International Journal Of Humanities Education And Social Sciences ***(IJHESS)*** *E-ISSN:* **2808-1765**
Volume 4, Number 4, February, *Page. 1940 – 1947*
Email : editorijhess@gmail.com

The Strategic Role Of Mangroves In The Formation Of Territorial Sovereignty: Analysis Of Territorial Expansion And Maritime Sustainability

Kadek Bayu Prabha Maheswara[1*)], Abdul Rivai Ras [2)], Panji Suwarno [3)], Pujo Widodo [4)]
[1,2,3,4)] Maritime Security Study Program, National Security Faculty, Indonesia Defense University

*Corresponding Author
Email: kadek.bayu@kn.idu.ac.id

Abstract

In efforts to assert maritime sovereignty and security, the strategy of managing maritime resources, particularly mangrove ecosystems, plays a crucial role. This research aims to examine the impact of national mangrove belt thickening on the expansion of a country's sovereign territory, linking maritime security aspects with sustainable maritime resource management. Through a literature study methodology, this research collects and analyzes secondary data from various scientific publications, government reports, and other relevant documents to understand the relationship between mangrove rehabilitation and territorial expansion. The findings of this analysis indicate that mangrove belt thickening has significant potential in expanding the land area of an island through natural accretion mechanisms. Consequently, this process not only strengthens the country's position in claiming maritime sovereignty but also contributes to efforts to adapt to climate change and mitigate the risk of rising sea levels. Furthermore, mangrove rehabilitation is recognized as a strategic step that supports the sustainability of fisheries resources and preserves stable coastal ecosystems. The results of this research provide important insights for policymakers, coastal area managers, and research communities in the field of maritime security. The policy recommendations generated offer guidelines for planning and executing mangrove rehabilitation programs on a national scale. This emphasizes the need for an integrated approach between maritime resource management and maritime security policies, suggesting the application of ecosystem concepts in policy development. Thus, this research not only enriches the literature in the field of maritime security with empirical evidence regarding the benefits of mangrove belt thickening but also underscores its strategic contribution to expanding a country's territorial jurisdiction.

Keywords: Mangrove, Territorial Sovereignty, Maritime Sustainability.

INTRODUCTION

Mangroves are an ecosystem that has high biodiversity and plays an important role in maintaining ecological balance and sustainability of maritime resources. The function of the mangrove ecosystem is not only limited to protecting coastlines from erosion, but also as an important habitat for various species of marine biota, as well as contributing to the global carbon cycle (Sari et al., 2019).

Indonesia, as the world's largest archipelago, has a strategic position with a vast maritime territory. In order to expand the territory and support maritime sustainability, the government has taken concrete steps through relevant policies and laws. One significant step is the implementation of the UN Convention on the Law of the Sea (UNCLOS 1982), which gives Indonesia the right to manage the Exclusive Economic Zone up to 200 nautical miles from the coastline. This implementation is enshrined in UU No. 6/1996, which reinforces sovereignty claims over biological and non-biological resources in the region (Zuhdi, 2020).

To ensure sustainability, the government has integrated environmental protection aspects through UU No. 32/2009 on Environmental Protection and Management. This policy covers coastal management, marine ecosystem preservation, and conservation zone development. In addition, the role of local communities in coastal area management is also strengthened to ensure a balance between resource utilization and environmental preservation (Kusumaputra, 2021).

The government has also invested in strengthening maritime institutions and infrastructure. Modernization of the patrol vessel fleet and port development are prioritized to strengthen

surveillance of marine areas. In addition, UU No. 11/2020 on Job Creation provides a framework to accelerate investment in the maritime sector while preserving marine resources. However, challenges such as territorial use conflicts, environmental degradation, and globalization demand a cross-sectoral approach as well as international cooperation. These efforts reflect Indonesia's commitment to sovereignty, environmental sustainability and the well-being of coastal communities (Sholihah, 2019).

In addition, mangroves act as natural fortresses that protect coastal areas from the impacts of climate change, such as rising sea levels and intensification of storms. In the context of maritime security, maintaining and thickening mangrove belts is an important strategy in strengthening the country's territorial sovereignty, through territorial expansion supported by natural accretion processes.

