



Analysis of Blue and Green Economy Integration in Marine Resources Management and Sustainable Tourism Makassar

Ihsa Mahendra¹

¹ Universitas Hasanuddin, Makassar, 90245 Indonesia
Mahendrai23a@student.unhas.ac.id

Abstract. This study investigates the use of blue and green economy in tourism development and sustainable marine resource management in Makassar. The use of blue economy focuses on coral reef protection and sustainable fisheries management, while green economy focuses on natural habitat conservation and pollution reduction. Both approaches have been applied to improve environmental quality and local community welfare. The purpose of this study is to evaluate the performance of these policies and find problems in their implementation in the field. This study uses qualitative descriptive analysis using secondary data from government reports, literature studies, and interviews with relevant stakeholders. The results show that green and blue economy policies have been beneficial, especially in terms of improving marine ecosystems and reducing pollution. The tangible results of coral reef rehabilitation programs and marine protected zones are increased biodiversity and seawater quality. They also help the growth of sustainable tourism, reduce environmental pressures from mass tourists and improve the welfare of local communities through community empowerment. However, issues such as consistency of implementation, supervision, and infrastructure development in remote areas still need to be resolved to ensure that this management will be sustainable. Overall, an efficient management model is available through the integration of green and blue economy, but long-term success requires consistent support.

Keywords: Blue and green economy, sustainable tourism, marine resources.

1 Introduction

Makassar, the capital of South Sulawesi Province, is located on the southwest coast of Sulawesi Island and plays an important role in the management of marine resources and the development of the tourism sector in eastern Indonesia. Makassar's strategic position provides direct access to a variety of marine ecosystems, including coral reefs, mangrove forests, and abundant fisheries resources. The existence of these ecosystems not only supports biodiversity but also forms an important foundation for the local economy through the fisheries and tourism sectors. As the center of the economy and tourism in the region, Makassar has great potential to utilize its rich

marine resources. Fertile coral reefs and extensive mangrove forests serve as important habitats for various marine species and as natural protection for the coastline from erosion. In addition, the natural beauty of Makassar, including beautiful beaches and underwater riches, attracts tourists from all over, making it a very attractive tourist destination. However, the rapid growth of the economy and tourism sectors in Makassar often has significant negative impacts on the environment [1]. Intensive human activities, such as overfishing, unsustainable coastal infrastructure development, and pollution from domestic and industrial waste, can threaten the sustainability of marine ecosystems that are a source of life for many species and also vital for local communities.

These activities can cause damage to coral reefs, degradation of seawater quality, and loss of natural habitats, which in turn reduce the carrying capacity of the ecosystem for economic activities that depend on it. In facing these challenges, the integration of the concepts of blue and green economy becomes very relevant and important to implement. The blue economy, which focuses on the sustainable use of marine resources and management that takes into account the sustainability of ecosystems, can help reduce the negative impacts of economic activities on the environment. The principles of the blue economy include sustainable fisheries management, protection of marine habitats, and reduction of pollution from maritime activities, [6]. Meanwhile, the green economy, which emphasizes efficient and environmentally friendly management of natural resources, can contribute to efforts to preserve the coastal environment and reduce the negative impacts of development. The integration of these two concepts aims to create a balance between economic development and environmental protection. By implementing blue and green economic strategies simultaneously, Makassar can encourage sustainable economic growth while preserving its marine and coastal ecosystems. This approach will not only support the development of an environmentally friendly tourism sector but also ensure that valuable marine resources remain available for future generations. Thus, the integration of blue and green economies is key to achieving sustainable development goals and maintaining the sustainability of Makassar's marine ecosystem, which is an important asset for the economy and quality of life of its people [2].

The blue economy is an approach that emphasizes the sustainable use of marine resources to support economic productivity while protecting and restoring marine ecosystems. The concept focuses on developing marine-based economic activities such as fisheries, aquaculture, and tourism that are environmentally friendly. The goal is to ensure that these activities are carried out in a way that does not damage marine ecosystems, but rather contributes to the sustainability and health of the marine environment. By implementing the principles of the blue economy, it is hoped that economic output can be increased without sacrificing the quality or sustainability of marine resources. For example, in the fisheries sector, the application of environmentally friendly fishing techniques and sustainable management of fish stocks can prevent overfishing and habitat destruction. Similarly, aquaculture that implements best practices to reduce pollution and other negative impacts can support seafood production without damaging aquatic ecosystems. Meanwhile, the green economy is a broader paradigm and involves the efficient management of resources to reduce negative im-

pacts on the environment. The concept covers sectors such as energy, agriculture, and industry, with a focus on reducing carbon emissions, energy conservation, and optimizing resource use. The green economy aims to achieve sustainable economic growth by promoting clean technology, energy efficiency, and environmentally friendly production practices [3]

