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INDONESIAN SEA SAND EXPORTS: UNCLOS COMPLIANCE V. ENVIRONMENTAL SUSTAINABILITY DILEMMA EXPLORED

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ABSTRACT

This study aims to analyze the impact of Indonesia's sea sand exports on UNCLOS compliance and environmental sustainability. The methodology involved analyzing UNCLOS policies related to marine sediment exports and the environment, evaluating literature sources that included case studies and analyzing the impacts of sea sand exports, and fieldwork by conducting interviews with government officials, environmental experts, and local residents. The results highlight that Indonesia's export of marine sand violates UNCLOS and harms the environment. Therefore, sustainable measures are needed, including strict monitoring of exports, better environmental management, and involving communities in the decision-making process. In order to resolve this conflict, the Indonesian government needs to adopt a sustainable approach, recognize the impact on the environment, and involve various parties in an effort to maintain the sustainability of sea sand exports while complying with UNCLOS.

1. Introduction

Reconsidering the 20-year ban on sea sand exports has sparked significant debate and criticism in Indonesia. The sudden withdrawal without prior notification has raised concerns, especially given the vast archipelagic nature of the country, comprising more than 17,000 islands. As an archipelagic state under Article 53 of UNCLOS, Indonesia has the unique authority to establish archipelagic sea lanes, though it has been only partially exercised.1

Initially imposed to prevent illegal exports, especially to Singapore, heavily reliant on sand from Indonesia, Malaysia, Vietnam, and Cambodia for land expansion, the lifting of the ban is now seen as a response to meet domestic

1 Aristyo Rizka Darmawan., *Sovereignty, Security and Prosperity: Indonesia and the UN Convention on the Law of the Sea*, ISEAS, 2022, https://fulcrum.sg/.

needs and economic interests. Contrary to the perception that Indonesia is the sole or primary supplier, this move aligns with the nation's obligations under the United Nations Convention on the Law of the Sea, ratified by Indonesia on December 31, 1985.[23]

Sea traffic needs to be regulated,[4] the UNCLOS agreement, integrated into Indonesian Law of the Sea (Law No. 32 of 2014), highlights the balance between economic pursuits and environmental conservation. The aim here is to understand why Indonesia chose to resume sea sand exports in line with UNCLOS principles. However, it's crucial to clarify the research objectives, particularly Indonesia's obligations as a signatory to UNCLOS. Non-compliance could lead to legal consequences, including fines and sanctions.[5]

The decision's implications have drawn diverse reactions from the public, environmental organizations, and the international community.[6] Concerns persist about potential damage to marine habitats and the sustainability of small islands already vulnerable due to the ongoing climate crisis. Upholding UNCLOS while ensuring economic benefits without compromising environmental integrity presents the primary challenge facing Indonesia in this policy change.

Several researchers have investigated similar themes. Darmawan analyzed Indonesia's sea sovereignty and obligations under UNCLOS, whereas Susetyorini concentrated on maritime legal perspectives. Additional research, like that of Gavriletea and Kim & Yoo, highlighted the ecological impacts of sand extraction in specific regions. This paper addresses the theme issue of maritime resource governance but distinguishes itself by providing an integrated legal, policy, and environmental examination of Indonesia's recent move to rescind the sea sand export prohibition. This approach enhances and supplements the current research by linking international legal requirements to national regulatory modifications and their socio-environmental consequences.

In essence, this paper’s objective is to focus remains on exploring how Indonesia reconciles its economic pursuits with UNCLOS obligations, avoiding adverse impacts on marine ecosystems and the livelihoods of local communities. This demands a delicate balance, aligning economic aspirations with environmental preservation within the framework of international maritime law.

2. Research Methods

The research was carried out in the nature of normative law by paying attention

2 Purwaka, Tomy Hendra., Peluang Menurut Unclos Dan Hukum Positif Indonesia Untuk Membuka Kembali Ekspor Pasir Laut Ke Singapura. *Jurnal Dinamika Hukum*, Vol.14 No.3, 2014.

3 M-30., *Kenali UNCLOS, Dasar Hukum Internasional Untuk Kedaulatan Indonesia Di Natuna,* January 9, 2020, Hukumonline.Com.

