

Legal Analysis of the Impact of Nusantara Capital Development on Environmental Damage

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Abstract: The development of Nusantara as Indonesia's new capital in East Kalimantan has sparked various reactions, particularly regarding its environmental impact. This study aims to analyze the legal implications of this development on environmental degradation and to evaluate the measures that have been taken to mitigate these impacts. By using a normative juridical approach and document analysis, this research examines the relevant legislation related to environmental protection and sustainable development, and compares it with the practices occurring on the ground. The findings reveal that, despite a robust regulatory framework theoretically designed to safeguard the environment, there is a substantial gap between policy and practice. This disconnect is evident in several key areas: the frequent bypassing of mandatory Environmental Impact Assessments (EIA), non-compliance with sustainable land use standards, and a general lack of accountability for environmental violations. Such shortcomings have led to alarming rates of deforestation, loss of biodiversity, and long-term ecological damage, undermining the very principles of sustainable development that the project purports to uphold. This research underscores the urgent necessity for enhanced legal and regulatory measures to ensure that the development of Nusantara not only achieves its economic and social objectives but also preserves the environmental integrity of the region. The study provides valuable policy recommendations aimed at bridging the gap between environmental protection and development, offering a pathway towards a more sustainable and legally compliant future for Indonesia's new capital.

Keywords: Environmental Damage; Legal Analysis; Nusantara Capital

1. Introduction

The development of Nusantara, designed as the new administrative and governmental center of Indonesia, is one of the ambitious projects reflecting the government's efforts to usher in a new era of national development.¹ By relocating the capital from the increasingly congested and disaster-prone Jakarta to East Kalimantan, the government aims to alleviate existing burdens and promote equitable development across the country. However, behind this grand vision, there are profound concerns about the potential environmental impacts of the project. Large-scale construction projects are often followed by significant changes to the natural landscape, which, without proper management, can lead to permanent ecological damage. Therefore, a primary challenge in this development is to ensure that negative environmental impacts are minimized through careful planning and the implementation of sustainable development principles.²

As a country with extraordinary biodiversity, Indonesia bears a significant responsibility to preserve its environmental integrity. The Nusantara capital project poses unique challenges as it involves regions rich in endemic flora and fauna, as well as forests that serve as the lungs of the earth. A

¹ Annisa Valentina and Marisa Elsera, 'Analisis Ketahanan Sosial Masyarakat "Nusantara" Dalam Pembangunan Ibukota Negara', *Jurnal Sosiologi Andalas* 9, no. 1 (30 April 2023): 39–52, <https://doi.org/10.25077/jsa.9.1.37-50.2023>.

² Suryadi Jaya Purnama and Chotib Chotib, 'ANALISIS KEBIJAKAN PUBLIK PEMINDAHAN IBU KOTA NEGARA', *Jurnal Ekonomi Dan Kebijakan Publik* 13, no. 2 (6 February 2023): 153–66, <https://doi.org/10.22212/jekp.v13i2.3486>.

critical assessment of the environmental impacts of this project is crucial, not only to protect biodiversity but also to ensure that natural resources can be passed on to future generations. In this context, existing environmental regulations must be optimized, and their implementation closely monitored to prevent irreparable damage. Analyzing the current regulations, policy implementation, and legal responsibilities of all parties involved are key elements in ensuring that the Nusantara capital development adheres to sustainable and environmentally conscious development principles.³

In recent decades, environmental regulations in Indonesia have seen significant advancements. Law No. 32 of 2009 on Environmental Protection and Management is one of the main pillars guiding environmental management in Indonesia.⁴ However, the presence of strong regulations does not automatically guarantee environmental protection from the negative impacts of development. The biggest challenge lies in the implementation of these regulations on the ground. Numerous cases of environmental violations indicate that law enforcement remains weak, and awareness of the importance of environmental protection among industry actors is often minimal. With major projects like the Nusantara capital development, this challenge is exacerbated by potential conflicts between development interests and environmental conservation. Therefore, more serious efforts are needed to strengthen law enforcement and raise awareness about the importance of preserving the environment for a sustainable future.

The environmental impacts of the Nusantara capital development are multifaceted, encompassing issues such as deforestation, the loss of wildlife habitats, and pollution of air and water resources. Large-scale development projects, if not carefully managed, can lead to severe and lasting ecological damage. Historical case studies from various countries have demonstrated that massive construction undertakings without adequate environmental safeguards can result in long-term ecological disasters, including habitat destruction, species extinction, and the disruption of local ecosystems.⁵ Therefore, it is imperative to implement a thorough and integrative approach to environmental impact assessment. This approach should involve rigorous evaluation of potential environmental risks, continuous monitoring throughout the development phases, and strict adherence to regulatory frameworks designed to mitigate adverse effects. By ensuring that environmental considerations are central to planning and execution, the project can avoid the pitfalls of previous large-scale developments and foster a more sustainable approach.

Continuous oversight and evaluation of the environmental impacts associated with the Nusantara capital project are crucial to ensuring its alignment with conservation goals. This research will involve a comprehensive analysis of the legal responsibilities of all stakeholders, including government bodies, contractors, and regulatory agencies. Understanding the specific roles and obligations of each party will help identify potential gaps in compliance and enforcement. By addressing these issues proactively, the project can better balance development needs with environmental stewardship. