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The Regulations for Management of Coastal Natural Resource Conflicts in Indonesia-Malaysia Border

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ABSTRACT

Indonesia and Malaysia will continue to engage in violent and protracted border conflicts over natural resources due to limited natural resources. Due to the scarcity and abundance of renewable resources, there are border disputes between Indonesia and Malaysia. Illegal fishing is a concern for both countries. This study aimed to determine the management of Indonesia-Malaysia coastal natural resource disputes. This was normative legal research that employed statutory, empirical, and case methods. The study found that Indonesia and Malaysia need to strengthen their laws as a follow-up to their bilateral agreements, considering that illegal activities often occur along land and sea borders. Another problem is that maritime regulations in Indonesia and Malaysia have different problems and challenges, ranging from the lack of specific regulations to the existence of illegal activities on the sea and land borders of each country. The laws governing maritime sector activities are vulnerable to institutional conflicts due to overlapping regulations and legislation resulting from cross-border processing at maritime borders. Therefore, from a regulatory perspective, it is necessary to strengthen various existing regulations.

1. Introduction

Policies on renewable energy must be institutionally supported.[1] In addition to influencing the global geopolitical system, a country's access to power is advantageous for enhancing its citizens' quality of life. Energy can serve as the foundation for international relations but can also be a source of internal conflict. A state's limited natural resources compel it to pursue a means of territorial expansion. Conflicts between neighboring

[1] Handayani and I Gusti Ayu Ketut Rachmi Handayani, 'The Politics Settlement of Land Tenure Conflicts During Jokowi's Presidency.Pdf', *Ournal of Indonesian Legal Studies*, 7.2 (2022), 487–524 https://doi.org/https://doi.org/10.15294/jils.v7i2.57539

countries are typically more intense and protracted. In the future, there will be an increase in disputes over limited natural resources. The need for natural resources compels each nation to expand its borders to seek and satisfy its domestic requirements. Even though awareness of the importance of a sustainable environment began centuries ago, it continues to grow globally as more and more people recognize that they live on the precipice of resource extinction. The world witnessed environmental issues and their effects in their proper form. Before issuing a permit, the government must consider not only a single economic factor but also social and ecological factors, which are insignificant.[2]

Indonesia is the world's largest archipelago, and its environment comprises extensive natural resources.[3] Building Indonesia from the Outskirts is one of the exciting issues in developing the country's border areas. The conservation and improved management of mangrove and seagrass ecosystems in Indonesia, a country with a high level of biodiversity, will provide economic value for coastal communities and opportunities for governments to satisfy their climate change commitments.[4] The border area as the territory of state sovereignty is, in principle, an essential thing in showing the existence of a country. From a linguistic standpoint, sovereignty is defined as absolute authority over the governance of a state, region, or other entities.[5] The integrity and sovereignty of the nation require exceptional management. To provide legal certainty, The National Medium Term Development Plan (RPJMN) 2020-2024 Technocratic Draft emphasizes the importance of the strategic values possessed by the Border Region, including the potential for resources that have a significant influence on Economic, Demographic, Political, and Defense and Security aspects. The border region is a strategic area vital to the territorial regarding the extent of state territory, the authority of state territory management, and sovereign rights; managing state boundaries and border areas is necessary. It is conducted with a unified focus on welfare, safety, and environmental sustainability. At least four resource categories exist for the exploitation of natural resources in cross-border regions, solid, fixed boundaries, fixed boundaries, fluid resources, substantial resources, uncertain boundaries, and uncertain boundaries, fluid resources.[6]

On the one hand, the strategic geographical configuration can benefit Indonesia. Still, on the other, this position is highly vulnerable to threats, both military threats from foreign nations and non-military threats in the form of crimes or unlawful activities.[7] Based on its

[2] Albertus Sentot Sudarwanto and others, 'The Policy on Illegal Oil Palm Plantation Reform in Forest Area during Jokowi's Presidency', *Hasanuddin Law Review*, 8.2 (2022), 171–85 https://doi.org/10.20956/halrev.v8i2.3566

[3] Liza Shahnaz and Aditia Syaprillah, 'Legal Management of Natural Resources in Coastal Region of Indonesia', *IOP Conference Series: Earth and Environmental Science*, 1083.1 (2022) https://doi.org/10.1088/1755-1315/1083/1/012034

[4] Frida Sidik and others, 'Blue Carbon: A New Paradigm of Mangrove Conservation and Management in Indonesia', *Marine Policy*, 147 (2023), 105388 https://doi.org/10.1016/j.marpol.2022.105388

[5] Sidik and others.

[6] Rongxing Guo, 'Exploiting Natural Resources in Cross-Border Areas', in *Cross-Border Resource Management* (Elsevier, 2021), pp. 203–35 https://doi.org/10.1016/B978-0-323-91870-1.00007-0

[7] Adi Satriyo Puguh and others, 'The Policy in Handling Transnational Crime at Indonesia's Maritime Borders (Study at Tanjung Balai Asahan, North Sumatera Province)', *Technium Social Sciences Journal*, 28 (2022), 645–57 https://doi.org/10.47577/tssj.v28i1.5814

geographical location, one-third of West Kalimantan is along the coast and islands facing The Indonesian Archipelago Sea Lane (*ALKI I*). Administratively, North Kalimantan Province is bordered by Malaysia, specifically the Malaysian states of Sabah and Sarawak, with a border length of approximately 1,038 kilometers. The frontier between North Kalimantan Province and Malaysia, therefore the border region in North Kalimantan, is quite representative of the Indonesian border region. The North Kalimantan region immediately adjacent to Malaysia is quite vulnerable. Transnational crime, also known as transnational crime, causes losses many nations fear. With such conditions in the geographical constellation of national resources, the Kalimantan region has the potential for security disturbances that can occur in and by sea. The strengthen the Total People's Defense System (*Sishanrata*), it is necessary, based on the current state of strategic environmental development, to empower all maritime potential on the coast as a national resource for projecting power from sea to land.[8]

Examine Malaysia, a neighboring country with a border with Indonesia. The Malay nations have been sovereign since before the Federation of Malaya in 1957 until the present day. They obtained international recognition in the form of external sovereignty. International law recognizes the continental shelf of a coastal state about Malaysia, a federation of several coastal states. Locally relevant to this topic is the authority of the Malay States within the Federation of Malaysia to produce petroleum on the continental shelf adjacent to their territorial waters.[9] Malaysia has a vast expanse of water that doubles its land area. This area gives Malaysia an extensive coastline encompassing 6036.7 kilometers and 561 islands. This province is home to three-fifths of Malaysia's population. The maritime zone of Malaysia is of the utmost importance due to the country's strategic geographical location in terms of international trade routes. The Straits of Malacca and the South China Sea are two maritime zones of great importance to the global marine community, as they contain East-West trade routes. Natural gas and petroleum resources abound in the country's oceanic expanses.[10] The Malacca Strait is between Malaysia and the Indonesian island of Sumatra. The South China Sea is a semi-enclosed body of water directly bordered by Vietnam on the west, the Philippines, Malaysia, and Brunei on the east, Indonesia and Malaysia on the south, and China and Taiwan on the north.

Malacca Strait, eastern Singapore Strait, North Natuna Sea, and Sulawesi Sea make up the maritime border with Malaysia. Regarding sea boundaries, the two nations have yet to reach an agreement on several segments, including the territorial sea, exclusive economic zones, and continental shelf. Failure to correctly enforce maritime security law can jeopardize a coastal state's sovereignty, security, and safety, making maritime law enforcement a crucial responsibility for coastal conditions. The high number of marine offenses committed in Indonesian waters demonstrates that maritime security laws must

[8] Mokhamad Subur, I Wayan Midhio, and Edy Sulistyadi, 'Lantamal XII Pontianak Strategy in Empowering Maritime Potential in the Region to Strengthen the Total People's Defense System', *Strategi Perang Semesta*, 8.1 (2022), 25 https://doi.org/10.56555/sps.v8i1.1189

[9] Wan Ahmad Fauzi Wan Husain, 'The Constitutional Position Of Continental Shelf In Malaysia', *Malaysian Journal of Syariah and Law*, 11.1 (2023) https://doi.org/10.33102/mjsl.vol11no1.432

[10] Ahmad Kamal Ariffin Mohd Rus, Zulkarnain Abdul Rahman, and Muhammad Hidayatur Rahman Mustazar, 'Pengasasan Dan Peranan Agensi Penguatkuasaan Maritim Malaysia, 2004-2014', *Sejarah*, 30.1 (2021), 172–89 https://doi.org/10.22452/sejarah.vol30no1.9

still be enforced to combat illegal fishing.[11] Dozens of naval rules have been enacted at the international level. Bureau International Maritime has published numerous guidelines about the fight against piracy and fraud and protecting ship personnel. As an international treaty, the United Nations Convention on the Law of the Sea (now referred to as the Convention) defines rights and state use of the seas and the geographical boundaries of maritime zones.[12] An issue that frequently arises during maritime boundary delimitation negotiations is determining how littoral states can enforce their national law in undefined naval boundaries.[13] Transnational criminals exploit the suboptimal handling of international crimes in Indonesian waters by using Indonesia as a conduit for illicit trade. The increase in transnational crimes in Indonesia has implications for national defense. This condition will jeopardize Indonesia's national security if not halted quickly.