4 Muhammet Ebuzer Ersoy., International Law of Sea Piracy, *International Journal of Law Recontruction,* Vol.3 Issue.1I, September 2019, page.96-113

5 Zou and Telesetsky., UNCLOS and Its Contributions to the Development of International Law: An Editorial Note. *Marine Policy*, Vol.155, 2023

6 Strategics, Analysis: *RI Lifts Ban on Sea Sand Exports, Raises Environmental Concerns*. Accessed July 11th 2023, https://www.thejakartapost.com/

to legal concerns related to International Law. The study analyzes ideas, legal principles, and regulations. Furthermore, the research uses a case study approach. The information is obtained from books, legal journals, newspapers and other sources[7]. Furthermore, legal documents are examined and categorized based on discussion and interpretation related to important ideas on issues that are emphasized and described qualitatively using deductive-inductive methods to find solutions to problems of rules or norms in positive law.[8]

3. Results and Discussion

3.1 UNCLOS and the Rights of Coastal States

The United Nations Convention on the Law of the Sea (UNCLOS) establishes a legal framework for all oceanic and surface water activities. These activities include fishing, shipping, and oil and gas exploration. It not only establishes a complete system of law and order in the seas and waters of the globe, but it also represents an unprecedented effort by the international community to manage all aspects of the usage and resources linked with the ocean.[9] In other words, it manages not only the oceans but also the world's seas and waters. The United Nations Charter and other modern norms of international maritime law, such as the Geneva Conventions of 1958, the Convention formalizes the centuries-old principles and standards of international maritime law.[10]

The principles and standards of international marine law have been derived through centuries of maritime experience and expressed in the Charter of the United Nations. After being considered by over 160 sovereign governments over nine years prior to that year, the United Nations Convention on the Law of the Sea (UNCLOS) was ultimately signed in 1982. This came about as a result of the Convention being ratified by the United Nations. As of the month of June in the year 2016, there were 167 countries and the European Union that had signed the Convention. The Convention is made up of 320 articles and 9 annexes that discuss a wide variety of subjects.[11]

The United Nations Convention on the Law of the Sea (UNCLOS) ratified in 1982, stands as a cornerstone of international maritime law, consolidating principles honed through years of marine industry practice.[12] UNCLOS unifies

7 Arumbinang, M.H., Gunawan, Y., Salim, A.A., Prohibition of Child Recruitment as Soldiers: An International Regulatory Discourse, *Jurnal Media Hukum*, Vol.30 No.1, 2023, page. 21.

8 Andri Winjaya Laksana, Ida Musofiana, Achmad Sulchan, Ahmed Kheir Osman and Tajudeen Sanni., The Disparities in Punishment for Narcotic Addiction: Does it Reflect the Value of Justice?, *Jurnal Media Hukum*, Vol.32 No.1, June 2025, page.134-150

9 P. Hoagland, J. Jacoby, M. Schumacher, C. Burns., *Law of the Sea,* Encyclopedia of Ocean Sciences (Third Edition) Yager, Oxford: Academic Press, 2019, page.526–537.

10 Xingyi Duan and Yen-Chiang Chang., *The Relationship between the General Principles of International Law and UNCLOS: Conference Report*, Marine Policy, Vol.150 No.105552, 2023, page.25.

11 Fran Humphries et al., A Tiered Approach to the Marine Genetic Resource Governance Framework under the Proposed UNCLOS Agreement for Biodiversity beyond National Jurisdiction (BBNJ), *Marine Policy*, Vol.122, 2020

12 Guo 14., *Territorial Disputes and Cross-Border Resource Management*. edited by Rongxing B T - Cross-Border Resource Management (Fourth Edition) Guo, Elsevier.

regulations governing oceans and seas globally, crucially establishing the Exclusive Economic Zone (EEZ) under Article 57 of Part V. This zone spans 200 nautical miles from territorial sea baselines, granting coastal states sovereign rights for resource exploration, exploitation, and management of both living and non-living assets within the waters, seabed, and subsoil[13]. To address disputes arising from these regulations, the Convention provides for the International Tribunal for the Law of the Sea to convene special chambers or ad hoc sessions as necessary, ensuring peaceful resolution of conflicts related to ocean usage and preservation.[14]

The 1982 UN Convention on the Law of the Sea (UNCLOS) has had a significant impact on Indonesia, particularly in relation to the export of marine sand.[15] The convention recognizes Indonesia juridically as an archipelago, grants Indonesia an Exclusive Economic Zone (EEZ) that establishes maritime boundaries. One of the key provisions in UNCLOS relevant to the export of marine sand is the EEZ, where Indonesia has the first right to manage living natural resources, including marine sand, in the area. However, the EEZ also allows for freedom of navigation and the laying of submarine cables and pipelines, which must still refer to the rules of international law of the sea. Therefore, in the context of marine sand exports, Indonesia must ensure that its export activities are in accordance with the provisions of UNCLOS, especially in relation to the management of living natural resources in the EEZ. As such, the convention provides an important framework for Indonesia to manage its sea sand exports, while ensuring compliance with international law of the sea.[16]

The exclusive economic zone also referred to as the EEZs is an area in which only sovereign states have the authority to exert control over the resources that can be discovered there.[17] In their exclusive economic zones (EEZs), coastal governments are the only entities with the sovereign right to explore, use, conserve, and manage the living and nonliving resources on the seafloor, subsoil, and waterways next to their borders.[18] The Indonesian government ensures that its decision does not violate international law governed by UNCLOS by referring to Law Number 17 of 1985 concerning the United Nations Convention on the Law of the Sea. Indonesia has ratified UNCLOS and implemented its principles in the national law of the sea, including in regulating the export of sea sand. In this case, Indonesia ensures that its export activities are in accordance with the provisions of UNCLOS, especially in relation to the management of biological resources in the EEZ. In addition, Indonesia also ensures that its decisions do not violate other international law of the sea

13 Md. Mostafijur Rahman., Exclusive Economic Zone (EEZ), *The Palgrave Encyclopedia of Global Security Studies*, 2019.

14 Guo 9., *Cross-Border Ecological Preservation and Biosafety.* edited by Rongxing B T - Cross-Border Resource Management (Fourth Edition) Guo, Elsevier.