Although the potential of mangroves in supporting maritime security and sovereignty has been recognized, research regarding the direct relationship between the thickening of the mangrove belt and the expansion of the country's territorial area is still limited. This raises questions about the extent to which thickening of the mangrove belt can contribute to the expansion of sovereign territory and how this can be utilized to support maritime security policies and sustainable natural resource management. Therefore, it is important to investigate these relationships to gain a deeper understanding of the potential of mangroves in the context of maritime security and management of sovereign territories.

From a deep understanding of the importance of mangrove ecosystems for maritime sustainability and defense, critical questions arise regarding the role of thickening the national mangrove belt in the expansion of the country's sovereign territory and its impact on aspects of maritime security and natural resource management.

The study of the role of mangrove ecosystems in supporting regional sovereignty has been the concern of many researchers, especially in the context of coastal and maritime area management. Research by (Zuhdi, 2020) underlines the importance of maritime culture and coastal area management as strategic elements in building state sovereignty. Mangroves, as part of the coastal ecosystem, not only function as a natural bulwark against abrasion and tsunamis, but also provide significant economic and ecological value in supporting maritime sustainability.

In addition, research by (Kusumaputra, 2021) shows that the management of natural resources, including mangroves, requires an integrated regulatory framework to maintain sustainability and support the role of coastal areas as part of national sovereignty. The research also highlights how environmental and sustainable development policies can help strengthen claims to maritime territories.

Another study by (Sholihah, 2019) discussed the challenges faced by maritime border areas, including threats to coastal ecosystems such as mangroves due to illegal activities. Mangroves, with their ecological roles as carbon sinks, shoreline protectors and fish habitats, have a strategic position in supporting the socio-economic stability of coastal communities while strengthening state sovereignty in border areas.

In the context of maritime sustainability analysis, (Thamrin et al., 2016) identified the ecological dimension as an important element that needs to be addressed urgently to improve the sustainability of border areas. This research emphasizes that mangrove protection as part of the ecological dimension can support the sustainability status of coastal areas and help meet national strategic needs.

This research was designed to examine the extent to which intensive mangrove planting activities can contribute to the expansion of the country's sovereign territory, understand its impact on increasing maritime security and the efficiency of natural resource management, and identify effective policy recommendations based on the analysis of the findings. This objective includes evaluating the real contribution of mangrove thickening in expanding territorial boundaries, exploring its implications for maritime security, and preparing policy recommendations whose

information can be relied on by decision makers in formulating sustainable coastal environmental management strategies.

The benefits of this research include providing empirical evidence about the influence of thickening of the mangrove belt on the expansion of the country's territorial area, which can support maritime security policies and territorial sovereignty. Then enrich academic literature related to maritime security and natural resource management with a new perspective on the role of mangroves, as well as provide recommendations to policy makers and coastal area managers regarding effective mangrove ecosystem management strategies to support maritime security and natural resource sustainability. Thus, it is hoped that this research can contribute significantly to the development of maritime security strategies that are integrated with natural resource management and environmental protection.

RESEARCH METHODS

The methodology adopted in this research focuses on literature study, which is a comprehensive approach in collecting, reviewing and analyzing scientific publications related to the influence of mangrove vegetation on maritime boundaries and mangrove ecosystem management. Source selection criteria involve several important aspects: relevance of the topic, novelty of the research, and credibility of the source. First, the relevance of the topic is determined based on the suitability of the source with the research focus on mangroves and maritime security. Second, the majority of research selected were publications within the last decade to ensure the novelty of the data and analysis. Finally, source credibility is guaranteed by prioritizing articles from peer-reviewed scientific journals, books, and reports from trusted institutions.

The data analysis technique in this literature study involves synthesizing information from various sources to identify patterns, trends, and gaps in the existing literature. This process included categorizing data based on major themes, evaluating methodologies used in previous studies, and examining findings and conclusions to assess consistency and divergence across studies. This technique allows researchers to build a comprehensive understanding of the research topic, as well as identify potential for further research.

