity.

Research conducted by Timuneno et al. (2024) on creative economy-based ecotourism in Sumba Island offers new insights into how natural resource management can be integrated with the concept of creative economy to develop sustainable tourism. This research highlights the socio-economic conditions of local communities in tourist villages as well as the application of creative economy-based ecotourism strategies to support the sustainability of tourist areas and economic resources on Sumba Island. One of the important findings of this research is the need to raise awareness about nature conservation as the main instrument in ecotourism, as well as the importance of training programmes for local communities to prepare culinary products that are attractive to tourists. These findings reflect the need for the involvement of local communities in the planning and management of environmentally friendly tourism, which is a central issue in the development of sustainable tourism. The main difference with this study lies in the broader approach to tourism sustainability that emphasises the importance of managing all resources holistically, by balancing the use of nature and its conservation, and involving more stakeholders, including the government, local communities, and the private sector. In addition, the current study also identifies the challenges of limited infrastructure and how this affects accessibility to more remote tourist destinations, an aspect that is not widely discussed in previous studies. Overall, although both studies share a common focus on ecotourism and creative economy-based tourism development on Sumba Island, the main difference lies in the scale and approach used to achieve sustainability and inclusivity. Recent research underlines the importance of a more structured and collaborative management strategy between various relevant parties to realise the goal of sustainable tourism on Sumba Island.

Research Killa & Tawa (2024) entitled "Adaptation Strategy of Production Process Innovation in the Small-Scale Weaving Industry in Sumba Island, Indonesia" focuses on adaptation innovations to climate change faced by Sumba's traditional weaving craftsmen in the face of climate change impacts, as well as their relationship with the tourism industry in the region. The research uses a theoretical framework that highlights the impact of climate change on small businesses, particularly in the non-agricultural sector, and how Sumba weaving artisans develop innovations in the production process to respond to climate uncertainty and capitalise on opportunities in the tourism industry. This research also emphasises the importance of developing weaving products that maintain cultural value, while having high economic value, which can be profitable in the context of sustainable tourism. This research is in line with the big theme of natural resource management on Sumba Island which involves the sustainable utilisation of cultural and natural potential. However, there are deep differences in focus and scope between the research (Killa and Tawa, 2024) and the research conducted. The first research is more directed towards climate adaptation in the small industry sector, specifically the weaving industry, while the second research

focuses on a broader Sumba Island resource management strategy, covering natural and cultural ecosystems as the basis for sustainable and inclusive tourism development. This research also highlights the importance of management involving all local stakeholders, including the community, government and private sector, to ensure economic, social and environmental sustainability on Sumba Island. Research findings regarding production process innovation in the weaving industry to deal with climate change show that Sumba's artisans, although still largely using traditional technology, have begun to adapt strategies to improve the competitiveness of their products in the tourism market. This suggests that the integration between cultural sustainability (through traditional weaving products) and economic sustainability (through tourism market acceptance) is one way to improve the local economy. Overall, although these two studies discuss sustainability in the context of Sumba Island, there are differences in scale and approach. The first study focused more on the handicraft-based creative economy sector, while the second study adopted a broader approach of sustainable resource management for tourism development. Both studies complement each other in their own ways, where adaptation to climate change in the handicraft weaving industry can be part of a larger natural resource management strategy in support of sustainable tourism on Sumba Island.

2.1. Definition and Concept of Sustainable Tourism

Sustainable tourism is an approach that prioritises a balance between economic benefits, social sustainability, and environmental preservation (Zheng et al., 2023; Subadra, 2024). The concept invites stakeholders to manage tourist destinations in a way that does not damage ecosystems, and provides equitable social and economic benefits to local communities. In practice, sustainable tourism involves local communities in the planning and implementation of tourism activities, to ensure they receive sustainable economic benefits. In addition, wise management of natural resources, such as carbon footprint reduction, waste management, and conservation of natural habitats, are important aspects in realising environmentally friendly tourism. The concept also emphasises the importance of proper regulation, which not only protects the environment but also promotes economic growth without over-exploiting natural resources.