This approach not only leads to environmental protection but can also open up new opportunities for innovation and investment in green technologies, which in turn can support inclusive and sustainable economic growth. Makassar, as one of the economic and tourism centers in eastern Indonesia, faces major challenges in integrating the blue and green economy in marine resource management and tourism sectors. The diversity of marine resources in Makassar, including coral reefs, mangrove forests, and fisheries resources, provide significant economic benefits to local communities and are major attractions for the tourism sector. Coral reefs and mangrove forests serve as important habitats for various marine species and also protect the coastline from erosion. In the context of tourism, Makassar's natural beauty and biodiversity attract tourists seeking authentic and environmentally friendly marine experiences. However, rapid growth in the economic and tourism sectors often brings negative impacts on the environment, such as pollution, habitat destruction, and ecosystem degradation. To address these challenges, Makassar needs to apply the principles of the blue and green economy synergistically. This includes efforts to manage marine-based economic activities in a sustainable manner, as well as implementing green policies and practices across sectors. By integrating these two approaches, Makassar can ensure that economic and tourism development not only improves people's welfare but also maintains environmental sustainability. This integrated approach will help Makassar achieve a balance between economic growth and ecosystem protection, making it a model for sustainable and innovative marine resource management at the national and international levels [4].

Makassar, as a coastal city in South Sulawesi, has experienced rapid growth in the economic and tourism sectors. However, this growth brings with it a number of significant challenges, especially related to the management of marine resources and the application of sustainability principles in the tourism sector. Intensive human activities, such as overfishing, pollution, and coastal development, have put severe pressure on the marine ecosystem around Makassar. Uncontrolled fishing can lead to a decline in fish stocks, damage natural habitats, and threaten the sustainability of marine resources. Pollution, both from industrial and domestic waste, also contributes to the degradation of water quality and damage to ecosystems, including coral reefs and mangrove forests. In addition, coastal development to support economic and tourism expansion often results in the loss of important habitats and changes in ecosystem function. The tourism sector in Makassar, which offers beautiful beaches and underwater diversity, also faces similar challenges. Tourists who come to enjoy the natural charm can often be at risk of damaging the environment if it is not managed wisely. Uncontrolled tourism activities can cause damage to coral reefs, pollution, and environmental degradation which can ultimately reduce the attractiveness of the destination [5].

Therefore, the application of sustainability principles in tourism development is essential to maintain the health of marine ecosystems and ensure that the economic benefits of this sector can be maintained in the long term. The integration of blue and green economy principles is crucial in this context. The blue economy emphasizes the sustainable use of marine resources with a focus on ecosystem preservation, while the green economy includes efficient resource management to reduce negative impacts on the environment as a whole. The combination of these two approaches can help create a management model that not only supports economic growth but also protects and restores marine ecosystems. This study aims to identify and analyze the impact of the application of blue and green economy integration on the sustainable tourism sector in Makassar. The focus of this study is to assess how the integration of these principles affects environmental quality, local community welfare, and the economic potential of the tourism sector. Through in-depth analysis, this study is expected to provide a clear picture of how the sustainability approach can be applied effectively to manage marine resources and develop the tourism sector. By evaluating the impact of this integration approach, this study aims to provide data-based recommendations for better decision-making and policy planning. The results of this study are expected to help related parties in formulating a balanced strategy between the use of marine resources and environmental conservation, as well as increasing the contribution of the tourism sector to sustainable local economic development [6].

This research is expected to provide significant impacts in the context of marine resource management and sustainable tourism development in Makassar. By evaluating the effectiveness of blue and green economy integration, this study can provide recommendations for improving existing policies and practices, as well as assist in formulating better strategies for marine resource management. In addition, the analysis of the impact on the tourism sector can provide insight into how to apply sustainability principles in tourism development that is not only economically profitable but also protects the environment and supports the welfare of local communities. The integration of blue and green economy in marine resource management and sustainable tourism is an important step to achieve a balance between economic growth and environmental protection. This study aims to provide a better understanding of how these two concepts can be effectively implemented in Makassar, as well as their impacts on the tourism sector. Thus, the results of this study are expected to provide significant contributions to sustainable management efforts and environmentally friendly tourism development in Makassar [7].

2 Literature Review

The integration of blue and green economies in marine resource management and sustainable tourism is gaining traction as a viable framework for ensuring environmental sustainability while promoting economic development. This literature review explores the theoretical foundations, empirical studies, and practical implications of this integration, particularly in the context of Makassar, Indonesia.

2.1 Concepts of Blue and Green Economy

The blue economy focuses on the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystems [8]. It emphasizes practices such as sustainable fisheries, marine conservation, and eco-tourism. In contrast, the green economy aims at reducing environmental risks and ecological scarcities, promoting sustainable development without degrading the environment (UNEP, 2011). Integrating these concepts can enhance resilience against climate change and promote sustainable livelihoods, particularly in coastal communities.