There are significant disparities between disputes over renewable and non-renewable natural resources, particularly in border areas based on a sustainable environmental approach. The fight over renewable natural resources is cyclical, but the conflict over non-renewable resources occurs only momentarily in the same region. The analysis employs a *RAFISH* method modification via the multidimensional scaling (*MDS*) methodology. This rating implies that only the economic dimension is sustainable, whereas the legal and institutional dimensions are less so, and the ecological, socio-cultural, and technological dimensions are not. According to leverage analysis, several attributes exist, such as the leverage factor to ecological, socio-cultural, and technical dimensions.[14] At the same time, Dirham Dirhamsyah's research investigates the international and national legislation relevant to maritime security and analyzes the institution's arrangement of naval protection in Indonesia. This study employs the case study method to examine the difficulties and countermeasures of illegal fishing. This case study uses data on illegal, unreported, and unregulated (IUU) fishing in Indonesian waters between 2015 and 2020.[15]

Previous research by Hilary Oliva et al. discussed how digital spatial information reignites normative and distributional contestations instead of documenting a singular, stable state of affairs. Data collection and standardization present a dual challenge in Myanmar and Indonesia, encompassing political boundaries, conflicting representations, and technical complexities. By integrating findings from political geography and the burgeoning field of political ecology of data, these scholars expand the applicability of

[11] Dirham Dirhamsyah, Saiful Umam, and Zainal Arifin, 'Maritime Law Enforcement: Indonesia's Experience against Illegal Fishing', *Ocean and Coastal Management*, 229.July (2022), 106304 https://doi.org/10.1016/j.ocecoaman.2022.106304
[12] L. V. Mikhaylova, 'Legal Regulation of the Activities of Operational Units of Law Enforcement Agencies in Maritime Spaces', *Actual Problems of Russian Law*, 16.4 (2021), 174–83 https://doi.org/10.17803/1994-1471.2021.125.4.174-183
[13] Arie Afriansyah, Aristyo Rizka Darmawan, and Andreas Pramudianto, 'Enforcing Law in Undelimited Maritime Areas: Indonesian Border Experience', *The International Journal of Marine and Coastal Law*, 37.2 (2022), 282–99 https://doi.org/10.1163/15718085-bja10092
[14] Herdis Herdiansyah and others, 'Conflict Management of Renewable Natural Resources in the Border of Indonesia-Malaysia: Sustainable Environmental Approach', *Procedia Environmental Sciences*, 20 (2014), 444–50 https://doi.org/10.1016/j.proenv.2014.03.056
[15] Mohammad Jamin and others, 'The Impact of Indonesia's Mining Industry Regulation on the Protection of Indigenous Peoples', *Hasanuddin Law Review*, 9.1 (2023), 88–105 https://doi.org/10.20956/halrev.v9i1.4033

territorialization theory to spatial data platforms. In its conclusion, the study considers how data infrastructure has created a new arena for the global control of land and resources and bolstered the aspiration for comprehensive geospatial knowledge.[16] Then, research conducted by Herdis Herdiansyah et al. discussed conflicts over the management of renewable natural resources in The Indonesia-Malaysia border based on a sustainable environmental approach. At the Indonesian-Malaysian frontier, conflicts over renewable natural resources have been partly sparked by their scarcity and abundance. Particularly in the border region, conflicts over nonrenewable natural resources and those over renewable natural resources exhibit fundamental distinctions. Nonrenewable resource conflicts are only temporary, whereas the renewable natural resource conflict is cyclical. According to this index, sustainability is solely observed in the economic dimension, while the ecological, socio-cultural, and technological dimensions are deemed less sustainable. Leverage analysis reveals that specific attributes, including the leverage factor, are associated with technical, ecological, and sociocultural dimensions.[17]

Research by Francisco José Vázquez Pinillos et al. found that a strategic diagnosis was conducted by analyzing the ten subdivisions of the political-administrative system that comprise the Integrated Coastal Zone Management (ICZM) Decalogue. The findings indicate that conflicts in Chiloé adhere to a state model characterized by a high degree of centralization. This model often places economic progress above the socio-ecological and cultural intricacies of the coast, neglecting the consequences of climate change and the interdependence of ecosystem services and human welfare.[18]

This research is equipped with definitions of critical social science terms (including governance, institutions, and social–ecological systems), and the reader is introduced to significant changes, issues, and sectors in the coastal management of Indonesia and Malaysia. By the need for integrated planning, overlaps and trade-offs between these sectoral recommendations are identified. A set of generic recommendations for inclusive, integrated governance approaches is proposed within the theoretical framework of adaptive, evolutionary, and anticipatory governance.[19] Laws governing marine sector activities are subject to institutional conflicts due to overlapping laws and regulations resulting from transboundary processing at sea borders. Numerous instances of overlapping space usage in the marine environment have resulted in disputes, which frequently become a significant issue. Because the sea has not been rigorously regulated and is not reflected in existing marine management policies and regulations, problems have arisen in the utilization and authority of space in the sea area. Marine Territories are

[16] Hilary Oliva Faxon and others, 'Territorializing Spatial Data: Controlling Land through One Map Projects in Indonesia and Myanmar', *Political Geography*, 98.June 2021 (2022), 102651 https://doi.org/10.1016/j.polgeo.2022.102651

[17] Willy Naresta and others, 'The Geothermal Development Policy on Environmental in Indonesia and the USA', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 160–84 https://doi.org/https://doi.org/10.53955/jhcls.v3i2.85

[18] Francisco José Vázquez Pinillos and others, 'Diagnosis of the Coastal Management Model in Chile: The Island and the Sea of Chiloé Governance', *Regional Studies in Marine Science*, 2023, 103242 https://doi.org/10.1016/j.rsma.2023.103242

[19] Marion Glaser and others, 'The Governance of Coastal and Marine Social–Ecological Systems', in *Science for the Protection of Indonesian Coastal Ecosystems (SPICE)* (Elsevier, 2022), pp. 407–43 https://doi.org/10.1016/B978-0-12-815050-4.00008-0

administered by several institutions that have not demonstrated a unified policy direction. Utilization of marine resources, policy products, and existing regulations are predominantly sectoral, with each sector's interests emphasized. This condition requires a defined spatial arrangement and emphasizes the integration of existing policies and rules to implement sustainable development in practice.[20] Therefore, a study on the maritime regulation-based management of coastal natural resource conflicts on the Indonesia-Malaysia border is required.

2. Research Method

This study employs the statutory, fact, and case approaches to conduct normative legal research. A statutory system is used to comprehend concepts related to maritime policy in managing coastal resources. At the same time, the case study method is utilized to investigate and resolve problems in real-world settings. This investigation's findings are descriptive in nature. Secondary data sources derived from a literature review are primary data sources. The collected data were then subjected to a descriptive qualitative analysis.[21] This research conducts a comparative study of policies in Malaysia. The author chose Malaysia as a comparison country because The North Kalimantan region immediately adjacent to Malaysia is quite vulnerable. Transnational crime, also known as transnational crime, causes losses many nations fear.