15 Mangisi Simanjuntak., *Konvensi PBB 1982 Tentang Hukum Laut: Makna Dan Manfaatnya Bagi Bangsa Indonesia*. Jakarta: Mitra Wacana Media, 2018.

16 M-30., *Kenali UNCLOS, Dasar Hukum Internasional Untuk Kedaulatan Indonesia Di Natuna,* January 9, 2020, Hukumonline.Com

17 R Hannesson, *Exclusive Economic Zone,* Waltham: Elsevier, 2013, page.150–153.

18 Oscar Garrido-Lecca Hoyle, *How Exclusive Is the Exclusive Economic Zone: Contemporary Analysis of the United Nations Convention on the Law of the Sea 1982*, 2013, page.33.

regulations, such as those stipulated in Law Number 5 of 1983 concerning Indonesia's Exclusive Economic Zone.

Thus, the Indonesian government has ensured that its decision to lift the ban on the export of sea sand does not violate international law governed by UNCLOS and other international law of the sea regulations.[19]This includes the right to extract resources from the subsurface and the seafloor. The growing need for building supplies has prompted a rise in the number of EEZs operations that harvest ocean sand for construction purposes. At the same time, the quantity of sand that comes from land-based sources has been diminishing. It is anticipated that this pattern will carry on for the foreseeable future. The authorities provided to states per this treaty are laid out in detail in Article 56 of the United Nations Treaty on the Law of the Sea (UNCLOS), ratified in 1982.[20] Any manmade islands, facilities, or structures found within an EEZs are the sole property of the coastal government, who alone has the authority to develop, operate, and control the economic use of such features. This applies to territorial waters and exclusive economic zones extending outward from their shores. This is true for territorial seas and the exclusive economic zones surrounding them. This right includes the ability to create new islands, install new structures, and operate existing structures.[21]

Reactions to the decision to export ocean sand under UNCLOS have been mixed. Several parties, including environmental organizations and coastal communities, criticized the policy. They considered that public participation was minimal in making the decision, while coastal communities and fishermen were considered to be the most affected by the exploitation of sea sand[22]. On the other hand, the Indonesian government used the basis of international law commonly referred to as UNCLOS 1982 to support its decision[23]. However, there are also views that support the decision, such as in the context of the opportunity to export sea sand to Singapore. Thus, the reactions of the public, environmental organizations and the international community to the decision to export sea sand under UNCLOS reflect a complex divergence of views that requires a balance between environmental, social and international legal aspects.

Law No. 32 of 2014, commonly referred to as Indonesia's Law of the Sea, serves as pivotal domestic legislation dedicated to the sustainable governance and conservation of marine resources within Indonesian waters. This comprehensive law delineates regulations covering marine spatial planning,

19 M-30., *Kenali UNCLOS, Dasar Hukum Internasional Untuk Kedaulatan Indonesia Di Natuna,* January 9, 2020, Hukumonline.Com

20 Tullio Treves., The Legal Nature of Coastal States' Rights in the Maritime Areas under UNCLOS, Braz. J. Int'l L, Vol.12 No. 40, 2015, page. 42-43.

21 Ana K. Spalding and Ricardo de Ycaza., *Navigating Shifting Regimes of Ocean Governance From UNCLOS to Sustainable Development Goal 14*, Environment and Society: Advances in Research, Vol.11 No.1, 2020, page.5–26.

22 BM Lukita GrahadyarinI., *Partisipasi Publik Diabaikan Dalam Kebijakan Ekspor Pasir Laut*, Kompas.Id, May 31, 2023, https://www.kompas.id/.

23 M-30, *Kenali UNCLOS, Dasar Hukum Internasional Untuk Kedaulatan Indonesia Di Natuna,* January 9, 2020, Hukumonline.Com

ecosystem conservation, fisheries management, coastal community empowerment, and measures against illegal fishing. It underscores the nation's commitment to preserving its marine ecosystems. However, effective implementation of these rights and responsibilities under UNCLOS demands coastal nations consider the rights of others, ensuring conformity with the Convention.[24] Only by aligning national legislation with UNCLOS can coastal nations consider the rights of others, ensuring conformity with the Convention.[25] Only by aligning national legislation with UNCLOS can coastal nations fully realize their rights and duties under this international framework.