2.2 Marine Resource Management

Sustainable marine resource management is critical for the health of marine ecosystems and the communities that depend on them. Effective management practices can lead to the recovery of fish stocks, increased biodiversity, and improved community livelihoods [9]. Research has shown that implementing blue economy principles, such as the establishment of marine protected areas (MPAs) and sustainable fishing practices, can significantly enhance marine productivity and ecosystem health. For instance, [10] highlight successful case studies in Indonesia where sustainable practices have led to improved fishery yields and community benefits.

2.3 Sustainable Tourism

Sustainable tourism is defined as tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future [11]. This form of tourism is increasingly recognized as a means of promoting conservation and supporting local economies. In coastal areas, sustainable tourism can provide financial incentives for the preservation of marine environments. [12] found that integrating marine resource management with tourism can enhance visitor experiences and contribute to local economic development, thereby fostering a sense of stewardship among tourists and residents alike.

2.4 Integration of Blue and Green Economies

Integrating blue and green economies is essential for promoting sustainable development in coastal regions. [13] argue that adopting a holistic approach to resource management can achieve a balance between economic growth and environmental sustainability. [14] provide evidence from Makassar, showing that the simultaneous development of blue and green economies can create new job opportunities and improve local living standards. For example, eco-tourism initiatives that focus on marine conservation not only attract visitors but also provide alternative livelihoods for local communities, reducing pressure on overexploited marine resources.

2.5 Challenges and Opportunities

Despite the potential benefits of integrating blue and green economies, several challenges hinder effective implementation. [15] identify key issues such as inadequate inter-agency coordination, low public awareness, and limited financial resources. These challenges can impede the development of sustainable practices and policies. Nevertheless, opportunities exist for overcoming these barriers through community engagement, education, and the establishment of partnerships among stakeholders. Research shows that involving local communities in decision-making processes can enhance the effectiveness of marine resource management and increase the resilience of coastal ecosystems [9].

This literature review underscores the importance of integrating blue and green economies in marine resource management and sustainable tourism in Makassar. By leveraging local resources and implementing best practices, it is possible to achieve both environmental sustainability and improved community welfare. Continued research is necessary to explore practical applications of this integration and its long-term impacts on ecosystems and local economies.

3 Research Methods

This study uses qualitative methods to explore in-depth the integration of blue and green economy in marine resource management and its impact on sustainable tourism in Makassar. This qualitative method consists of several main steps designed to gain a comprehensive insight into the topic under study. First, semi-structured interviews will be conducted with key stakeholders such as government officials, tourism managers, environmental experts, and local communities. The purpose of these interviews is to gather in-depth information on how the blue and green economy is implemented, the challenges faced, and the impacts of existing policies and practices. These interviews will help understand the perspectives and experiences of individuals involved in marine resource management and tourism. Second, Focus Group Discussions (FGDs) will be conducted to explore the opinions and experiences of groups involved in marine resource management and tourism. These group discussions aim to identify common views as well as differences in experiences and perceptions between different stakeholder groups. Third, case studies will be conducted to analyze management initiatives that integrate blue and green economy principles. These case studies will focus on best practices and challenges faced in policy implementation in Makassar. By studying specific cases, this study will gain insight into the successes and failures in marine resource management. Data obtained from interviews, FGDs, and case studies will be analyzed using thematic analysis techniques to identify key themes and patterns emerging from the data. Data triangulation will be applied to validate the findings by comparing results from different data collection methods, ensuring the accuracy and consistency of the research results [16].

4 Research Results and Discussion

4.1 Effectiveness of Blue and Green Economy Integration in Marine Resource Management

Makassar Marine Resources Management Policies and Practices. Marine resource management in Makassar, South Sulawesi, has developed into a prime example of how green and blue economy concepts can be applied to support economic prosperity and environmental sustainability. Makassar has a major responsibility to maintain its marine ecosystems healthy while making the most of them, as it is located on the coast and is the center of economic and tourism activities in the region. The goals of the policies and practices implemented in Makassar are to protect marine ecosystems, reduce the negative impacts caused by human activities, and ensure that marine resources continue to benefit current and future generations. Regulations related to coral reef protection are an important component of Makassar's marine resource management policy. Coral reefs provide habitat for a variety of marine species and protect the coast from erosion and large waves. However, illegal mining, fishing activities, and climate change often put coral reefs at risk. To address these issues, the Makassar city government has issued policies that prohibit destructive activities such as the use of fish bombs. They have also established conservation areas where fishing and other resource exploitation are prohibited. Makassar's marine resource management strategy includes a coral reef rehabilitation program [17].

Coral replanting and regular monitoring of the reefs repair the damage that has been caused by humans. The local government has initiated restoration projects to extend the life of this ecosystem and maintain the benefits of the coral reefs for future generations. The local government does this with the help of local communities and environmental organizations. Makassar's blue economy policy not only focuses on maintaining coral reefs, but also pays attention to sustainable fisheries management. This is achieved by setting fish catch quotas to maintain fish populations and prevent overfishing that can damage the balance of the marine ecosystem. In addition, more environmentally friendly fishing techniques are introduced to reduce the negative impacts of fishing on marine habitats, such as the use of selective fishing gear that does not damage the seabed. In managing marine resources in Makassar, one approach offered is environmentally friendly aquaculture. With the increasing demand for seafood, fish farming in cages is a more sustainable option compared to wild fishing. This system not only meets market needs but also provides livelihoods for local communities without disrupting the sustainability of the ecosystem. In contrast, Makassar's green economy policy focuses on reducing marine pollution and more efficient waste management. Marine pollution, caused by domestic and industrial waste, has become a major problem that negatively impacts water quality and ecosystem health. To address this issue, the Makassar government has imposed strict regulations for waste disposal and encouraged the use of more environmentally friendly waste treatment technologies. This technology ensures that the waste produced does not pollute the habitat. Makassar's green economic policy also pays attention to mangrove forests. Mangrove forests play an important role in maintaining seawater qual-

ity, preventing erosion, and providing habitat for various marine species. In addition, mangrove forests function as natural filters that can absorb pollutants from land before they reach the sea [18].

In this conservation effort, reforestation and protection of mangrove forests are prioritized, and local communities are involved in mangrove rehabilitation and guarding programs. The marine resource management strategy in Makassar also includes important steps such as the establishment of marine protected zones. These zones are created to limit or prohibit human activity in certain areas so that ecosystems can recover from damage. Allowing ecosystems to recover has many long-term benefits for the environment and communities that depend on marine resources. Makassar's marine resource management policy includes local training and education in addition to the establishment of protected zones. Regular advice is provided on the importance of protecting the marine environment and how to use marine resources sustainably. It is hoped that by involving the community in this process, awareness of the importance of environmental conservation will increase and more sustainable practices will be widely adopted. Overall, the marine resource management policies and practices in Makassar demonstrate a strong commitment to the sustainability of marine ecosystems and the well-being of communities. Through the integration of the blue and green economy, Makassar seeks to maintain a balance between the use of marine resources for economic needs and environmental conservation for future generations. The implementation of this policy not only produces long-term economic benefits, but also ensures that environmental benefits are met [19].

Analysis of Makassar Tourism Management Performance and Results. The goal of tourism management in Makassar, South Sulawesi, is to implement the principles of blue and green economy to achieve the greatest financial benefits without sacrificing environmental sustainability. Analysis of the performance and results of this management shows great progress in terms of waste management, marine ecosystem rehabilitation, and improving the quality of tourism. However, to ensure that Makassar tourism continues to grow, there are still several issues that need to be addressed. Improving the quality of Makassar's marine ecosystem is one of the main achievements of the integration of green and blue economy principles [20]. Unsustainable fishing activities, such as overfishing, the use of fish bombs, and marine pollution, have damaged marine ecosystems, especially coral reefs. However, most of the damaged areas have recovered greatly thanks to coral reef protection policies and rehabilitation programs. These programs involve replanting coral and protecting areas that are important habitats for marine species. Improving the quality of Makassar's seawater is also an indicator of success. Before the implementation of blue and green economy policies, domestic and industrial waste caused marine pollution, which endangered the health of marine ecosystems. However, with a more efficient waste management system and strict policy enforcement, pollutant levels in seawater have decreased significantly. This waste management system involves the use of technology that filters and treats waste before it is discharged into the sea, so that the quality of sea water improves.

The principles of blue and green economy in tourism management also help reduce negative impacts on the environment. Makassar tourism, which is famous for its beautiful beaches and beautiful coral reefs, previously often caused pollution and environmental damage. However, awareness of the importance of protecting the environment has increased thanks to training and outreach programs for tourists and tourism actors. For example, visitors are now more careful in maintaining the cleanliness of beaches and coral reefs and avoiding littering, [31]. In addition, Makassar tourism managers receive training on tourism practices that are beneficial for the future. They are educated on how to manage tourism activities to have minimal negative impacts on the environment, such as encouraging the use of environmentally friendly materials and limiting the number of visitors in sensitive areas such as coral reefs. In addition to ensuring that tourism can make a long-term contribution to the local economy without sacrificing the ecosystem, these steps have proven effective in reducing environmental pressures. In terms of Makassar tourism management, the application of blue and green economy principles also has a positive impact. A healthy marine ecosystem is essential for environmental sustainability and attracting tourists. After the policy of protecting and rehabilitating marine ecosystems was implemented, Makassar has attracted more tourists because of its maintained environmental quality. The growing tourism sector generates more money and new job opportunities, helping local communities. Although much progress has been made, there are still some issues that need to be addressed in implementing green and green economy policies in Makassar. Consistency in policy implementation is one of the main challenges. This is especially true in remote or hard-to-reach areas. Weakening of monitoring violations can jeopardize defense efforts that have been made in some places.