Sustainable tourism is defined as a form of tourism that focuses on maintaining a balance between economic, social, and environmental needs in the development of tourist destinations. (Arida, 2016). The concept aims to reduce negative impacts on the environment while ensuring that tourism provides long-term benefits to local communities and economies. The main principles of sustainable tourism include the wise management of natural resources, the participation of local communities in destination planning and management, and the promotion of social and economic equity (Bausch et al., 2016; Bausch et al., 2019). In addition, sustainable tourism emphasises the reduction of carbon footprint, effective waste management, and preservation of local cultural heritage. (Simanungkalit & Sari, 2015; Subadra, 2022). These principles serve as guidelines to ensure that tourism not only brings momentary profits, but also maintains the sustainability of ecosystems and the well-being of communities in the future. (Andrianto & Kusumah, 2021).

2.2. Natural Resources Management for Tourism

Natural resource management for tourism is an approach that aims to ensure that the utilisation of natural resources can support economic, social and environmental sustainability in the long term (Subadra, 2019). The concept of natural resource management in the context of tourism includes aspects of conservation, rehabilitation, and wise utilisation, to ensure the preservation of nature without damaging the biodiversity

that is the main attraction of tourist destinations. (Scuttari et al., 2023). The relationship between natural resource management and the sustainability of the tourism industry is very close, where poor management can lead to environmental damage that is detrimental to the industry, such as coral reef degradation or coastal pollution (Bausch et al., 2023). (Bausch et al., 2019). Therefore, it is important to apply the principles of ecotourism, which emphasise the reduction of negative environmental impacts and the empowerment of local communities in tourism planning and management (WWF-Indonesia, 2009). (WWF-Indonesia, 2009). This concept not only focuses on conservation, but also on capacity building and community participation in environmentally friendly and sustainable tourism management. (Setyanti et al., 2021).

3. Methodology

This research uses a qualitative approach with the aim of deeply understanding the challenges faced in the management of all resources on Sumba Island, as well as identifying strategies that can be applied for sustainable and inclusive management in the context of tourism. The qualitative approach was chosen because it allows researchers to explore the meanings, perceptions and experiences of various parties involved in resource management on Sumba Island (Subadra, 2019). By using this approach, research will focus more on understanding phenomena that occur contextually, rather than just looking for numbers or statistical data. (Fadli, 2021). The data obtained will be analysed to provide deeper insights into problems and solutions related to sustainable resource management in the tourism sector.

The research design used is a case study (Hermawan & Amirullah, 2016) The research design used is a case study, which is the right choice to answer the formulation of problems related to resource management challenges on Sumba Island and strategies that can be applied. Case studies allow researchers to thoroughly analyse complex situations by focusing on a specific context, namely Sumba Island as a tourist destination. This design is also suitable for exploring in depth the various factors that influence resource management, such as government policies, community involvement, and the role of entrepreneurs and tour guides in sustainable tourism development (Subadra, 2024). In addition, case studies provide a more complete picture of the conditions that exist in the field, which is very important for formulating applicable and effective strategies.

The resource persons to be involved in this research include tour guides, local entrepreneurs, and representatives from the local government. The three groups of resource persons have a significant role in tourism management and development on Sumba Island. The selection of resource persons is adjusted to the inclusion criteria, namely individuals who have direct experience or in-depth knowledge of tourism management on Sumba Island. The sampling technique used is *purposive sampling*, where the resource persons are selected based on certain criteria relevant to the research objectives. Data collection will be conducted through semi-structured interviews and field observations, which allow researchers to obtain richer and more contextualised information. (Sugiyono, 2019). The data analysis process will use thematic analysis, which involves coding and categorising data to identify key themes that emerge related to challenges and resource management strategies on Sumba Island.

4. Discussion

4.1. *The Strength of Sumba Island*

Based on an interview with Mr Ida Bagus Punia as Head of the Regional Tourism Office of East Sumba Regency (17 November 2024), *"Sumba Island has a number of strengths that strongly support the development of inclusive sustainable tourism. One of the main strengths is the unique cultural wealth, including the famous traditional weaving art, as well as traditional ceremonies and festivals that are attractive to tourists"*. Furthermore, the results of an interview with Umbu Lodang (18 November 2024) as Chairperson of the East Sumba Regency HPI stated that *"Its preserved natural beauty, with exotic beaches,*

mountains, and tropical forests, also offers extraordinary natural tourism potential. In addition, the local wisdom of the Sumbanese people in preserving nature and tradition is the foundation for the development of tourism that is environmentally friendly and oriented towards sustainability". The results of the observation show that Sumba's strong social and community strengths, with the active participation of local communities in the tourism sector, enable the creation of an inclusive tourism model, which provides direct economic benefits to them. By optimising these strengths, Sumba Island can become a sustainable tourism destination that not only attracts tourists, but also supports the welfare of local communities and environmental preservation.