Article 1.2 of the United Nations Convention on the Law of the Sea (UNCLOS) permits the continuous export of sea sand, while Article 1.1 of the Convention prohibits the export of river sand. These provisions govern the process of extracting sand from the ocean.[26] The environmental sustainability of sand mining from the ocean is ensured by this contrast. Because of this, the UNCLOS is able to exercise control over the mining of sea sand. A few examples of rules that have an effect on the procedures that are engaged in marine sand mining operations include the United Nations Convention on the Law of the Sea (UNCLOS), the Environmental Impact Assessment Directive (85/337/EEC), and the deep-sea Mining Act of 2014. These are just a few of the many regulations that have an effect.[27] Only a few of them are listed here. On the other hand, removing sediment from the ocean can have unforeseen implications for the ecosystem, the most evident of which is the decline in the health of marine ecosystems.[28]

Indonesia ratified UNCLOS on December 31, 1985, via Law Number 17 of 1985, profoundly shaping its maritime legal system. Although Indonesia's Law of the Sea (UU No. 32 of 2014) doesn't explicitly state its alignment with UNCLOS, the country has been influenced by and implemented UNCLOS principles.[29] Indonesia exercises sovereign rights, exploring and exploiting natural resources in its Exclusive Economic Zone (EEZ), aligning with UNCLOS provisions.[30] Furthermore, Indonesia's accession to various international maritime conventions reflects UNCLOS influence on its maritime legal framework, emphasizing its commitment to international maritime principles.

During the process of mining sand from the ocean, several business activities, such as the transportation, trading, exporting, and importing of sea sand, are all considered to be business activities that fall under the purview of regulation

24 *Ibid*.

25 *Ibid*.

26 Marius Dan Gavriletea., Environmental Impacts of Sand Exploitation. Analysis of Sand Market, *Sustainability (Switzerland)*, Vol.9 No.7, 2017

27 Marius Dan Gavriletea., *Environmental Impacts of Sand Exploitation*. Analysis of Sand Market, *Sustainability (Switzerland)*, Vol.9 No.7, 2017.

28 Dorota Pyć., Global Ocean Governance: Towards Protecting the Ocean's Rights to Health and Resilience, *Marine Policy,* Vol.147 No.105328, 2023.

29 Damos Dumoli Agusman and Citra Yuda Nur Fatihah., Celebrating the 25Th Anniversary of Unclos Legal Perspective: The Natuna Case, *Indonesian Journal of International Law*, Vol.17 No.4, 2020, page. 539–64.

30 Robert Beckman., *Why Indonesia Has Stake in Fight to Defend UNCLOS*,The Straits Times, January 17, 2020, https://www.straitstimes.com/

and supervision[31]. These activities include mining, dredging, trading, exporting, and importing sea sand. Article 13 of the United Nations Convention on the Law of the Sea requires all parties to the Convention to commit to preventing, minimizing, and regulating environmental damage caused by sand mining and dredging activities.[32]

It is essential to remember that sand mining can have serious negative effects on the ecosystem and biodiversity of maritime environments. Therefore, the regulation of sand mining activities is absolutely necessary if one wishes to minimize or lessen the amount of damage done to the environment. The coastal state can authorize, regulate, and control dumping activities, but only after taking into account the interests of neighboring states that may be adversely affected.[33] However, for the state to exercise this ability, it must first consider the matter carefully in conjunction with the other states.

3.2 Environmental Concerns Associated with Sea Sand Mining

Indonesia's coastal and marine seas are rich in sea sand, a form of sand excavation material. Sea sand is extracted from the sand that is found in the ocean. Sand from the ocean can be found along the coast of Indonesia in almost every location. In terms of the economy, it does not qualify as either Group A or Group B excavated material, and it is one of the naturally occurring resources that cannot be replaced. Additionally, it is one of the few resources that may be considered irreplaceable.

In the process of sea sand mining, referred to as offshore sand mining, sand is harvested from the ocean floor for the purposes of building, reclaiming land, and nourishing beaches.[34] These activities fall under the broader category of "offshore sand mining." This technique presents serious concerns regarding the status of the ecosystem, in spite of the fact that it can appear to be advantageous in terms of satisfying the growing demand for sand. The removal of sea sand from its natural deposit can have a devastating impact on the ecosystems and habitats in which it is found. This is because sea sand is an important component of these systems.

The extraction method often includes dredging huge swaths of the seabed, which carries with it the risk of upsetting the natural equilibrium of the ecosystem and putting its overall integrity at risk. The process of dredging has the potential to result in the obliteration of habitats that are found on the

31 Gunawan Y., Akbar M.F. and Corral, Corral E.F., WTO Trade War Resolution for Japan's Chemical Export Restrictions to South Korea, *Padjadjaran Jurnal Ilmu Hukum*, Vol.9 No.3, 2022, page.408-431.