Study limitations

In this research, specific study boundaries are needed to direct the research focus to certain aspects related to the influence of mangrove vegetation on maritime boundaries and their management. First, this research is limited to analyzing literature related to mangrove ecosystems and maritime security, specifically excluding other ecosystems that also play a role in the management of coastal and maritime areas. Second, in a temporal context, this research focuses on studies and data published in the last decade to ensure the relevance and actuality of the information analyzed. Third, this research limits its geography to the Indonesian region, considering that Indonesia has one of the largest mangrove areas in the world, which makes this country an important case for studies on mangroves and maritime security (Cresswell, 2018).

The selection of these boundaries was based on the need to provide an in-depth and focused analysis of the role of mangroves in maritime security and maritime area management, given the complexity and breadth of the topic. Therefore, this research aims to produce significant and applicable findings for the Indonesian case, with potential application in similar international contexts (Yin, 2018).

Analytical approach

In this research, the analytical approach adopted focuses on decomposing and interpreting data from collected literature to identify and understand the dynamics between mangrove ecosystems and maritime area management, as well as their implications for maritime security. This approach involves several key steps including descriptive analysis to present a general picture

of the current status of research related to mangroves and maritime security. Second, thematic analysis is used to group research findings based on the main themes that emerge from the literature, such as the influence of mangroves on the expansion of maritime areas, the role of mangroves in coastal defense, and policies and regulations that support mangrove management.

The third step involves an evaluation of existing research methodologies in the literature, including strengths and weaknesses in the approaches taken by previous studies. This is intended to identify gaps in existing research and potential for further studies. Fourth, synthesize findings from various sources to build a comprehensive argument that supports the objectives of this research.

This analytical approach is supported by established theories and literature analysis frameworks, as described by Booth, et al. (2016), This approach allows researchers to not only collect and integrate existing knowledge but also to offer new perspectives and provide evidence-based recommendations for mangrove management and maritime security strategies.

RESULTS AND DISCUSSION

Description of the condition of Indonesia's national mangrove belt

The results of the analysis from the literature study carried out show the current condition of Indonesia's national mangrove belt which includes aspects of the area, distribution and health condition of the mangrove ecosystem. Indonesia, as a country with one of the largest mangrove areas in the world, has around 3.3 million hectares of mangroves spread across various provinces, with the largest concentrations found in Papua, Kalimantan and Sumatra. This distribution shows the importance of mangroves in Indonesia's maritime ecosystem, not only as a natural barrier against erosion and natural disasters but also as a crucial habitat for the sustainability of maritime biodiversity.

However, the health condition of Indonesia's national mangrove belt faces significant challenges due to deforestation, land conversion for aquaculture, and coastal development. Murdiyarso et al. (2015), revealed that mangrove loss in Indonesia is occurring at an alarming rate, reaching an average of 52,000 hectares per year between 2000 and 2005. This causes a decline in the ecological function of mangroves and has a negative impact on their capacity to provide ecosystem services, such as storage. carbon and protection against natural disasters.

Research by Friess et al. (2019) show that, in some areas, mangroves have succeeded in increasing land accretion rates, resulting in significant territorial expansion. In addition, a healthy and maintained mangrove ecosystem has the potential to increase maritime biodiversity and support the socio-economic life of coastal communities by providing various ecosystem services such as coastline protection, food sources and livelihoods.

From a legal and policy perspective, analysis of the influence of thickening of the mangrove belt on territorial area reveals that this initiative has significant implications in the context of national and international maritime legislation and policy. An increase in territorial area through natural mangrove expansion may require adjustments and updates in the legal framework governing maritime boundaries and natural resource management. In accordance with the United Nations Convention on the Law of the Sea (UNCLOS), additional areas formed through natural processes such as sedimentation by mangroves can be recognized as part of a country's territorial area, as long as the country can show evidence of effective control and claim over the new area.

In line with this, Brunnée and Toope (2010), highlight the importance of policy and legislative adaptation that is responsive to the dynamics of the maritime environment. The thickening of the mangrove belt which contributes to the expansion of territorial areas requires coastal countries to strengthen legislative and policy capacities in managing geographical changes, including aspects of zoning, resource management and environmental protection.