For example, destructive fishing and indiscriminate waste disposal are still common in unsupervised areas. In addition, it is still difficult for local communities to be involved in policy implementation. Marine resource management is highly dependent on the support and active participation of local communities. Although communities have been involved in several initiatives, such as mangrove forest conservation programs and coral reef rehabilitation, more efforts are needed to involve them in the overall sustainable tourism management process. Further education and training are needed to make local communities understand the importance of protecting the environment and feel responsible for preserving natural resources. In addition, stricter supervision is needed to ensure that all tourism businesses comply with regulations [21]. The government must increase law enforcement, especially in areas that are prone to violations, such as near conservation areas or in places that are crowded with tourists. Makassar's sustainable tourism goals require increased collaboration between the government, the private sector, and local communities. Overall, the analysis of Makassar's tourism management performance and results shows that the implementation of green and green economy principles has produced significant results that benefit both the economy and the environment. This method has great potential to continue to contribute to sustainable development, as demonstrated by the increasing awareness of sustainable tourism and improvements in waste management and marine ecosystem quality. Current challenges must be overcome to achieve long-term success

through consistent implementation, strict monitoring, and active involvement of all stakeholders [22].

4.2 Impact of Blue and Green Economy Integration on Sustainable Tourism Development in Makassar

Impact on the Environment. The integration of blue and green economy in sustainable tourism development in Makassar has a significant impact on the quality of the coastal and marine environment, as seen in several examples of real objects in the region.

1. Coral Reef Rehabilitation in Takabonerate National Park Takabonerate National Park, located in the Makassar Strait, is a successful example of the integration of blue and green economy. The coral reefs in this area were once severely damaged by destructive fishing and pollution. However, through a coral reef rehabilitation program involving coral restoration and reduction of destructive fishing activities, the condition of the coral reefs has undergone significant improvements. This program not only improves the quality of the ecosystem but also increases the attraction for tourists who come for snorkeling and diving. With the restoration of the coral reefs, the marine biodiversity in Takabonerate has recovered, providing a more satisfying experience for visitors and supporting the local economy through ecosystem-based tourism.
2. Mangrove Forest Management on Kayuadi Island Kayuadi Island, located off the coast of Makassar, is another example of the successful integration of green economy into coastal environmental management. The mangrove forests on this island play an important role in protecting the coast from erosion and serve as a natural filter for waste. Previously, the mangrove forests in this area faced threats from land conversion for development and fishing activities. However, a mangrove forest conservation program involving reforestation and waste management has succeeded in improving environmental conditions. In addition to improving water quality and protecting coastal ecosystems, the program also provides habitat for various species such as fish and migratory birds, as well as attracting tourists interested in mangrove ecosystems [23].
3. Waste Management System at Losari Beach Losari Beach, which is one of the main tourist destinations in Makassar, has undergone major changes in waste management. Previously, pollution from domestic and industrial waste threatened the quality of the beach and the health of the marine environment. However, the implementation of a more efficient waste management system, including better waste collection and processing, has reduced the negative impact on the beach. The water quality at Losari Beach has improved, and visitors can now enjoy a cleaner and healthier atmosphere. These improvements also contribute to a more satisfying tourist experience, as well as helping to maintain Losari Beach's reputation as an environmentally friendly tourist destination [24].
4. Turtle Conservation Project on Samalona Island Samalona Island, located in the waters around Makassar, is an important location for turtle conservation. Before

the integration of blue and green economy principles, turtles were threatened by illegal fishing and habitat destruction. Conservation programs involving the preservation of turtle nesting beaches and law enforcement against illegal hunting have succeeded in increasing the turtle population on the island. Turtle conservation not only protects the endangered species but also attracts tourists who are interested in seeing turtles and learning about conservation efforts, supporting sustainable tourism. Overall, the implementation of blue and green economy principles in various locations in Makassar has shown positive results in environmental conservation and sustainable tourism development. Although challenges in implementation and monitoring remain, these examples illustrate how the integration of sustainability principles can provide significant environmental and economic benefits.

Impact on Society. The integration of blue and green economy principles in Makassar not only has a positive impact on the environment, but also has a significant impact on the social welfare of local communities. This approach aims not only to protect and restore coastal and marine ecosystems but also to improve the quality of life of communities that depend on these resources. The following is a discussion of the social impacts of the integration of blue and green economy in Makassar, accompanied by examples of real objects that illustrate positive changes.