3. Results and Discussion

3.1. The Regulation of Management Natural Resources Coastal in Indonesia Border

The total population of Indonesia is estimated to be 60% reside in coastal areas. Fisheries contributed 2.8% of Indonesia's gross domestic product (GDP) in 2020 despite the country's status as the second-largest seafood producer in the world (after China)[22]. Indonesia ranks fourth in the world by population size and is both a major producer of minerals and a significant producer and exporter of manufactured goods. Therefore, the country provides an ideal testing ground. The (non-mining) manufacturing sector averaged 23% of GDP between 1993 and 2009. In 2009, Indonesia exported 14% of its manufacturing output, mainly food and beverages, wood products, rubber products, textiles, communication equipment, and garments. These sectors alone employed 54% of manufacturing workers. Indonesia also exports various raw minerals, including coal, tin, nickel, gold, and bauxite. The mining sector accounted for 4.54% of the country's GDP in 2009 and employed up to 31% of the total workforce in mining districts.[23]

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[20] Yordan Gunawan and Mohammad Hazyar, 'The Climate Change Litigation Based Human Rights Approach in Corporations : Prospects and Challenges', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 288–307 https://doi.org/https://doi.org/10.53955/jhcls.v3i2.116

[21] Abdul Kadir Jaelani and Resti Dian Luthviati, 'The Crime Of Damage After the Constitutional Court's Decision Number 76/PUU-XV/2017', *Journal of Human Rights, Culture and Legal System*, 1.1 (2021), 2807–12 https://doi.org/10.53955/jhcls.v1i1.5

[22] Lucentezza Napitupulu and others, 'Trends in Marine Resources and Fisheries Management in Indonesia: A Review', *World Resources Institute*, 2022 https://doi.org/10.46830/wrirpt.20.00064

[23] Paul Pelzl and Steven Poelhekke, 'Good Mine, Bad Mine: Natural Resource Heterogeneity and Dutch Disease in Indonesia', *Journal of International Economics*, 131 (2021), 103457 https://doi.org/10.1016/j.jinteco.2021.103457

The maritime state is referred to as a thalassocracy. This word is derived from the Greek thalassokratia, consisting of Thalassa and keratin. Thalassa translates to "sea," and keratin means "to rule." Therefore, the literal translation of thalassokratia is "rule of the sea." It refers to a state with predominantly maritime domains, a maritime empire, or a seaborne empire. The Indonesian archipelago must rebuild its so-called "maritime culture" and reformulate economic policies for maritime identity to preserve its naval identity. The merchant navy is deeply ingrained in the marine culture, which is viewed as malleable, reconstructed, complex, changeable, and characterized by significant variation and divergent tendencies.[24] According to data from the Central Statistics Agency (BPS), there are 2,265,859 fishermen in Indonesia. They also possess a high capacity to adapt to environmental changes. Traditional practices include weather forecasting, traditional fishing techniques, and fishing bans on specific fish species. Indigenous knowledge aids in preserving the ecosystem and restoring ecological functions harmed by human actions in the past. For instance, the Sasi tradition in Maluku prohibits harvesting certain natural resources during a specific period.[25]

Besides natural resources in Indonesia, the average calorie consumption from fisheries is 49.89 kcal per capita per day, and protein is 8.43 kcal per capita per day. In addition to domestic consumption in 2019, Indonesia exported 1.18 thousand tons of fishery products with an export value of US$ 4.94 billion. Fishery products also contributed 419,982 billion rupiahs to Indonesia's Gross Domestic Product or 2.65% of the total GDP (1259). The full potential of fishing catches amounted to 6,520,100 tons/ year, and the total catch in 2015 was 6,065,060 tons. The data shows that there is still unexpired potential.[26]

The role of the government in managing catch fisheries is to reduce the actions of IUU fisheries, with the Regulation of the Directorate General of Supervision of Marine Resources and Fisheries Number 11/PER-DJPSDKP/2014 concerning the implementation of special measures against foreign-flagged fishing vessels, then Regulation of the Minister of Marine Affairs and Fisheries Number 2/PERMEN-KP/2015 about catching lobster (Panulirus spp.), crab (Scylla spp.), and rajungan (Portunus pelagics spp.)[27]. The most recent state estimation for total fishery potential owned by Indonesian waters showed a staggering 12,541,348 tons of fish resources. Management of fish resources must ensure sustainability so that future generations can enjoy the benefits. Operation requires government action steps through its policies and implementation—the material stipulated in the LRI No. 5/1983, UNCLOS 1982, and WCPFC,[28] under international law, no specific regime of ownership governing marine fishery resources exists. The global legal

[24] Zaidah Nur Rosidah, Lego Karjoko, and Mohd Rizal Palil, 'The Government's Role in Interfaith Marriage Rights Protection: A Case Study of Adjustment and Social Integration', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 265–87 https://doi.org/10.53955/jhcls.v3i2.105

[25] D. A.A. Sari and E. Latifah, 'Revitalization of Traditional Fisheries Rights of Indigenous People in Sustainable Fisheries Management in Indonesia', *IOP Conference Series: Earth and Environmental Science*, 724.1 (2021) https://doi.org/10.1088/1755-1315/724/1/012117

[26] I Made Aditya Nugraha and others, 'The Potential of Residual Processing of Indonesian Marine and Coastal Areas as Biogas Energy', *Proceedings of the International Conference on Tropical Agrifood, Feed and Fuel (ICTAFF 2021)*, 17.Ictaff 2021 (2022), 263–68 https://doi.org/10.2991/absr.k.220102.039

[27] Adinda Thaliya and others, 'Analysis of Natural Resources of Marine and Fishery Policy on the Welfare of Marine Area Communities an Islamic Economic Perspective', *Journal of Economics Research and Social Sciences*, 5.2 (2021), layouting https://doi.org/10.18196/jerss.v5i2.12277

[28] R. Pramoda and others, 'Fisheries Management Policy in Indonesia's Exclusive Economic Zone Area', *IOP Conference Series: Earth and Environmental Science*, 869.1 (2021) https://doi.org/10.1088/1755-1315/869/1/012001

basis for states to engage in deep-sea fishing is as follows: UNCLOS specifies that the sovereignty of coastal States extends to marine fishery resources within their internal waters and territorial sea, whereas the power of archipelagic States extends to marine fishery resources within their archipelagic waters. Coastal states have sovereign fishing, conservation, and management rights within their EEZs and exclusive fishing rights on their continental shelves for sedentary fisheries.[29]

Regional Autonomy, which is marked by the enactment of Law Number 23 of 2014 concerning Regional Government as amended multiple times, most recently by Law Number 9 of 2015 concerning the Second Amendment to Law Number 23 of 2014 concerning Governance, grants the region autonomy that is as broad as possible and is aimed at accelerating the achievement of community welfare through service improvement, empowerment, and community participation. Article 18 paragraph (6) of the 1945 Constitution of the Republic of Indonesia and Article 242 section (1) of Law Number 23 of 2014 provide formal legal legitimacy for the Regional Government's authority to establish regional regulations. Conceptually, the goal of granting the regions the most significant possible autonomy is to expedite the realization of social welfare through service improvement, empowerment, and community participation. In addition, it is hoped that the regions will be able to increase their competitiveness by taking into account the principles of democracy, equity, justice, privileges, and specificities, as well as the potential and diversity of regions within the system of the Unitary State of the Republic of Indonesia, through broad autonomy in the global strategic environment.[30]

New location authorization criteria are included in Law 11/2020. Permits are designed to use money from some coastal waters. Instead, it replaces Article 16 of Law 1/2014 regarding Amendments to Law 27/2007, which stated that the utilization of space from coastal waters must respect spatial and zone planning, with Law 11/2020, which turns a portion of minor islands into business licenses. As a result, everyone who utilizes coastal areas needs to obtain permission from the federal agencies responsible for maritime usage. By combining location permissions and management permits with company permits, Law 11/2020 streamlines the licensing procedure that has been in effect until now. By combining these two permits, those who use marine and coastal waters only need so many licenses, which can occasionally be challenging, even for locals who want to start a particular business. As a result, neither the company nor the activity significantly affects nor poses a risk to the long-term viability of coastal and marine water ecosystems. It increases law enforcement while simultaneously streamlining the licensing system. This business license will be punished if certain businesses and activities violate the law in a way that damages or pollutes remote islands and coastal areas. Anyone who uses space from coastal waters without business authorization for maritime usage may be subject to an administrative penalty, a maximum punishment of three years in prison, and a fine of Rp. 500,000,000.00 (five hundred million rupiahs) are applicable for changing the room's operation. For a business license for usage at sea, holders must wait two years after

[29] Chuanliang Wang, Qian Zhao, and Yen Chiang Chang, 'On the Legal Status of Marine Fishery Resources: From the Perspectives of International Fishery Law', *Heliyon*, 9.4 (2023), e15354 https://doi.org/10.1016/j.heliyon.2023.e15354

[30] Novyta Uktolseja, 'Utilization and Management of Marine Resources in the Coastal Area Based On Regional Autonomy', *Sasi*, 28.1 (2022), 43 https://doi.org/10.47268/sasi.v28i1.748

receiving their approval before starting their business. As a result, his company's license is suspended.[31]

The issues confronting law enforcement are frequently intertwined with the legal system, including its substance, structure, and culture. If these three conditions are met, law enforcement operations will operate more efficiently and in concert. Ultimately, this will result in societal transformation that aligns with the intentions of legislators or statutory mandates. In substance, a regulation about Indonesian coastal areas is outlined in Law No. 27 of 2007 on the Administration of Coastal Areas and Small Islands. The interpretation of this legislation posits that its justification lies in the propensity of small islands and coastal regions to sustain detrimental effects caused by natural calamities. Aside from that, damage to the island and coastal resources and the accumulation of various sectoral/partial fishing activities are additional consequences of actions authorized by statute. Current legal frameworks focus on exploiting small islands and coastal resources, neglecting resource conservation's imperative. In contrast, the community needs to be more informed regarding the significance of strategically integrating and conserving coastal and small island resources.[32] An Integrated Coastal Approach to Management needs to be implemented in this regulation, as evidenced by the need for more innovation in inconsistent management and control and the incoherence with other laws. This provision also governs investment and is more advantageous for corporate entities; consequently, the government's proposed utilization planning leaves no space for the community, tiny indigenous communities, and traditional communities. Several regulations have been modified by Law No. 27 of 2007, as amended by Law No. 1 of 2014, regarding the Management of Coastal Areas and Small Islands; these include Transformations accomplished through the integration of land, sea, and earth planning. Spatial planning entails the organization, utilization, and regulation of space. Consequently, maritime space must be coordinated with land and air space utilization. Hence, including marine space management regulations in this legislation is inappropriate; they should be incorporated into the spatial planning law.[33]

In addition, other regulations still necessitate modifications, most notably Law Number 32 of 2014 about Maritime Affairs. Spatial planning encompasses the phases of strategizing, implementing, and overseeing space management; thus, land and air space utilization must be integrated with maritime space management. Emphasizing regulations about marine space management in this legislation is inappropriate; instead, they should be substantiated in the Spatial Planning Law. This legislation's Specified provisions should be confined to marine resource utilization, excluding space management.[34] Furthermore, confirmation procedures, not location permits or management, are utilized to ascertain the adequacy of activity plans and spatial planning. Subsequently, within the provisions of the Job Creation Bill, a terminology shift occurs about environmental permits, which presently employs the terminology established by Law No. 32 of 2009 concerning Environmental Protection and Management. The term modification subsequently gives rise to

[31] Fatma Ulfatun and Dinil Abrar, 'The Shaping of Future Sustainable Energy Policy in Management Areas of Indonesia ' s Energy Transition', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 361–82 https://doi.org/https://doi.org/10.53955/jhcls.v3i2.110

[32] Muhammad Halley Yudhistira, Indra Degree Karimah, and Nadya Rahmi Maghfira, 'The Effect of Port Development on Coastal Water Quality: Evidence of Eutrophication States in Indonesia', *Ecological Economics*, 196.February 2021 (2022), 107415 https://doi.org/10.1016/j.ecolecon.2022.107415

[33] Nurul Dhewani Mirah Sjafrie and others, 'Network Analysis Reveals Overlapping Roles of Stakeholders Related to Seagrass-Data Provisioning in Indonesia', *Marine Policy*, 157 (2023), 105837 https://doi.org/10.1016/j.marpol.2023.105837

[34] Isma Rosyida and Masatoshi Sasaoka, 'Local Political Dynamics of Coastal and Marine Resource Governance: A Case Study of Tin-Mining at a Coastal Community in Indonesia', *Environmental Development*, 26.September 2017 (2018), 12–22 https://doi.org/10.1016/j.envdev.2018.03.003

complications concerning distinct environmental licensing legislation. Permits, a term frequently used in ecological administration law and a component of the Constitutional Court's definition of *"bestuurdaad"* or management about the state's authority to regulate natural resources, may have "fatal" repercussions within the environmental licensing system, including the provisions that grant ecological approvals. In administrative law, the principle of "contrarius actus" and the authority to issue and revoke licensing facilities are non-existent. Furthermore, there is no recourse to challenge State Administrative decisions via the State Administrative Court *(PTUN).*

The Coastal Area Management Law endeavors to foster collaboration and reciprocal enhancement among governmental entities utilizing coastal regions at the regional and national levels. The primary objective is to prevent and mitigate authority conflicts between activities conducted in coastal areas and promote harmonious cooperation among agencies. Nevertheless, centralized licensing, by the complexities of the Job Creation Bill, creates an environment conducive to corrupt practices and undermines the regional autonomy principle established by the constitution and Law Number 23 of 2014 regarding Regional Government. These systems function without the involvement of the public or the community.[35] A sustainable approach to maritime and coastal development may be adversely affected by sectoral egotism. To comprehend the overarching objective, which is national progress in the marine sector as delineated in the National Development Program (*Propenas*), a unified perspective is thus imperative. In light of this, integration assumes significant importance in mitigating sectoral arrogance that may detrimentally impact national interests within the maritime domain.[36]

From a legal and cultural perspective, local communities and traditional communities with customary law that are members of a single coastal community unit have an equal relationship regarding using marine and coastal resources to sustain themselves. In addition to granting freedom of access to utilize coastal and marine resources to fulfill their needs, organizations give equality to local communities and traditional communities by relieving them of the burden associated with the business permit application process for such resources Daily through diligent consideration of ecological sustainability.[37] Unrestricted access enables traditional societies and local communities to govern their existence autonomously. Reviving the phrase "prioritizing national interests" within the text of Article 26A of Law No. 1 of 2014 concerning Amendments to the 2007 PWP3K Law, as most recently amended by the 2020 Ciptaker Law.

3.2. The Regulation of Management Natural Resources Coastal Malaysia Border

Malaysia, with a population of 32.7 million, consists of 13 states and three federal territories that span two non-contiguous regions: West (or Peninsular) Malaysia and East Malaysia (Sarawak, Sabah, and Labuan on Borneo; these ecosystems support both high species richness and endemism and are estimated to contain 20% of the world's animal species and some of Malaysia's waters are within the Coral Triangle, which is home to 77%

[35] Naimah Lutfi Talib and others, 'Three Centuries of Marine Governance in Indonesia: Path Dependence Impedes Sustainability', *Marine Policy*, 143.June (2022), 105171 https://doi.org/10.1016/j.marpol.2022.105171
[36] Isma Rosyida, Wahidullah Khan, and Masatoshi Sasaoka, 'Marginalization of a Coastal Resource-Dependent Community: A Study on Tin Mining in Indonesia', *The Extractive Industries and Society*, 5.1 (2018), 165–76 https://doi.org/10.1016/j.exis.2017.11.002
[37] Sidik and others.

of the total recorded marine species in the world.[38] Malaysia has a land area of 329,758 km2 and a coastline that spans 4,809 kilometers. Peninsular Malaysia's coastline is approximately 2,902 kilometers long, and more than 90 percent consists of easily eroded alluvium[39]. In terms of energy and energy consumption, the final energy consumption growth rate between 2009 and 2019 was 3.1%, and in 2020 was 4.11 exajoules (EJ), with 0.04 EJ of RES—0.18 EJ of hydro, 1.38 EJ, and 1.37 EJ of oil and gas, and 1.37 EJ of coal. Under the BAU scenario, total final energy consumption will increase from 59.88 Mtoe in 2017 to 177.18 Mtoe in 2050, at an annual growth rate of 3.3%. Through 2050, natural gas consumption will experience the highest average annual growth rate (AAGR) at 3.7%. From 2017 to 2050, oil consumption will rise from 28.27 Mtoe to 82.17 Mtoe (an increase of 3.3% per year), coal demand will grow by 3.2% per year, and power demand will rise from 12.60 Mtoe to 34.23 Mtoe (an increase of 3.2% per year) (an average annual growth rate of 3.1%). The demand for alternative fuels, such as biodiesel, is expected to increase from 0.38 Mtoe to 0.53 Mtoe, a growth rate of 1.0% per year.[40]

Each Malaysian consumes more than 50 kg of fish annually, which accounts for about 25 percent of the country's per capita production. In 2014, the fishery industry in Malaysia produced approximately 1.98 million tons of fish worth RM 12.76 billion, contributing 1.3% to the country's gross domestic product. Malaysia ranks sixteenth globally in fisheries production, accounting for approximately 1.1% of global output. However, global fisheries production is anticipated to increase with human population growth, where capture fisheries have historically been the most important source of fish supply. In Sarawak, approximately 564 species of fishery resources from 32 orders and 123 families have been documented.[41]

The Department of Fisheries Malaysia (DOFM) implemented Malaysia's first MPA in the 1980s to prevent overfishing and improve coastal zone fishing resources. The Malaysian Marine Parks gazettement was issued in 1994 after a review of the Fisheries Act of 1963, and it became a constitutional law in 1995. MPAs are designed to protect habitats and marine resources, but they also serve as a management tool to enhance the sustainability of fisheries. Peninsular Malaysia has been designated with 53 MPAs under the Fisheries Act of 1989. In 1994, Malaysia signed the Convention on Biological Diversity (CBD), which mandated protecting and administering multiple protected areas to preserve biodiversity. In 1998, the first National Policy on Biological Diversity was established to continue to develop and verify new broad-based policies that will enable the nation to protect its biodiversity in the future. Consequently, the National Policy on Biological Diversity 2016–2025 consolidates and ensures the continuation of efforts to preserve and utilize biodiversity responsibly in regions facing significant socioeconomic and environmental challenges.[42]

Natural reserves in Malaysia are enormous, and Malaysia, China, Mongolia, and Thailand are more significant energy consumers and growth economies with higher

[38] Su Yin Chee and others, 'Enhancing Uptake of Nature-Based Solutions for Informing Coastal Sustainable Development Policy and Planning: A Malaysia Case Study', *Frontiers in Ecology and Evolution*, 9 (2021) https://doi.org/10.3389/fevo.2021.708507

[39] Hamizah Ahmad and others, 'Assessment of Erosion and Hazard in the Coastal Areas of Selangor', *Malaysian Journal of Society and Space*, 17.1 (2021) https://doi.org/10.17576/geo-2021-1701-02

[40] Saleh Shadman and others, 'Conceptualising the Sustainable Energy Security Dimensions of Malaysia: A Thematic Analysis through Stakeholder Engagement to Draw Policy Implications', *Sustainability (Switzerland)*, 13.21 (2021) https://doi.org/10.3390/su132112027

[41] Abu Hena Mustafa Kamal and others, 'Diversity of Fisheries in Sarawak, Northwest Borneo: Present Status and Conservation Issues', *Borneo Journal of Resource Science and Technology*, 12.1 (2022), 32–51 https://doi.org/10.33736/bjrst.4651.2022

[42] Muhammad Mehedi Masud and others, 'Co-Management Approach to Sustainable Management of Marine Protected Areas: The Case of Malaysia', *Marine Policy*, 138.April 2021 (2022), 105010 https://doi.org/10.1016/j.marpol.2022.105010

environmental pollution levels. In 2016, China, Malaysia, and Thailand emitted 7.17, 8.09, and 4.11 metric tons of CO2 per capita. In 2013, Mongolia's per capita carbon dioxide emissions reached a record high of 15,13 kilograms, setting a new national record. However, with 8.30 metric tons of CO2 emissions per capita in 2016, Mongolia is still the largest CO2 emitter in Asia. During 1990–2012, Mongolia's carbon intensity was 15 times the global average, despite the country's Gross Domestic Product (GDP) increasing by 147%. Moreover, 25% of Mongolia's energy sector's carbon emissions were observed.[43]

The enormous potential of Malaysia is tied to its difficulties. To safeguard the environment and natural resources in Malaysian coastal cities, various state and federal agencies implemented the Environmental Quality Act, EIA, fines and penalties, TCP Act of 1976, Fishery Act of 1985, and National Heritage Act of 2005. Consequently, multiple agencies and interests govern coastal regions. The development of the coastline is wholly controlled by the state, with minimal federal involvement. Therefore, Penang's coastal management needs to be integrated. Therefore, ICZM installation in Penang is challenging. Science, local communities, and institutions appear to interact. The greatest obstacle is the lack of legislation and the enforcement of rules and regulations against abuses, such as plant and animal poaching, which has rendered the Penang National Park vulnerable. Regarding CZM, environmentalists, and natural phenomena, human interactions with nature and commitment to the international community have had the most significant impact on promoting environmental consciousness. Since Penang is an island, the marine environment requires the most care.[44] By collectively assuring sustainability, regional governments contribute to the development of renewable natural resources at the border in a holistic fashion. Involving communities and markets, provincial governments are also responsible for managing conflicts over renewable natural resources at the edge, which differs from other disputes regarding time, space, and the parties involved. By collectively assuring sustainability, regional governments contribute to the development of renewable natural resources at the border in a holistic fashion. Involving communities and markets, provincial governments are also responsible for managing conflicts over renewable natural resources at the edge, which differs from other disputes regarding time, space, and the parties involved.

Natural Resources in Malaysia can't be separated from the energy natural resources produce. We have to know the regulations. The Renewable Energy Act of 2011 is a law that mandates the implementation of a feed-in tariff for renewable energy generation, and the use of biogas from effluent refuse for the power generation of the national electricity grid. The mandate is the Biomass Sustainable Production Initiative (2010–2013). A joint initiative between Malaysia and the European Union to assist Malaysian small and medium-sized enterprises in exploiting local biomass resources for high-value applications to identify gaps in the Malaysian biomass industry and develop subprograms to address them. Compliance with the 2020 National Biomass Strategy in 2011 to focus on biomass produced from palm oil[45]. However, in Malaysia, renewable energy development is

[43] Yiming Li and others, 'Nexus between Renewable Energy, Natural Resources and Carbon Emissions under the Shadow of Transboundary Trade Relationship from South East Asian Economies', *Energy Strategy Reviews*, 41.January (2022), 100855 https://doi.org/10.1016/j.esr.2022.100855

[44] Reda Albotoush and Aileen Tan Shau-Hwai, 'Evaluating Integrated Coastal Zone Management Efforts in Penang Malaysia', *Ocean & Coastal Management*, 181 (2019), 104899 https://doi.org/10.1016/j.ocecoaman.2019.104899

[45] Siva Raman Sharvini and others, 'Energy Consumption Trends and Their Linkages with Renewable Energy Policies in East and Southeast Asian Countries: Challenges and Opportunities', *Sustainable Environment Research*, 28.6 (2018), 257–66 https://doi.org/10.1016/j.serj.2018.08.006

hampered by a lack of understanding of its benefits and enhanced technologies. Both ultimate energy and investment costs are higher for renewable energy than for conventional energy, limiting their use. The Renewable Energy Power Purchase Agreement does not provide sufficient cash flow for lenders, thereby diminishing investor confidence in renewable energy companies. Thus, the Malaysian government must establish effective and sustainable financial structures to promote the expansion of renewable energy projects and sustainable development.[46]

The National Biomass Strategy 2020 outlines potential avenues for progress and strategic courses of action regarding expanding the biomass value chain. It also establishes a pathway for the nation to meet its renewable energy needs via the application of biomass. Su et al. state that despite the ongoing expansion of Malaysia's oil palm sector, OPWs remain the primary emphasis of the strategy.[47] In the interim, the Malaysian Ministry of Energy and Natural Resources has established a target of 31% renewable energy in the installed capacity blend of the country by 2025. Malaysia is committed to advancing decarbonization in the electricity sector to achieve reductions in greenhouse gas emissions and assist the government in reaching its Nationally Determined Contribution (NDC) 2030 objective of decreasing the intensity of greenhouse gas emissions per unit of GDP by 45% by 2030 and an additional 60% by 2035. The established objectives can be met by effectively integrating the co-production of biochar and electricity from OPWs.[48]

Nevertheless, several challenges must be addressed before carrying out the two scenarios. Oil palm plantations and refineries are dispersed nationwide, predominantly in rural regions. Thus, due diligence is required in placing and arranging pyrolysis plants and their distribution and order. In this regard, remote sensing technology may serve as a viable alternative for ascertaining the precise spatial configuration of oil palm plantations. The environmental impact of transportation distance and ecological protection on greenhouse gas emissions, transportation costs, and project operation costs is substantial.[49] Furthermore, a significant concern about the pyrolysis sector's growth is the pyrolysis facility's magnitude. Large-scale or centralized pyrolysis facilities typically have greater negotiating leverage in the supply and sales chains; however, they are beset by numerous obstacles, including high operating and capital expenses, convoluted logistics, and exorbitant transportation charges. On the contrary, small-scale or distributed pyrolysis facilities offer adaptable logistics and transportation routes and a low economic threshold.[50] Furthermore, numerous potential risks and obstacles are associated with the implementation of the two scenarios, including social and economic concerns, infrastructure development, market demand, policy and regulatory frameworks, and environmental risks. For successful execution and long-lasting results, adopting a comprehensive strategy that harmonizes

[46] Fairuz Suzana Mohd Chachuli and others, 'Transition of Renewable Energy Policies in Malaysia: Benchmarking with Data Envelopment Analysis', *Renewable and Sustainable Energy Reviews*, 150 (2021), 111456 https://doi.org/10.1016/j.rser.2021.111456

[47] Guangcan Su, Nurin Wahidah Mohd Zulkifli, and others, 'Pyrolysis of Oil Palm Wastes for Bioenergy in Malaysia: A Review', *Renewable and Sustainable Energy Reviews*, 164 (2022), 112554 https://doi.org/10.1016/j.rser.2022.112554

[48] Guangcan Su, Peng Jiang, and others, 'Co-Production of Biochar and Electricity from Oil Palm Wastes for Carbon Dioxide Mitigation in Malaysia', *Journal of Cleaner Production*, 423 (2023), 138749 https://doi.org/10.1016/j.jclepro.2023.138749

[49] Junqi Wang and others, 'Life Cycle Assessment of Bio-Based Levoglucosan Production from Cotton Straw through Fast Pyrolysis', *Bioresource Technology*, 307 (2020), 123179 https://doi.org/10.1016/j.biortech.2020.123179

[50] Guangcan Su, Hwai Chyuan Ong, and others, 'State-of-the-Art of the Pyrolysis and Co-Pyrolysis of Food Waste: Progress and Challenges', *Science of The Total Environment*, 809 (2022), 151170 https://doi.org/10.1016/j.scitotenv.2021.151170

environmental, social, and economic dimensions is critical. Collaboration among multiple stakeholders, including academia, government, industry, and civil society, is essential for implementation success and sustainability.

Malaysia's energy portfolio comprises oil, fossil fuels, coal, and renewable energy sources such as solar, biomass, and hydro. With an average daily solar insolation of 5.5 kW, Malaysia's climatic conditions are ideal for developing solar energy due to abundant sunlight. Malaysia's predicted monthly solar irradiance is 400–600 MJ/m 2 or 15 MJ/m2. With 189 rivers totaling about 57,300 kilometers, Malaysia has become one of the world's most hydropower-potential regions. Malaysia collected approximately 49,670 tons of municipal solid waste each day. In Malaysia, landfill is the preferred method of solid waste management, with 85 percent of materials disposed of in landfills; this high percentage is a result of the low cost of this method of solid waste management. According to the International Renewable Energy Agency (IRENA), the current global wind energy generation is 622,704 MW, and Malaysia can generate between 500 and 2000 MW of wind energy.[51] Geothermal energy is considered one of the most sustainable and high-potential energy sources. Id. Investing in developing geothermal energy sources can contribute to the sustainable development of the economy, environment, and society. Prioritizing the appropriate locations is the strategic decision with the most significant impact on sustainable development. Malaysia is an attractive investment destination for this technology. However, Malaysia lacks proper geothermal energy resource location research.[52]

In 2009, the Ministry of Energy, Green Technology, and Water (KeT-THA) established a comprehensive platform for developing renewable energy in Malaysia by establishing the National Renewable Policy and Action Plan. This strategy aims to increase the use of renewable energy to contribute to the security of the nation's electricity supply and long-term socioeconomic growth. The Malaysian government (through parliament) published two Acts on renewable energy in the Gazette on June 2, 2011. The Gazette officially means the Malaysian government publishes all passed federal laws. 2011 saw the establishment of the Renewable Energy Act 2011 and the Sustainable Energy Development Authority Act 2011 (*SEDA 2011*)[53]. The contribution of tidal stream energy extraction to Malaysia's electricity generation blend may not be as significant as the nation's total energy demand. This is a missed opportunity for other countries such as Malaysia, where a lack of suitable full-scale prototypes or commercial devices has impeded tidal stream exploitation, which could provide a realistic alternative for supplying electricity to rural, coastal, and island settlements. VATT is the low level of technological development that makes it difficult for Malaysia to produce energy from natural coastal resources.[54]

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[51] Zul Ilham and others, 'Multi-Criteria Decision Analysis for Evaluation of Potential Renewable Energy Resources in Malaysia', *Progress in Energy and Environment*, 21.1 (2022), 8–18 https://doi.org/10.37934/progee.21.1.818

[52] Minh Tai Le, Nhat Luong Nhieu, and Thuy Duong Thi Pham, 'Direct-Use Geothermal Energy Location Multi-Criteria Planning for On-Site Energy Security in Emergencies: A Case Study of Malaysia', *Sustainability (Switzerland)*, 14.22 (2022) https://doi.org/10.3390/su142215132

[53] M.W. Abd Rahim and others, 'Tidal Energy in Malaysia: An Overview of Potentials, Device Suitability, Issues and Outlook', *Regional Studies in Marine Science*, 61 (2023), 102853 https://doi.org/10.1016/j.rsma.2023.102853

[54] Nauman Riyaz Maldar and others, 'Potential and Prospects of Hydrokinetic Energy in Malaysia: A Review', *Sustainable Energy Technologies and Assessments*, 52 (2022), 102265 https://doi.org/10.1016/j.seta.2022.102265

3.3. The Maritime Regulations Approach to Handling Conflicts and Challenges

Maritime governance is a broad term encompassing the various state policies and institutions regulating the naval domain. Some analysts, for instance, define marine governance as the overarching structures and relationships that direct, control, and influence the shipping and ports sector, which includes all aspects of the industry and maritime policymaking. Additionally, different maritime states confront distinct immediate and strategic challenges in and from their respective waters. This is why states have traditionally handled marine governance on a sector-by-sector basis instead of a government-wide level. Analysts attribute this to the greater abundance of marine resources, which creates incentives for various agencies to control them, and the absence of significant traditional security threats, which allows states to be more "relaxed" in maritime governance. Historically, navies were responsible for most marine security and law enforcement issues, as the naval domain was viewed as a potential source of interstate conflict. With the adoption the United Nations Convention on the Law of the Sea (UNCLOS) and the escalation of maritime-based and seaborne security challenges, Coast guards have recently emerged as significant maritime law enforcement actors. Given their civilian nature, use of force regulations, and patrolling capabilities, coast guards are viewed as a less "forceful" means of administering the maritime domain. As seen in the South China Sea, regional coast guards could also be used to "enforce" unilateral or even unlawful claims over contested waters. Nonetheless, the growing importance of coastguards poses challenges for maritime states accustomed to relying on their navies as their primary naval law enforcement instrument, especially for their EEZ, which typically requires more considerable patrol assets and capabilities. In recent years, balancing, coordinating, and even integrating the responsibilities of navies and coastguards has been one of the most important institutional challenges for maritime states.[55]

In Law No. 43 of 2008 concerning State Territory, which administers the national boundaries, Indonesia has established a legal foundation for national borders. Indonesia and Malaysia are two examples of countries that share a land border, specifically on the island of Kalimantan, in the province of West Kalimantan, which shares a land border with Sarawak (Malaysia). The Indonesian government is working closely with Malaysia to ascertain the border between the two nations. This expedites the resolution of the 40-year-old Outstanding Boundary Problems (*OBP*) between Indonesia and Malaysia, which involve several border points with competing claims. Indonesia has superior natural and non-biological resources to Malaysia. The total area of Indonesia is 1,904,569 km2, of which 4.8% is water, and the remainder is land. While Malaysia's total land area is 329,847 km2, only 0.3% is covered by water. The data demonstrate the vulnerability and threats to Indonesia's societal security[56]. In the border region, the problems of nationalism in Indonesian society, especially among school-aged children, include a greater awareness of the Malaysian national anthem, community participation in the Malaysian militia, transfer of citizenship, use of two-state identity cards, social-psychological issues, and a shift in orientation. A country's border region has strategic value in promoting national economic growth. Utilizing existing resources, specifically local resources, facilitates the development of border regions. These assets include human resources, the local social culture, and natural resources.