32 Chie Kojima, *Integration of General Principles of International Environmental Law into the Law of the Sea: Assessment and Challenges*, Marine Policy, Vol.149 No.105497, 2023.

33 Ju-Hee Kim and Seung-Hoon Yoo., *Public Perspective on the Environmental Impacts of Sea Sand Mining: Evidence from a Choice Experiment in South Korea*, Resources Policy, Vol.69 No.101811, 2020.

34 D. C.N. Doloksaribu, T. A. Barus, and K. Sebayang., The Impact of Marine Sand Mining on Sea Water Quality in Pantai Labu, Deli Serdang Regency, Indonesia, *IOP Conference Series: Earth and Environmental Science*, Vol.454 No.1, 2020

seafloor.[35] Coral reefs, seagrass beds, and other delicate ecosystems that provide nurseries and breeding grounds for a wide variety of marine species are examples of the kinds of habitats that could fall under this category. The eradication of these habitats may decrease the total quantity of biodiversity and may have unfavorable long-term effects on the ecology in the surrounding area.[36] Sand mining creates a disturbance in the environment, which can release harmful compounds and the suspension of sediments throughout the entire water column. The amount of light that can penetrate the water may be reduced due to turbidity, which may disrupt the process of photosynthesis and reduce the growth of marine plants such as phytoplankton and seagrass. Because of this, there is a risk that the entire food chain would become disorganized, which would affect the populations of fish and other species dependent on the primary producers. This would have an effect on the ecosystem as a whole.[37]

The addition of silt to the water column is one of the most major unintended consequences that might occur when sand is extracted from the ocean.[38]Silt suspension has the potential to negatively impact both water quality and aquatic organisms. When particles are floating in the water, the water loses some of its cleanliness. This prevents sunlight from reaching the surface of the water, which in turn, hinders the growth of marine plants. The accumulation of sediments on coral reefs can also smother the delicate invertebrates that dwell there, which can ultimately contribute to the bleaching of the coral and the damage to the reef.

The increasing sedimentation may have a negative effect on filter-feeding species such as clams and oysters because these organisms may become overburdened by excessive sediment loads, which hampers their ability to feed and breed. This may be the case because sedimentation may cause these organisms to become overburdened by excessive sediment loads. The upheaval brought on by the discharge of silt may also interrupt the feeding and breeding cycles of fish and other marine species, which would have a devastating effect on the ecosystem as a whole.[39]

The mining of sea sand is causing serious environmental difficulties, and it is imperative that we find a solution to these issues as soon as possible. Because the process of extracting sand can have detrimental consequences on

35 A Schmitt and E Chaumillon., *Understanding Morphological Evolution and Sediment Dynamics at Multi-Time Scales Helps Balance Human Activities and Protect Coastal Ecosystems: An Example with the Gironde and Pertuis Marine Park,* Science of The Total Environment, Vol.887 No.163819, 2023.

36 Pyć., *Global Ocean Governance: Towards Protecting the Ocean's Rights to Health and Resilience,* Kebijakan Kelautan, Vol.47, 2023.

37 Dan Gavriletea., *Environmental Impacts of Sand Exploitation. Analysis of Sand Market,* mdpi.com, 2017.

38 Haalboom et al., *Monitoring of a Sediment Plume Produced by a Deep-Sea Mining Test in Shallow Water, Málaga Bight, Alboran Sea (Southwestern Mediterranean Sea),* Marine Geology, Vol.456 No.106971, 2023.

39 Raina K. Plowright et al., *Land Use-Induced Spillover: A Call to Action to Safeguard Environmental, Animal, and Human Health,* The Lancet Planetary Health, Vol.5 No.4, 2021, page.237–245.

ecosystems and habitats, we need to find ways to do it that are both sustainable and responsible. These negative effects include the loss of sensitive marine habitats, the effect on coastal stability and erosion, the effect of sediment release on water quality and marine life, and the effect of sediment release on coastal stability.[40] Maintaining the long-term health and integrity of our coastal environments requires a delicate balancing act between the need for sand and the conservation of marine ecosystems. This balance must be established if we are going to be successful in preserving our coastal environments. This is one of the most essential things we can work on right now.

State responsibilities in regards to the high seas, EEZs, and territorial waters found all over the world's oceans are laid down in the United Nations Convention on the Law of the Sea.[41] It covers a wide range of issues, from navigation to maritime boundaries to the utilization of natural resources to environmental protection to the resolution of conflicts.