1. **Improved Economic Welfare** One of the main positive impacts of the integration of the blue and green economy is the improvement of the economic welfare of local communities. The programs implemented, such as coral reef management, mangrove conservation, and waste management, have created new economic opportunities for the community. A prominent example is the ecotourism project on Spermonde Island. Spermonde Island Ecotourism Project Spermonde Island is one of the marine tourism destinations in Makassar that integrates the principles of the blue and green economy. Previously, tourism activities on this island tended to be poorly managed, causing damage to the marine ecosystem [25]. However, through the integration of the principles of the blue and green economy, this ecotourism project not only improves environmental conditions but also increases the income of local communities. This ecotourism program involves local communities in activities such as tour guiding, homestay management, and selling handicraft products related to local culture. Training is provided to local residents to ensure that they can manage tourism in an environmentally friendly and sustainable manner. In this way, the community not only earns additional income but is also directly involved in preserving their environment. The result is increased family income and a better quality of life on Spermonde Island.
2. **Community Empowerment** The integration of the blue and green economy has also had a positive impact on empowering local communities. Programs involving training and education on environmental sustainability have empowered communities to take an active role in preserving their ecosystems [26]. The Training and Empowerment Program in Bira Village is a striking example. Training and Empowerment Program in Bira Village Bira Village, located on the southern coast of

Makassar, is an example of how community empowerment through training can have a positive impact. In an effort to improve environmental and local economic sustainability, the local government and NGOs have implemented training programs for villagers in sustainable fisheries, waste management, and ecotourism. The training includes fishing techniques that do not damage coral reefs and mangrove forests, as well as environmentally friendly waste management methods. In addition, the community is also trained in managerial and marketing skills to run small businesses related to tourism and local crafts. With these new skills, the residents of Bira Village are able to increase their income through sustainable fisheries practices and more environmentally friendly tourism businesses. The impacts of this program include increased income, poverty reduction, and improved quality of life for the community [27].

3. Increasing Environmental Awareness, the integration of the blue and green economy also contributes to increasing environmental awareness among local communities. With the increasing number of conservation and education programs, people are becoming more aware of the importance of preserving the environment and marine ecosystems. The Environmental Awareness Campaign at Losari Beach is a good example, Hatta (2020). Environmental Awareness Campaign at Losari Beach Losari Beach, as one of the main tourist destinations in Makassar, has become the center of an environmental awareness campaign. The city government, together with various environmental organizations, launched a campaign to raise public awareness about the impacts of pollution and the importance of coastal preservation. The campaign included seminars, workshops, and beach clean-up events involving the local community. In addition, there were educational programs in schools that taught children about the importance of keeping beaches and oceans clean. By increasing environmental awareness, people are more supportive of conservation efforts and actively participate in keeping beaches clean. The results of this campaign are seen in the improvement of the quality of the coastal environment and greater support for environmental policies [27].
4. Improved Quality of Life and Health The integration of the blue and green economy also has an impact on improving the quality of life and health of the community. With better waste management and reduced pollution, a cleaner environment provides direct benefits to public health. The Waste Management Initiative in Bontoa Village is a relevant example. Waste Management Initiative in Bontoa Village Bontoa Village, located in the coastal area of Makassar, faces pollution problems due to domestic and industrial waste [28]. To address this problem, the local government launched a waste management initiative that included the construction of waste treatment facilities and recycling systems. Local residents were involved in the waste management process, including waste sorting, collection, and recycling activities. In addition, the program also included education on proper waste disposal practices. With improved environmental quality, the community experienced a decrease in pollution-related health problems, such as respiratory diseases and skin infections. Improved overall public health is one of the positive outcomes of improved waste management efforts. The integration of blue and green economy principles in the development of sustainable tourism in Makassar has had a very

positive social impact. Improved economic well-being, community empowerment, increased environmental awareness, and improved quality of life and health are the main outcomes of this approach. Real-world examples such as the ecotourism project on Spermonde Island, the training program in Bira Village, the awareness campaign on Losari Beach, and the waste management initiative in Bontoa Village show how the integration of sustainability principles not only protects the environment but also improves the quality of life of local communities. Although challenges in implementation and monitoring remain, the benefits gained from the integration of the blue and green economy show great potential to create better social welfare and support the development of environmentally friendly tourism in Makassar.

Impact on the Economy. The integration of blue and green economy in Makassar has a significant impact on economic growth, especially in the tourism sector. By combining the sustainability principles of these two approaches, Makassar can harness the economic potential of tourism while preserving the environment. The following is a discussion of the economic impact of this integration, accompanied by examples of objects that illustrate the positive results and challenges faced.