[55] Evan A. Laksmana, 'Remodelling Indonesia's Maritime Law Enforcement Architecture: Theoretical and Policy Considerations', *Contemporary Southeast Asia*, 44.1 (2022), 122–49 https://doi.org/10.1355/cs44-1e
[56] Adityo Darmawan Sudagung, 'Indonesia's Border Security and Political Nationalism Means in Dealing with Nationalism Problem at Indonesia-Malaysia Border Area (2009-2014)', *International Journal of Environment, Architecture, and Societies*, 1.01 (2021), 1–11 https://doi.org/10.26418/ijeas.2021.1.01.1-11

In addition to being supported by applicable laws and regulations, achieving maritime security by the Navy as part of the component of state defense at sea is also based on several marine theories that correlate with the implications of the Navy's duties at sea as a field of service. The synergy between *Bakamla* and the Indonesian Navy in dealing with various criminal acts is also essential in marine law enforcement. *Bakamla* is a civilian agency staffed by the TNI and civilians, whereas the Navy is a military institution, so the synergy between the two organizations is essential[57].

Malaysia has a strategic waterway connecting the Pacific and Indian Oceans, which combine, develop, and strengthen international relationships. The Malacca Strait and the Singapore Strait are the busiest Sea Lines of Communication (SLOC) that connect the Indian Ocean to the Pacific Ocean via both waterways and the South China Sea. Year by year, the security situation in Malaysia's waterways has improved. Nonetheless, maritime offenses continue to occur during the COVID-19 pandemic. Illegal fishing, smuggling, and human trafficking are non-traditional hazards to the security of Malaysia. To eliminate maritime criminal activities, the naval authorities of the littoral governments must devise a comprehensive security situation that addresses the root causes of illegal activity. The international focus on security issues in the SOM and SCS demonstrates the significance of Malaysian waterways to the international maritime community. Due to its limited assets and resources, Malaysia cannot protect and maintain its national security stability in the face of these maritime offenses. Moreover, Malaysian waterways are the busiest sea route in the globe.[58]

Marine fisheries dominate the Malaysian industry, followed by aquaculture and inland fisheries. In 2017, Southeast Asia's marine fisheries landed 1.46 million metric tonnes of fish, accounting for 8.8 percent of the region's total landings. However, this marine resource is susceptible to several hazards, such as fish mortality and overfishing.[59] The Straits of Malacca border Malaysia, the South China Sea, the Andaman Sea, the Sulu-Sulawesi Sea, and the Indian Ocean, and safeguarding her maritime zone presents several issues and challenges. The marine areas of Malaysia include the internal waters, territorial seas, continental margins, exclusive economic zones, and the airspace above these zones. Malaysia's economy is highly dependent on offshore natural resources such as petroleum and gas, and its maritime domain consists of active shipping sea lanes of communication (SLOCs); therefore, Malaysia faces both traditional and non-traditional maritime security threats. The conventional focus is primarily on geopolitics and external power relations, maritime boundary delimitation, securing sea lanes of communication (SLOCs), military activities at sea, and the implications of arms and naval buildup by navies in the region. Transnational crimes, including smuggling, piracy, slave trading, and illegal logging; illegal seaborne activities, including illegal immigration and criminal and terrorist movement across borders; and environmental and economic issues, such as accidental spills, illegal dumping, and illegal fishing. Regarding Malaysia, it lacks a specific anti-piracy statute. The

[57] Pityas Datwurina and Ican Wahyu Rizkiana, 'Building Maritime Security in the Makassar Strait As a Choke Point on the Side of the Nusantara'S Capital City', *Strategi Dan Kampanye Militer (SKM)*, 8.1 (2022), 58 https://doi.org/10.33172/skm.v8i1.1034

[58] Mahamad Amer Musa and Noraini Zulkifli, 'The US-Malaysia Maritime Security Cooperation and Implication Towards Malaysia's National Security', *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7.2 (2022), e001306 https://doi.org/10.47405/mjssh.v7i2.1306

[59] Mohd Fikri Mohamad, Siti Rahyla Rahmat, and Saidatulakmal Mohd, 'Assessing Malaysia Marine Fisheries Sustainability Under Climate Change Pressure: A Quintuple Helix Approach', *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7.11 (2022), e001899 https://doi.org/10.47405/mjssh.v7i11.1899

Penal Code of Malaysia has become the primary statute for prosecuting pirates for maritime piracy. The Penal Code of Malaysia defines and criminalizes serious crimes such as robbery, homicide, causing bodily harm or death or threatening to do so, kidnapping, and extortion. Therefore, Malaysia has a variety of laws to apprehend, prosecute, and penalize pirates for piracy-related crimes. The Penal Code [Act 574], the Court of Judicature Act 1964 [Act 91], the Criminal Procedure Code [Act 593], the Malaysian Maritime Enforcement Agency Act 2004 [Act 633], the Arms Act 1960 [Act 206], the Firearms (Increased Penalty) Act 1971 [Act 37], the Police Act 1967 [Act 344], the Dangerous Drug Act 1952 [Act 234], the Explosives Act 1957 [Act 207], the Corrosive and Explosive[60]

Maritime regulations in Indonesia and Malaysia have different problems and challenges, starting from needing more specific rules and illegal activity in each country's sea and land border. From a maritime regulatory perspective, Law No. 17 the Year 2008, Regarding the Shipping/Voyage, and Government Regulation No. 36 the Year 2002, Regarding the Rights and Obligations of Foreign Ships in Conducting Innocent Passage through Indonesian Waters and Beyond, are two pertinent regulations for Malaysia, there is Law No. 1 the Year 1983 Concerning the Ratification of an Agreement between Indonesia and Malaysia on the Regime of the Archipelago State Law and the Rights of Malaysia over Territorial Seas, the Archipelago Waters, and the Air Space over Territorial Seas, the Archipelago Waters and Indonesian Territory Located Between Eastern and Western Parts of Malaysia. In addition to state regulation, international regulation includes law and international relations relating to diplomacy between countries. Naturally, the state must advance the theory of state jurisdiction, which holds that every sovereign state must have jurisdiction.[61]

3.4. Policy Commitments and Regulations Toward Seafarers' Welfare

The global distribution of natural resources between resource-rich and resource-poor nations. Numerous households in resource-rich countries continue to live below the poverty line of $1.90 per day. In addition, the evidence suggests that higher resource rents are not typically associated with less income inequality on the market. Except for a few countries in the Middle East, North Africa (*MENA*), and Central Asia regions, government employment still needs to be used to keep people out of poverty. This indicates that resource-rich nations are typically less effective than resource-poor nations at addressing opportunity inequality. Equally surprising, the disposable income Gini in resource-rich countries generally has not been significantly lower than the market income Gini, indicating that fiscal policy in these economies has not redistributed considerably wealth. This suggests that resource-rich nations are typically less effective than resource-poor nations at addressing opportunity inequality income.[62]

The National Medium-Term Development Plan, includes several strategic projects related to the marine and fisheries sectors, such as the development of three integrated international fishing ports and markets (North Sulawesi, North Sumatra, and Maluku) to increase the production of wild capture fisheries to 10.1 million t by 2024 and fisheries export to $8 billion. Enhancement of 350 small-scale fishing and agricultural operations to

[60] Jagdish Wamanrao Khobragade and others, 'The Anti-Maritime Piracy Law in India and Malaysia: An Analytical Study', *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, 5.4 (2021), 208–19 https://doi.org/10.1080/25725084.2021.2006462

[61] Bambang S. Irianto, Made Warka, and Otto Yudianto, 'Law Enforcement in Indonesia's Exclusive Economic Zone in the Framework of Indonesia's National Interest in the Marine Sector', *International Journal of Multicultural and Multireligious Understanding*, 8.9 (2021), 167 https://doi.org/10.18415/ijmmu.v8i9.3010