Analysis regarding the ecological and environmental impacts of thickening the mangrove belt on the territorial area highlights the potential for significant positive changes in maritime and coastal ecosystems. Thickening of mangroves not only contributes to the expansion of territorial areas through natural processes such as sedimentation but also strengthens the function of mangrove ecosystems in providing habitat for biodiversity, absorbing carbon dioxide, and reducing erosion and the impact of natural disasters. Alongi's (2018) research shows that healthy, expansive mangrove ecosystems provide substantial ecological benefits, including increased adaptive capacity to climate change and improved water quality through filtration of nutrients and pollutants.

Mangrove expansion also plays a role in increasing blue carbon stocks, which are important in climate change mitigation efforts. Mangroves are known to have one of the highest levels of carbon storage among terrestrial and aquatic ecosystems, so thickening mangroves can increase carbon storage capacity on a national and global scale. Research by Donato et al. (2011), emphasizes the importance of preserving and expanding mangroves as an effective strategy for reducing carbon emissions and protecting against global warming.

In analyzing the socio-economic implications of thickening the mangrove belt on the area of sovereign territory, the findings show that this effort not only expands the territorial area but also provides significant benefits for coastal communities and the local economy. Mangrove thickening supports the sustainability of fisheries resources, which are the main source of livelihood for many coastal communities, by providing habitat for fish species and other marine biota, which are essential for spawning, rearing and protection from predators. Barbier et al. (2011) stated the importance of how mangrove ecosystems contribute to local economies through the provision of diverse ecosystem services, including fisheries, tourism, and protection against natural disasters.

The Indonesian government plays an important role in preserving nature through various sustainability-oriented policies, programs and regulations. One important step was the passage of UU No. 32/2009 on Environmental Protection and Management, which provides a framework for sustainably safeguarding natural resources, integrating environmental protection in development, and managing the environmental impacts of human activities (Darmawan, 2022). In the context of water resources management, the government decentralized to give authority to the regions in preserving water, although the challenge of coordination between the center and the regions is still a concern, as expressed in research related to the Omnibus Law and the dynamics of regional autonomy (Kusumaputra, 2021).

The government also utilizes the potential of local wisdom, such as introducing the concept of “Smong” in Simeulue as part of community-based environmental education. This step shows the importance of integrating local traditions in disaster mitigation strategies and environmental conservation (Jumarlin & Hasan, 2019). However, challenges remain, such as resource exploitation still dominating policy, so governments are encouraged to continue prioritizing ecocentrism-based approaches to ensure environmental sustainability for future generations (Suharto, 2011).

Furthermore, mangrove thickening has the potential to increase food security and reduce poverty among coastal communities through diversification and stabilization of livelihood sources. Mangroves also play an important role in ecological tourism, attracting tourists interested in their biodiversity and natural beauty, which in turn can stimulate local economic growth. Spalding et al. (2014), emphasized that thickening mangroves not only increases protection against the impacts of natural disasters but also adds economic value to coastal areas through sustainable tourism and biodiversity conservation.

Analysis of challenges and opportunities opens insight into the complexities faced in implementing mangrove conservation policies and practices. The main challenges include degradation of mangrove habitat due to human activities such as land conversion for pond

fisheries, infrastructure development, and illegal logging. In addition, climate change and rising sea levels are increasing pressure on mangrove ecosystems, accelerating damage and reducing the effectiveness of mangroves in coastal protection and carbon sequestration. Duke et al. (2007), underscoring the vulnerability of mangroves to climate change and human activities, highlights the urgent need for conservation and restoration action.

On the other hand, opportunities for preserving and thickening the mangrove belt are strengthened by increasing global awareness of the vital role of mangroves in mitigating climate change, protecting biodiversity, and supporting the blue economy. International initiatives and collaborations between countries, as highlighted by the United Nations Environment Program (UNEP), offer resources, knowledge and financial support for mangrove rehabilitation. Programs such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) offer financing mechanisms for mangrove conservation, creating economic incentives for conservation.

CONCLUSION

Indonesia's national mangrove belt represents a vital asset for ecological balance, maritime biodiversity, and socio-economic development, as well as a key player in global climate change mitigation efforts. With approximately 3.3 million hectares of mangroves distributed across various provinces—primarily Papua, Kalimantan, and Sumatra—the ecosystem provides essential services such as natural disaster protection, carbon storage, and habitat for diverse marine species. These benefits are critical not only for local coastal communities but also for Indonesia’s standing as a global steward of mangrove conservation.