Positive Impact on Economy, The integration of blue and green economy in Makassar contributes to economic growth by increasing the attractiveness of environmentally friendly tourism. Sustainability programs implemented in tourist areas have succeeded in improving environmental quality, which in turn attracts more tourists seeking sustainable tourism experiences. A striking example is the development of ecotourism areas in Bantimurung-Bulusaraung National Park [29].

Bantimurung-Bulusaraung National Park, Bantimurung-Bulusaraung National Park, located in Maros Regency, near Makassar, is a prime example of how the integration of blue and green economy can boost tourism appeal and economic revenue. The park is renowned for its rich biodiversity, including a variety of butterfly species, waterfalls, and stunning karst caves. In an effort to protect the ecosystem and promote sustainable tourism, the local government together with conservation organizations launched various conservation programs, such as habitat restoration, waste management, and development of environmentally friendly tourism facilities. As part of this program, training was also conducted for local communities on sustainable tourism practices and how to manage tourist visits in a way that minimizes negative impacts on the environment. As a result, Bantimurung-Bulusaraung National Park experienced a significant increase in visitor numbers. Tourists interested in ecotourism and environmental sustainability came to enjoy the natural beauty that was still preserved, which had a direct impact on increasing revenue from the tourism sector. The addition of facilities such as ecotourism information centers, well-maintained trekking trails, and environmental education centers also contribute to a better tourism experience, which in turn encourages tourists to spend more time and money in the area [30].

Challenges in Sustainable Tourism Development, However, sustainable tourism development is not without challenges. One of the main challenges is the need to improve infrastructure that supports sustainability without compromising the principles of sustainability itself. For example, the development of infrastructure such as

accommodation, restaurants, and public facilities must be carried out with attention to environmental impacts. An example of this challenge can be seen in the tourism development project on Samalona Island. Tourism Development on Samalona Island, Samalona Island is a popular tourist destination in Makassar that offers white sandy beaches and beautiful coral reefs. To increase the number of tourists and economic income, there are plans to develop tourism infrastructure on the island, including the construction of resorts, restaurants, and recreational facilities. However, this development faces challenges in ensuring that economic growth does not undermine the principles of sustainability. Infrastructure development must be carried out carefully to avoid damaging marine and coastal ecosystems. In addition, it is important to ensure that waste from new facilities does not pollute the sea and reduce environmental quality. Another challenge is managing the number of visitors so that it does not exceed the capacity of the ecosystem that can be supported, so as not to cause damage to coral reefs and marine habitats. Therefore, there needs to be strict regulation and implementation of effective management practices to maintain a balance between economic growth and environmental preservation.

The integration of blue and green economy in Makassar has a positive impact on the economy, especially in the tourism sector. The sustainability programs implemented have improved environmental quality and increased tourist appeal, as seen in Bantimurung-Bulusaraung National Park. However, sustainable tourism development also faces challenges, such as the need to improve infrastructure that supports sustainability without compromising sustainability principles, as reflected in the project on Samalona Island. To ensure the long-term benefits of blue and green economy integration, it is important to continue to address these challenges with a balanced approach based on sustainability principles. With the right efforts, Makassar can continue to develop as an environmentally friendly and economical tourist destination [30].

4.3 Integration of Blue and Green Economy in the Context of Makassar

Analysis of the Effectiveness of Integration of the Two Concepts. The integration of blue and green economy in marine resource management and tourism in Makassar provides an interesting illustration of the application of a comprehensive sustainability concept. In this context, the analysis of the effectiveness of the integration of these two concepts shows significant progress, but also identifies various challenges that need to be overcome. This integration combines the blue economy approach, which focuses on the sustainable use of marine resources, with the green economy principle that emphasizes efficient environmental management.

1. Improvements in Environmental Quality and Community Welfare, the effectiveness of the integration of these two concepts can be seen from the real improvements in the quality of the marine environment and the improvement in the welfare of local communities. Programs such as coral reef conservation, mangrove rehabilitation, and waste management have shown positive impacts. For example, Bunaken National Park, which is one of the areas focused on the integration of the

blue and green economy, has seen significant improvements in the condition of coral reefs and biodiversity. The coral reef restoration program in Bunaken National Park has succeeded in restoring most of the coral reef areas that were previously damaged by uncontrolled human activities. In addition, better waste management and environmental education programs have increased local community awareness of the importance of environmental sustainability. Local communities around Bunaken National Park are now involved in conservation activities, such as coral reef monitoring and waste management, which not only help maintain the environment but also provide economic benefits through ecotourism [31].