4.2. Weaknesses of Sumba Island

The results of an interview with Rambu Nancy as a *homestay* entrepreneur (19 November 2024) stated that *"Sumba Island, despite having tremendous potential in the sustainable tourism sector, faces several weaknesses that hinder the development of inclusive tourism. One of the main challenges is the limited infrastructure, be it transport accessibility or basic facilities such as accommodation and sanitation that are still limited in many areas, which reduces comfort for tourists, especially those from abroad"*. In addition, according to Umbu Ariel as a tour guide and driver (19 November 2024), *"The lack of integrated and participatory natural resource management causes the rich potential of natural ecosystems on Sumba Island, such as beaches and forests, not to be optimally utilised for environmentally friendly tourism"*. Another weakness was expressed by Ibu Maria as Head of the Human Resources Division of the East Sumba Regional Office (20 November 2024) who stated that *"The limited capacity of human resources in terms of managerial and service skills is also an obstacle in creating a quality and sustainable tourism experience"*. Furthermore, Umbu Jackson as a Tourism Village Manager (20 November 2024) stated that *"Equally important is the lack of awareness and involvement of local communities in tourism management, which can result in a lack of positive economic and social impacts for local residents"*. These things need to be improved so that tourism on Sumba Island can develop inclusively, support environmental sustainability, and provide equitable economic benefits for all levels of society.

4.3. The Opportunities of Sumba Island

Based on the results of discussions with Sumba Island *stakeholders* on 19 November 2024, there are various external factors that can support the development of inclusive sustainable tourism on Sumba Island, one of which is the changing tastes of tourists who are increasingly leading to authentic and *sustainability*-based experiences. Travellers now prefer destinations that offer preserved nature and respected local culture, which can be the main attraction of Sumba Island. Central government support is also crucial, especially in terms of policies that support environmentally friendly infrastructure development and sustainable management of natural resources. In addition, increased cooperation with international institutions and the private sector in inclusive tourism management programmes can also accelerate the progress of Sumba tourism. Growing interest in community-based tourism and nature conservation, as well as increasing awareness of the importance of biodiversity, provides a great opportunity for tourism development that is not only economically beneficial, but also social and environmental.

4.4. The Threats of Sumba Island

The results of discussions with the Sumba Island *pentahelix* on 20 November 2024 show that external factors that can hinder the development of inclusive sustainable tourism on Sumba Island include competition from other more developed and popular tourist destinations, both in Indonesia and abroad, which offer better facilities and infrastructure. These competitors can attract travellers who would otherwise choose Sumba Island by offering more affordable or more complete experiences. In addition, natural disasters such as earthquakes, floods or droughts caused by climate change can damage tourism infrastructure and natural ecosystems, negatively impacting Sumba Island's tourism appeal. Other barriers

include political instability or government policies that do not support sustainability, as well as a lack of investment in the development of environmentally friendly tourist destinations. Finally, the high dependence on one industry sector, such as tourism, also makes Sumba Island vulnerable to global market fluctuations or uncertain economic conditions, which can affect the number of tourists coming.

4.5. Inclusive Sustainable Tourism Development Strategy Strengths-Opportunities Strategy

The Strength-Opportunities (SO) strategy to support the development of inclusive sustainable tourism on Sumba Island can start by utilising Sumba Island's rich culture and nature as the main attraction to meet the demands of tourists who want authentic and sustainability-based experiences. By promoting traditional weaving arts, traditional ceremonies and cultural festivals, Sumba can attract tourists who are interested in the diversity of local cultures that are still preserved. Unspoiled natural beauty, such as exotic beaches, mountains and tropical forests, can be the main focus of ecotourism programmes, which not only promote natural tourism, but also preserve it through environmentally friendly policies. Local communities who have the wisdom in preserving nature and traditions can be involved in community-based tourism management, thereby creating an inclusive tourism model and providing direct economic benefits to them. Central government support in the development of environmentally friendly infrastructure, such as sustainable transport and tourism facilities that do not damage nature, will greatly strengthen this strategy. Cooperation with international institutions and the private sector to fund nature conservation programmes and inclusive tourism management will also accelerate the progress of Sumba's tourism sector. With this approach, Sumba Island will not only become a globally attractive tourism destination, but can also create sustainable social and environmental welfare for local communities.