However, significant challenges threaten the sustainability of these ecosystems. Deforestation, land conversion for aquaculture, coastal infrastructure development, and illegal logging have contributed to the degradation of mangroves, as highlighted by an alarming loss of 52,000 hectares annually between 2000 and 2005 (Murdiyarso et al., 2015). Rising sea levels and climate change further exacerbate this degradation, reducing mangroves' effectiveness as coastal protectors and carbon sinks. This underscores the urgent need for proactive conservation and restoration efforts.

Despite these challenges, opportunities for preservation and expansion abound. Healthy mangroves, as shown by Friess et al. (2019), have the potential to increase land accretion rates, expand territorial areas, and enhance coastal resilience. Such expansion offers significant ecological and socio-economic benefits, including improved fisheries sustainability, increased food security, and poverty alleviation through ecosystem services such as tourism, sustainable fisheries, and coastline protection (Barbier et al., 2011). Furthermore, mangroves contribute to the blue economy, positioning Indonesia as a leader in sustainable development and climate action.

From a policy perspective, thickening mangroves aligns with international maritime laws, such as the United Nations Convention on the Law of the Sea (UNCLOS), which recognizes territorial expansions through natural processes like sedimentation. This provides a legal framework for integrating mangrove expansion into national territorial claims and resource management policies. However, successful implementation requires adaptive legislative frameworks that address zoning, resource utilization, and biodiversity protection (Brunnée & Toope, 2010).

On a global scale, increasing awareness of mangroves' importance in climate change mitigation has facilitated international collaborations and funding mechanisms. Programs like REDD+ (Reducing Emissions from Deforestation and Forest Degradation) and initiatives led by the United Nations Environment Program (UNEP) provide financial and technical support for mangrove conservation, fostering economic incentives for sustainable management. Local initiatives, such as the integration of traditional knowledge like the "Smong" disaster mitigation

concept, further highlight the role of community engagement in strengthening conservation efforts.

In conclusion, while Indonesia's mangrove belt faces pressing environmental challenges, the opportunities for restoration, conservation, and sustainable utilization are immense. By leveraging international partnerships, fostering community-based initiatives, and strengthening national policies, Indonesia can maximize the ecological and socio-economic potential of its mangroves, reinforcing their role as a cornerstone of global climate resilience and sustainable development.

REFERENCES

Alongi, D.M. (2002). "Present State and Future of the World's Mangrove Forests". *Environmental Conservation*, 29(3), 331-349.

Barbier, E.B., et al. (2011). "The Value of Estuarine and Coastal Ecosystem Services". \ *Ecological Monographs*, 81(2), 169-193.

Booth, A., Sutton, A., & Papaioannou, D. (2016). "Systematic Approaches to a Successful Literature Review". London: SAGE.

Creswell, J.W., & Creswell, J.D. (2018). "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches". Thousand Oaks, CA: SAGE.

Danielsen, F., et al. (2005). "The Asian Tsunami: A Protective Role for Coastal Vegetation". *Science*, 310(5748), 643.

Duke, N.C., et al. (2007). "A World Without Mangroves?". *Science*, 317(5834), 41-42.

Fink, A. (2019). "Conducting Research Literature Reviews: From the Internet to Paper". Thousand Oaks, CA: SAGE.

Fitri Darmawan, K. (2022). HAK ASASI LINGKUNGAN VERSUS HAK ATAS PEMBANGUNAN SEBAGAI HAM: ANTARA KONFLIK DAN KESEIMBANGAN. *Jurnal Poros Hukum Padjadjaran*, 3(2). https://doi.org/10.23920/jphp.v3i2.685

Friess, D.A., et al. (2019). "The Role of Mangroves in Coastal Protection". *Marine Environmental Research*, 134, 101-112.

Fujimoto, K., et al. (1999). "Roles of Mangrove Forest in Coastal Protection in Bintuni Bay, West Papua". *Mangroves and Salt Marshes*, 3(2), 75-82.