2. **Challenges in Implementation**, despite significant progress, the implementation of blue and green economy integration in Makassar faces several challenges. One of the main obstacles is inconsistent implementation and limited resources. For example, although there are policies that support sustainable management of marine resources, implementation on the ground is often hampered by a lack of financial support and human resources. In some areas, such as Samalona Island, there are difficulties in ensuring compliance with environmental regulations and consistent implementation of conservation programs. Limited resources also impact the capacity for effective monitoring and law enforcement. Without adequate monitoring, violations of environmental policies, such as illegal fishing and pollution, continue to occur, which can threaten the success of sustainability programs [32].
3. **Potential and Contribution to Sustainable Management Model**, Despite the challenges, the successful integration of the blue and green economy in Makassar shows great potential in creating a sustainable and profitable resource management model. This integration provides a concrete example of how a sustainability-based approach can be applied in marine resource management and tourism. By utilizing the experiences and results of successful programs, such as coral reef conservation and mangrove rehabilitation, Makassar can develop a management model that can be replicated in other areas with similar characteristics. This research on the effectiveness of blue and green economy integration aims to provide a better understanding of how these two concepts can be effectively applied in Makassar. By analyzing the impacts on the tourism sector and environmental quality, it is hoped that the results of this study can provide significant contributions to sustainable management efforts and the development of environmentally friendly tourism in Makassar. The integration of the blue and green economy in Makassar has shown significant progress in improving environmental quality and the welfare of local communities. However, challenges such as inconsistent implementation and limited resources remain obstacles that need to be overcome. By continuing to address these challenges and harnessing the potential, Makassar can develop a sustainable resource management model and provide sustainable economic benefits to local communities. Further research and analysis in this area will continue to play an important role in supporting sustainable marine resource management and tourism [33].

5 Conclusion

The integration of blue and green economy in marine resource management in Makassar has shown significant progress with positive impacts on environmental quality and community welfare. Policies that support the blue economy, such as coral reef protection and fisheries regulation, as well as green economy policies that focus on reducing pollution and preserving natural habitats, have been implemented effectively. Management practices that include marine protected zones and coral reef rehabilitation have shown real results, with improvements in marine ecosystem conditions and reduced pollution. Performance analysis shows that the integration of these two concepts has improved the quality of the marine environment and biodiversity. However, challenges in consistent implementation and supervision, especially in remote areas, still need to be overcome. The positive impact of this integration is not only felt in environmental management, but also in the development of sustainable tourism. The integration of the blue and green economy has succeeded in reducing environmental pressures from mass tourism, improving the quality of the coastal environment, and supporting the welfare of local communities through community empowerment and training. From an economic perspective, this integration contributes to the growth of the tourism sector by offering environmentally friendly experiences, which in turn can increase tourism sector revenues. However, challenges such as improving infrastructure and ensuring sustainable economic growth still need to be faced. Overall, the results of this study indicate that the integration of blue and green economy offers a sustainable and profitable resource management model, but requires continued attention to implementation challenges. With a consistent approach and adequate support, Makassar can continue to harness the potential of this integration to achieve better marine resource management and more environmentally friendly tourism development.

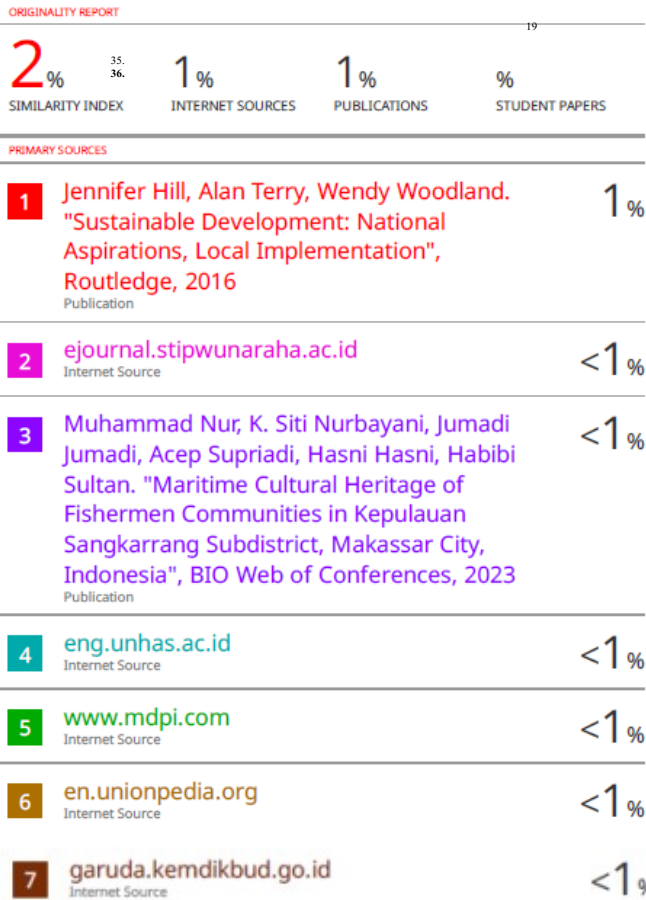
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