The Strength-Opportunities (SO) strategy proposed to support sustainable tourism development on Sumba Island is highly relevant to some of the concepts and findings in the theoretical review. In the strategy, Sumba's cultural and natural wealth, such as traditional weaving arts and traditional ceremonies, are used to attract tourists who are interested in authentic experiences based on sustainability. This is in line with Ngongo & Ngongo's (2021) research that highlights the importance of preserving local traditions, including the Marapu agricultural system, as a key element in the development of environmentally friendly tourism. By utilising the richness of local culture in tourism, the people of Sumba can respond to market demands without sacrificing their cultural values, as exemplified by the traditional agricultural system that is maintained but adapted to market needs.

In addition, the management of nature-based ecotourism, such as beaches and tropical forests, included in this strategy is also reminiscent of the concept of sustainable tourism outlined in the studies of Zheng et al. (2023) and Arida (2016), which emphasise the importance of balancing economic benefits, social sustainability and environmental conservation. The implementation of environmentally friendly policies to safeguard nature and involving communities in the management of tourist destinations is one of the basic principles of sustainable tourism proposed by the researchers.

Furthermore, the involvement of local communities in community-based tourism management is in line with the findings in the study of Timuneno et al. (2024), which emphasised the importance of training programmes to improve the skills of local communities and their participation in environmentally friendly tourism management. This study also shows that the development of a creative economy based on local uniqueness can be an important part of the strategy to support ecotourism sustainability.

Finally, the support of green infrastructure and co-operation with the private and international sectors to fund nature conservation also relates to the concept of natural resource management in tourism outlined by Bausch et al. (2019), which emphasises the need for wise and conservation-based management to ensure ecosystem sustainability in the tourism industry.

4.6. *Strenghts-Threat Strategy*

The Strength-Threats strategy for inclusive sustainable tourism development on Sumba Island can be done by utilising Sumba Island's cultural and natural strengths to face the threats of competition and natural disasters. Sumba Island can highlight its unique cultural wealth, such as traditional weaving art and traditional ceremonies, as the main attraction that distinguishes it from other tourist destinations. In addition, the promotion of preserved natural tourism, such as exotic beaches, mountains, and tropical forests, can be used as an advantage in a global market that is increasingly interested in environmentally friendly tourism. To address the threat of natural disasters, the development of infrastructure that is more disaster-resistant and based on sustainability principles can be introduced, such as eco-resorts equipped with disaster management systems. Given Sumba Island's dependence on the tourism sector, a strategy of diversifying tourism products by involving other economic sectors, such as handicrafts, sustainable agriculture, and ecotourism, can reduce the impact of global market fluctuations and create economic resilience. Meanwhile, to address the threat of competition, tourism promotion that focuses on authentic experiences and sustainability can attract travellers who are increasingly concerned with the environmental and social impacts of their visit. By involving local communities in every aspect of tourism management, Sumba Island can create an inclusive and sustainable tourism model, which not only improves community welfare, but also preserves the environment and culture.

The Strength-Threats strategy proposed for sustainable tourism development on Sumba Island is very much in line with the concepts outlined in the theoretical study. For example, Sumba Island's cultural richness, such as the traditional art of weaving, strongly supports the findings of Killa & Tawa (2024) who emphasised the importance of adapting the local craft industry to climate change to increase competitiveness in tourism, as well as the use of cultural potential to support economic sustainability. In addition, the promotion of sustainable nature tourism reflects the principles of sustainable tourism described by Zheng et al. (2023) and Arida (2016), which prioritise a balance between economic benefits, social sustainability and environmental preservation. Disaster-friendly and sustainability-based infrastructure development also refers to the concept of wise management of natural resources in the context of tourism, as expressed by Scuttari et al. (2023) and Setyanti et al. (2021), which emphasises the importance of conservation and management that involves local communities in ecosystem preservation. Thus, this strategy not only enhances tourism attractiveness, but also strengthens economic and social sustainability for local communities through active participation in tourism management.