If a country disobeys the norms that UNCLOS has established, not only does it run the risk of having its actions condemned by the international community, but it also runs the risk of being subject to sanctions[42]. Sanctions might include the implementation of diplomatic measures, economic restrictions, trade embargoes, travel bans, the freezing of assets, and other punitive acts. Sanctions can also include other punitive acts. The intention is to make non-compliance costly for the country in breach, with the expectation that this will inspire the government to modify its ways and conform with the principles contained in UNCLOS.[43]

3.3 Balancing UNCLOS Compliance and Environmental Sustainability

When striking a balance between UNCLOS compliance and environmental sustainability, environmental impact assessments (EIAs) are essential. Before beginning any actions that may have an influence on marine ecosystems and coastal regions, these assessments require a thorough study of probable environmental repercussions. EIAs are conducted in order to recognize, anticipate, and assess any potential environmental effects of proposed projects or actions.[44] The possible dangers and harmful impacts on the environment can be recognized and reduced by undertaking detailed assessments. Examining the effects of practices like sand mining on marine ecosystems, biodiversity, water quality, and coastal stability is a part of this. EIAs aid in comprehending the possible effects of sand extraction, enabling informed decision-making and

40 Justice Mensah and Precious A D Mattah., Illegal Sand Mining in Coastal Ghana: The Drivers and the Way Forward, *The Extractive Industries and Society*, Vol.13 No.101224, 2023.

41 Garrido-Lecca Hoyle., *How Exclusive Is the Exclusive Economic Zone: Contemporary Analysis of the United Nations Convention on the Law of the Sea 1982*, wmu.se, 2013, page.26

42 Sara Mclaughlin Mitchell and Andrew P. Owsiak, *Judicialization of the Sea: Bargaining under the UNCLOS Regime*, Vol.982, June 2018, page.12-16.

43 Duan and Chang, *The Relationship between the General Principles of International Law and UNCLOS: Conference Report,* Marine Policy, Vol.150, 2023.

44 Rangel-Buitrago et al., *The Global Impact of Sand Mining on Beaches and Dunes,* Ocean & Coastal Management, Vol.235, 2023.

creating efficient mitigation strategies.[45] Temperature, wind and water currents, pH, and chemical interactions with other substances are all examples of environmental conditions that can affect the fate of these main and secondary components.[46]

A thorough assessment of the effects on ecosystems, biodiversity, water quality, and coastal stability should be included in EIAs. Sand mining may have long-lasting effects, such as altering water flow patterns, sedimentation, and habitat degradation. These effects have the potential to upset the delicate balance of marine ecosystems, causing biodiversity to disappear and harming the general health of coastal areas.[47]

Sustainable extraction methods are essential for striking a balance between environmental sustainability and UNCLOS compliance. To lessen the negative effects of sand mining, technologies that reduce sediment release should be used. Innovative dredging techniques, including suction dredging, which reduce sediment disturbance and the release of tiny particles into the water column, can be a part of these technologies. By using cutting-edge methods, such as sediment containment systems or sedimentation ponds, it is possible to reduce sediment flow, protect benthic ecosystems, and lower turbidity levels. By consuming less energy and having a smaller impact on marine ecosystems, the adoption of environmentally friendly dredging equipment and gear can also support sustainable extraction techniques.[48]

When it comes to Indonesia's marine sand exports, it is crucial that sustainable extraction techniques are adhered to. To find and prevent violations of mining rules and balance environmental sustainability, monitoring methods such as aerial surveys, direct inspections and remote sensing technology are essential.[49] To prevent unsustainable behavior, strict law enforcement and adequate penalties are the foundation. Governments, regional communities, and environmental organizations should work together to improve monitoring and enforcement. To strike a balance between UNCLOS obligations and environmental sustainability, stakeholders from local communities, environmental organizations, and experts should be actively involved in decision-making on sand mining.[50]

45 IUCN., *Environmental and Social Impact Assessment (ESIA) Key Elements of an ESIA and an ESIA Report*, No. March, 2020, page.1–6.

46 Christina M Powers et al., *Comprehensive Environmental Assessment: A Meta-Assessment Approach*, 2012.

47 Schmitt and Chaumillon., Understanding Morphological Evolution and Sediment Dynamics at Multi-Time Scales Helps Balance Human Activities and Protect Coastal Ecosystems: An Example with the Gironde and Pertuis Marine Park. *Science of The Total Environment*, Vol.887, 2023.

48 Juwo Juwish, Lwesya Sibale, and Thomas Bernward Fischer., Who Is Involved in Environmental and Social Impact Assessment Public Participation ? Observations on Urban and Rural Practices in Malawi, *Impact Assessment and Project Appraisal*, Vol.41 No.4, 2023, page. 301–13

49 Hackney, C., Darby, S., Parsons., River Bank Instability from Unsustainable Sand Mining in the Lower Mekong River. *Nature Sustainability,* 2019

50 Review, Global., *Assessing Environmental Impacts- A Global Review of Legislation*, 2018.

The active involvement of stakeholders in the decision-making process regarding Indonesia's marine sand mining is essential to balance environmental sustainability. To ensure that the interests of all parties are heard and to ensure that the interests of all parties are heard and considered should be in line with the principles of UNCLOS, understanding multiple perspectives enables the search for a middle solution that considers both economic impacts and environmental sustainability in a sustainable manner.[51]