Giri, C., et al. (2011). "Status and Distribution of Mangrove Forests of the World Using Earth Observation Satellite Data". *Global Ecology and Biogeography*, 20(1), 154-159.

Guebas, F., et al. (2005). "How Effective Are Mangroves as a Defence Against Tsunamis?". *Journal of Marine Science and Engineering*, 3(2), 287-301.

Jesson, J.K., Matheson, L., & Lacey, F.M. (2011). "Doing Your Literature Review: Traditional and Systematic Techniques". London: SAGE.

Jumarlin, & Hasan, E. (2019). Peran Pemerintah Dalam Mensosialisasikan Kearifan Lokal Smong Untuk Masyarakat Pendatang Di Simeulue. *Jurnal Ilmiah Mahasiswa Fakultas Ilmu Sosial & Politik UNSIYAH*, 4(3), 1-12.

Kusumaputra, A. (2021). DEKONSTRUKSI PEMBANGUNAN BERKELANJUTAN MELALUI OTONOMI DAERAH DALAM PENGELOLAAN SUMBER DAYA AIR PASCA OMNIBUS LAW. *LITRA: Jurnal Hukum Lingkungan, Tata Ruang, Dan Agraria*, *1*(1). https://doi.org/10.23920/litra.v1i1.590.

McLeod, E., et al. (2011). "A Blueprint for Blue Carbon: Toward an Improved Understanding of the Role of Vegetated Coastal Habitats in Sequestering CO2". *Frontiers in Ecology and the Environment*, 9(10), 552-560.

Murdiyarso, D., et al. (2015). "The Potential of Indonesian Mangrove Forests for Global Climate Change Mitigation". *Nature Climate Change*, 5(12), 1089-1092.

Pemerintah Republik Indonesia. (2014). Undang-Undang No. 1 Tahun 2014 tentang Pengelolaan Wilayah Pesisir dan Pulau-Pulau Kecil.

Rajkaran, A., & Adams, J.B. (2018). "Mangroves as Natural Protection Against Coastal Erosion: A Review". Estuarine, *Coastal and Shelf Science*, 214, 212-223.

Rothwell, D.R., & Stephens, T. (2016). "The International Law of the Sea". Hart Publishing.

Sari, R. N., Safe'i, R., & Iswandaru, D. (2019). Biodiversitas fauna sebagai salah satu indikator kesehatan hutan mangrove. *Perennial*, 15(2), 62-66.

Suharto, R. (2011). REKONSTRUKSI BIROKRASI PEMERINTAH DAERAHDALAM PENGELOLAAN SUMBER DAYA ALAM MENUJU KEBERLANJUTAN EKOLOGI.

Sholihah, F. (2019). Dari Sirip Hiu Hingga Penyelundupan Manusia: Kapitalisasi Dunia Pelayaran Nelayan Tradisional di Wilayah Lintas Batas Laut Timor., 19, 49-62.

Spalding, M., et al. (2014). "The Role of Ecosystems in Coastal Protection: Adapting to Climate Change and Coastal Hazards". *Ocean & Coastal Management*, 90, 50-57.

Thamrin, N., Sutjahjo, S. H., Herison, C., & Sabiham, S. (2016). Analisis Keberlanjutan Wilayah Perbatasan Kalimantan Barat-Malaysia untuk Pengembangan Kawasan Agropolitan (Studi Kasus Kecamatan Dekat Perbatasan Kabupaten Bengkayang). *Jurnal Agro Ekonomi*, *25*(2). https://doi.org/10.21082/jae.v25n2.2007.103-124

Thomas, N., et al. (2020). "Assessing the Role of Mangrove Expansion and Management in Future Coastal Protection". *Journal of Coastal Conservation*, 24(2), 1-14.

United Nations. (1982). United Nations Convention on the Law of the Sea (UNCLOS).

Yin, R.K. (2018). "Case Study Research and Applications: Design and Methods". Thousand Oaks, CA: SAGE.

Zuhdi, S. (2020). Budaya Bahari Sebagai Modal Membangun Negara Maritim Indonesia. *JurnalMaritim Indonesia, 8*(2), 127-142.