4.7. *Weakness-Opportunities Strategy*

To overcome Sumba Island's weaknesses and take advantage of existing opportunities, the "Weakness-Opportunities" strategy can focus on improving infrastructure by prioritising the construction of environmentally friendly facilities and better transport accessibility. The government and private sector can work together to build accommodation that complies with sustainability principles, as well as improve sanitation facilities in key tourist areas. Capacity building of human resources through managerial and service skills training focusing on sustainable tourism is also crucial to provide quality tourism experiences. In addition, to address the lack of integrated natural resource management, it is possible to involve local communities in destination management programmes that involve their active participation, so that they directly experience the economic and social benefits of tourism. Harnessing tourists' interest in authentic experiences can be encouraged by exploring the untapped potential of local cultures and natural ecosystems, and introducing community-based tourism products that respect biodiversity. With government support in sustainable development policies and cooperation with international institutions, Sumba Island can develop tourism that focuses not only on economic aspects but also on environmental preservation and empowerment of local communities. Overall, addressing these weaknesses by capitalising on existing opportunities will create a solid foundation for inclusive sustainable tourism development on Sumba Island.

The "Weakness-Opportunities" strategy proposed for Sumba Island, which involves improving sustainable infrastructure and actively engaging local communities, is in line with the principles of sustainable tourism emphasised by experts such as Zheng et al. (2023) and Arida (2016), which highlight the importance of a balance between economic benefits, social sustainability and environmental preservation. The human resource capacity building described in this strategy also supports the findings of Timuneno et al. (2024), which emphasised the importance of training to support ecotourism based on creative economy and local community engagement. In addition, wise management of natural resources, as suggested by Scuttari et al. (2023), is relevant to tourism destination management efforts that involve local community participation and preserve nature. This strategy serves to address Sumba Island's weaknesses, while capitalising on existing opportunities to develop inclusive sustainable tourism and strengthen local economic resilience.

4.8. Weakness-Threat Strategy

To address the weaknesses and threats faced by Sumba Island in inclusive sustainable tourism development, strategies that can be applied involve improvements and innovations to basic infrastructure as well as more effective natural resource management. First, it is necessary to improve transport accessibility, such as the construction and improvement of roads, ports, as well as the development of more modern airports, which can connect Sumba Island with other tourist destinations efficiently. In addition, the development of environmentally friendly and sustainable accommodation facilities should be encouraged by involving the private sector and local communities to create jobs and improve managerial capacity in the tourism sector. Increasing the capacity of human resources, especially in service skills and tourism management, is essential so that tourists can enjoy a quality experience and meet international standards. In the face of external threats such as natural disasters, the management of Sumba Island's natural ecosystems should involve climate change mitigation approaches, such as coastal and forest conservation and the development of tourist destinations based on nature conservation. In addition, cooperation with the government to create policies that support sustainability and investment in the environmentally friendly tourism sector must be strengthened, so that Sumba Island can compete with other more developed tourist destinations. By involving local communities in the management and benefits of tourism, the threat of dependence on one sector can be minimised, creating a more inclusive and sustainable economy.

The strategies proposed to address weaknesses and threats in sustainable tourism development on Sumba Island, such as infrastructure improvements and more effective natural resource management, are very much in line with the theoretical studies put forward by several researchers. For example, research by Timuneno et al. (2024) that emphasises the importance of managing natural resources wisely and involving local communities in tourism management, in accordance with the strategy of increasing human resource capacity and community involvement in the management of tourist destinations. In addition, research by Ngongo & Ngongo (2021) that underlines the integration of local traditions with market demands is also relevant to the strategy to develop eco-friendly and sustainable accommodation facilities involving the private sector and communities. The focus on climate change mitigation and ecosystem preservation, as suggested in the strategy, is also supported by the concept of environmentally friendly natural resource management, as discussed in studies by Bausch et al. (2019) and Setyanti et al. (2021), which emphasises reducing negative environmental impacts and empowering local communities in sustainable tourism planning.

5. Conclusion

Inclusive sustainable tourism development on Sumba Island is essential to improve the social and economic welfare of local communities while preserving culture and the environment. The main motivation of this study is to formulate strategies that utilise Sumba's cultural and natural wealth to create an

environmentally friendly tourism model that directly benefits the community. The research findings show that a strategy that combines the strengths of local culture, ecotourism management, and environmentally friendly infrastructure support can strengthen Sumba's tourism appeal, as well as improve local economic resilience. The theoretical and practical implications of this research are in line with the concept of sustainable tourism that emphasises a balance between economic benefits, social sustainability and nature conservation. However, this research has limitations in terms of data coverage and potential external variables such as climate change that may affect the sustainability of Sumba tourism. Further research is expected to dig deeper into the influence of climate change on Sumba's tourist destinations, as well as further explore the role of technology in supporting sustainable tourism management.

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