Encouraging a sense of shared ownership and a sense of accountability in the decision-making process is also important. This ensures that ongoing activities are visible to everyone and that the decision-making process is sound. Collaboration between countries is important in the context of international cooperation to address global challenges related to sand extraction. This cooperation enables the exchange of knowledge, best practices and learning from both good and bad experiences in managing sand mining.[52]

The decision to lift the ban on the export of sea sand in Indonesia was supported by several decisions issued by the Indonesian Environmental Court, the Regulatory Authority, and the High Court. The government had previously stopped the export of sea sand through Minister of Industry and Trade Decree No. 117/MPP/Kep/2/2003 on the Temporary Suspension of Sea Sand Exports. The reason for the export ban was to prevent environmental damage in the form of sinking small islands in the country. However, President Joko Widodo aka Jokowi reopened the export of sea sand through Government Regulation (PP) Number 26 of 2023 concerning Management of Sedimentation Results in the Sea. From the Government Regulation, Jokowi aims to meet domestic needs, generate revenue, and comply with international law, while prioritizing economic benefits over environmental concerns. However, environmentalists and civil society groups criticized the decision, citing concerns about marine habitat destruction and coastal abrasion. The government stated that it will only allow dredging in areas of the seabed where sediment from land runoff is added, which will also help smooth ship traffic. While the new regulation refers to maritime and investment laws as its legal basis, it does not refer to environmental and conservation laws. Nevertheless, the lifting of the ban on the export of marine sand is in line with UNCLOS, which allows the exploitation of marine resources for various purposes, including land reclamation projects.

Countries can avoid past mistakes and adopt more sustainable methods by applying cooperative approaches and utilizing policies and strategies that have proven effective. This is important because the effects of sand extraction, such as changes in sediment flows and coastal erosion, often occur beyond national borders.[53] To mitigate these transboundary effects and ensure sustainable management of marine ecosystems, international collaboration is necessary.[54]

51 Chie Kojima, *Integration of General Principles of International Environmental Law into the Law of the Sea: Assessment and Challenges*, Marine Policy, Vol.149 No.105497, 2023.

52 Barry Sadler, *Environmental Impact Assessment and Strategic Environmental Assessment : Towards an Integrated Approach*, 2004.

53 *Ibid*.

54 Aristyo Rizka Darmawan., Sovereignty, Security and Prosperity: Indonesia and the UN Convention on the Law of the Sea.

Therefore, international cooperation is essential to ensure compliance with UNCLOS and environmental sustainability in the process.

Sharing knowledge, best practices and technologies is crucial to international cooperation for sustainable sand mining. Countries with advanced practices and technologies can assist those with limited resources or expertise. This knowledge exchange helps build capacity and promotes the adoption of sustainable extraction practices worldwide. Through technology transfer and sharing of best practices, countries can enhance their environmental monitoring capabilities, improve sediment management techniques, and implement effective mitigation measures. Collaboration in research and development can also lead to the discovery of innovative solutions and alternative materials, reducing the reliance on sea sand.

It is crucial to support research and development in sustainable construction practices to strike a balance between UNCLOS compliance and environmental sustainability.[55] Finding substitute materials and construction techniques that have the fewest negative effects on the environment should be the main focus of research. This entails looking at the usage of recyclable materials, cutting-edge construction methods, and eco-friendly sand substitutes. By funding research and development, new technologies and methods can be found that lower the need for sand in buildings. Sustainable building techniques can help reduce the requirement for sand extraction and protect natural resources.

A multifaceted strategy is needed to strike a compromise between UNCLOS compliance and environmental sustainability. Key activities in this endeavor include carrying out thorough Environmental Impact Assessments, implementing sustainable extraction methods, involving stakeholders, encouraging global cooperation, and looking into alternative solutions.[56] By adopting these measures, countries can mitigate the negative effects of sand mining on coastal and marine ecosystems for the long term.

Controversy has arisen in response to a decision made not too long ago by the government of Indonesia to reverse a prohibition on the export of sea sand that had been in effect for the preceding 20 years. The advantages and disadvantages of restarting Indonesia's sand exports are outlined in the following list, which may be found after it. Several reasons why it might be beneficial for Indonesia to resume shipping sand from its beaches to other nations. The government of Indonesia is getting ready to resume sea sand extraction in an effort to restore its treasury funds. Among the many uses for sand are building public and private infrastructure and filling landfills.[57]

The federal government has announced that it will only provide approval for dredging operations in regions of the ocean floor where silt has accumulated as a result of runoff from land. This is a restriction that has been placed by the

55 Rangel-Buitrago, N., Neal, W., Pilkey, O., & Longo, N.,The global impact of sand mining on beaches and dunes, *Ocean & Coastal Management*, Vol.235 No.106492, 2023.