[62] Nathalie Pouokam, 'Sharing Resource Wealth Inclusively Within and Across Generations', *IMF Working Papers*, 2021.097 (2021), 1 https://doi.org/10.5089/9781513582429.001

increase their annual income by 10% and 5%, respectively, and to increase commodity productivity by 5% per year. Between 2020 and 2024, the monthly payment of fishermen is projected to increase by 49 percent, from Rp 3.75 million to Rp 5.58 million. The revitalization of prawn and milkfish (banding) lagoons (on the north coast of Java, Lampung, South Sulawesi, and West Nusa Tenggara) to increase fish production by 8.5 percent to 10.32 million metric tonnes per year and prawn exports by 8 percent per year. Enhancement of maritime security in the North Natuna Sea to protect Indonesia's sovereignty and reduce piracy, violence, and other forms of marine crime (including illegal fishing and transnational crimes). Seven of the ten tourist destinations (Lombok Mandalika, Labuan Bajo, Manado Likupang, Wakatobi, Raja Ampat, Bangka Belitung, and Morotai) will focus on marine tourism. All seven locations are located within MPAs administered by the *KKP* or *KLHK*.[63]

Marine resource management and oversight must go hand in hand with accurate regulations that must be done to enforce the Indonesian constitution. The Navy is primarily in charge of maintaining Indonesian maritime areas. They are responsible for making sure no foreign vessels cross the entire boundary. This task is the responsibility of farmers as a service obligation. The Navy must change if the domestic marine area is to be protected. The Indonesian Navy can use cutting-edge satellites and navigational equipment to equip and enhance border monitoring in response. Marine patrol officers must continually watch to defend the border and guarantee that fishing operations follow relevant legislation. The government must also broaden the purview of air patrol activities. Data retrieval across Indonesia can be sped up using airplanes in 51,4 hours (seven days). Primarily to carry out the specifics in areas with a high prevalence of criminal activity, including Natuna and Arafuru. Additionally, the 200-nautical-mile exclusive economic zone must be included in the Indonesian Navy's current patrol coverage area, which is only 70 nautical miles away. Managing the maritime sector fisheries and marine affairs necessitates a significant and mutually reinforcing government-community instrument. Collaboration involves activities, movements, or an institutional management method. Several institutions are involved in government agencies, non-government organizations, and the community and its constituent communities.[64]

To achieve seafarers' welfare, Indonesia and Malaysia must implement and enforce the Maritime Labour Convention of 2006 (MLC 2006). MLC 2006 faces several issues in Indonesia, including providing all crew members with free protection and medical care. Consequently, MLC implementation in Indonesia. Implementation of MLC, in particular, the opportunity to cruise at the visited ports and the opportunity to use the telephone and the internet at the visited ports. Personnel protective equipment (PPE) has not expired, and a replacement mechanism is readily available[65]. A medical certificate issued to an Indian seafarer in Malaysia following STCW regulations is unacceptable for joining another shipping company in the United Arab Emirates, whose recruitment placement service

[63] Napitupulu and others.
[64] Gusjoy Setiawan and Faisal Santiago, 'Collaborative Governance for Sustainable Development in Indonesia's Fisheries and Marine Resources Governance', 2021 https://doi.org/10.4108/eai.6-3-2021.2306836
[65] Ayu Kusuma Wardani, 'Maritime Security Regulation Concerning International Ship and Port Facility Security Code 2002 and Its Implementation in Indonesia', *Lampung Journal of International Law*, 3.1 (2021), 19–28 https://doi.org/10.25041/lajil.v3i1.1985

provider in India requires an Indian directorate general of a shipping-approved medical certificate to be uploaded to the DGS website. All regulations can be traced back to IMO and ILO, and the same principles apply to all seafarers regardless of location. Numerous seafarers have encountered this situation but must adhere to the rules since there is no way around it. To address this issue, we must establish an international format and international recognition of physicians and clinics to conduct medical examinations for seafarers, which are valid and acceptable worldwide for the prescribed validity period. This will at least address one of the challenges faced by the maritime community.[66]

Several issues must be resolved with precision. Specific laws do not comply with international conventions. Here is where the majority of problems occur. First, Rhode Island Law No. 18/2017 on the Protection of Migrant Workers regulates maritime employment. The ILO Conventions, however, do not recognize seafarers as migrant employees. Adopted by the United Nations General Assembly in 1990, the Convention on the Protection of the Rights of All Migrant Workers and Their Families (ICRMW) only regulates seafarers operating in territorial waters. The majority of Indonesian seafarers now work on the open ocean. Human rights treaties lack specific guidelines and do not recognize seafarers as migrant laborers; Law No. 7/2016 on the Protection and Empowerment of Fishermen, Fish Cultivators, and Salt Producers does not comply with the ILO Convention. Law No. 39/2004 on the Placement and Protection of Indonesian Laborers Abroad governs the legal protection of Indonesian laborers. Foreign Worker Cards (KTKLN) are required for Indonesian Migrant Workers (TKI) abroad as a form of self-identification and legal protection. TKIs possess a KTKLN but cannot utilize it because it needs to be recognized in the foreign country where they operate. The Indonesian government has replaced ILO Convention No. 1 specifically for migrant workers who serve as crew members. Ratified in 1958, the Convention on the Modification of Seafarers' Identity Documents. The seafarer identity card is a unique protective document for migrant crew members. The seafarer's identity certificate is internationally recognized and allows for travel, ship transfer, and transit for Indonesian crew members employed on foreign-flagged fishing vessels.[67]

International regulations have been implemented in Malaysia, such as STCW 1978, adopted on 7 July 1978 and enacted on 28 April 1984. Serving aboard a ship as a seafarer is a challenging occupation. Therefore, despite significant advancements and enhancements to sailing conditions, these obstacles may be considered by those considering a career at sea. The Malaysian maritime industry requires more seafarers to be efficient and focused. For CoC revalidation, existing certificate holders must prove they completed the training refresher needed to be outlined in MSN 07/2012 and MSN 07/2015. To attain maritime safety, There must be a long-term, medium-term, and short-term policy for shipping and seafarer planning at the federal, state, and local levels. Appointing consultants to regularly update the demand and supply of ships and seafarers is crucial for comparing actual versus planned against policies and identifying necessary updates or recalibrations. When developing ship and seafarer development plans, it is essential to employ a bottom-up methodology. The importance of government roles in determining the success or failure of

[66] Capt Deepak Mantoju, 'Analysis of Impact of the Maritime Labour Convention, 2006: A Seafarer's Perspective', *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, 5.3 (2021), 107–19 https://doi.org/10.1080/25725084.2021.1955475

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the national transportation industry must be considered. We require enabling government legislation and adequate administrative and operational support to accomplish this.[68]

4. Conclusion

Based on this discussion, Indonesia and Malaysia have historically encompassed a range of topics, such as the establishment of territorial boundaries, the administration of shared resources, and collaborative efforts to address environmental challenges. These agreements frequently serve as the foundation for collaborative environmental conservation and the management of coastal resources. The governance and control of natural resources along the Indonesia-Malaysia border will persist and endure ongoing transformations in response to shifting economic demands, environmental circumstances, and geopolitical considerations. Secondly, coastal resource management frequently encompasses policies on aquaculture, tourism along the coast, fishing rights, and various other activities. As a follow-up to their bilateral agreements, Indonesia and Malaysia must strengthen their laws, according to this study, because illicit activities frequently occur along their land and sea borders. Third, border regions are confronted with social and psychological challenges, including orientation shifts, issues of Indonesian nationalism, and concerns related to the prevalence of school-age children. Community participation in Malaysian militias, the transfer of citizenship, and the use of identification documents from two countries are obstacles. A multifaceted approach is required when addressing challenges and conflicts via maritime regulation; this approach must consider environmental concerns, geopolitical tensions, international law, and bilateral agreements, among other elements. In the end, the implementation of governance protocols on coastal natural resource conflicts along the Indonesia-Malaysia border represents a significant milestone in the advancement of sustainable development, environmentally responsible behavior, and amicable coexistence. The achievement of this undertaking hinges on the reciprocal commitment of both countries to uphold an environment of collaboration, protect each other's rights, and jointly pursue a future that is ecologically sustainable and beneficial to their respective populations.

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