56 Shuo Li., *Unilateral Actions in the Development of the Law of the Sea*, Marine Policy, Vol.153 No.105658, 2023.

57 Purwaka., Peluang Menurut Unclos Dan Hukum Positif Indonesia Untuk Membuka Kembali Ekspor Pasir Laut Ke Singapura, *Jurnal Dinamika Hukum*, Vol.14, 2014, page.384-392

federal government. This will assist in reducing the strain caused by the increased ship traffic. It is anticipated that the revival of sea sand mining will have a beneficial effect not only on the labor market but also on the economy.[58] There are a variety of convincing grounds against Indonesia continuing its practice of exporting beach sand, and one of these is the fact that the activity has been discontinued.

Environmental groups and marine scientists have expressed their worries about the impact that mining for sea sand could have on the ecosystem of the area. In particular, these people are worried about the possibility of the loss of habitat, bank erosion, water pollution, the loss of animal variety, changes in the topology of the river, and dangers to adjacent bridges and infrastructure. Sand mining at sea has the potential to contribute to rising sea levels, which will make Indonesia's climate crisis even more difficult to fix than it already is.[59]

People who live in coastal areas and whose livelihoods depend on the integrity of marine ecosystems would be negatively impacted if sea sand mining were to be restarted.[60] Sand dredging is the activity responsible for the loss of a number of islands in the Thousand Islands regency. This region may be found to the north of Jakarta and the Riau Islands. The extraction of sea sand, which will result in a rise in the levels of seawater all over the world, will make the climate crisis that is already occurring in Indonesia even worse.[61]

The resurgence of Indonesia's sea sand exports is still a contentious topic that has not been resolved. The government maintains that sea sand mining would be economical and result in the development of new jobs, while environmental groups and marine experts are concerned about the potentially bad effects that the mining could have on the ecology of the area. They argue that restarting the mining of sea sand will be detrimental to coastal people, given that these populations are reliant on ocean ecosystems, and will make Indonesia's current climate issue a great deal worse.

This policy reversal is legally substantiated by Government Regulation (PP) No. 26 of 2023 concerning the Management of Sedimentation Results in the Sea, which authorizes the regulated extraction and export of marine sediment, including sea sand. The legislation permits sand dredging exclusively in areas where sedimentation arises from land runoff, justified as a method to enhance navigational safety and maritime access. Critics contend that this legislation is devoid of any environmental safeguards or references to environmental protection statutes, raising concerns over its long-term sustainability and enforcement.

This study distinguishes itself from previous studies through its comprehensive

58 Peni Susetyorini., *Kebijakan Kelautan Indonesia Dalam Perspektif Unclos 1982*, Masalah-Masalah Hukum, Vol.48 No.2, 2019, page.164

59 Basten Gokkon., *Experts, Activists Unite to Blast Indonesia's U-Turn on Sea Sand Exports*, Mongabay, 2023, https://news.mongabay.com/.

60 Fachrul Islam Hidayat., Dampak Reklamasi Pantai Dan Tambang Pasir Terhadap Ekosistem Laut Dan Masyarakat Pesisir, *Departemen Teknik Sistem Perkapalan, Fakultas Teknik, Universitas Hasanuddin*, 2020, page.6.

61 Nilufer Oral., UNCLOS and Sea Level Rise, *Marine Policy,* Vol.49 No.105454, 2023.

integration of international legal analysis under UNCLOS with an environmental policy assessment specifically designed for Indonesia's new regulatory framework. This study presents a novel strategy that integrates UNCLOS obligations, national regulatory changes, and their socio-environmental impacts, contrasting with prior research that often examined legal compliance or ecological deterioration in isolation. This study provides a relevant and contextually informed perspective on the ongoing discourse in Indonesia regarding sustainable marine resource governance by examining the practical implementation of PP No. 26/2023 and evaluating its ramifications through the frameworks of international maritime law and environmental ethics.

4. Conclusion

Indonesia's choice to recommence sea sand exports has elicited varied responses from the public, environmental groups, and the global community, highlighting the conflict between national economic priorities and the necessity of marine environmental conservation. This article has analyzed the legal foundation of Indonesia's policy concerning its commitments under UNCLOS and assessed the environmental ramifications of sand mining, particularly in relation to the recently promulgated Government Regulation No. 26 of 2023. While the regulation is intended to manage sedimentation and facilitate maritime navigation, its limited reference to environmental laws raises concerns regarding community impacts and sustainability. This study's originality is in its contextual legal examination of Indonesia's sea sand export strategy, connecting international duties under UNCLOS with recent domestic restrictions and environmental issues. This research mixes legal interpretation with policy evaluation, unlike previous studies that examined these issues in isolation, to provide a more thorough understanding of the governance challenges in the responsible management of marine resources.

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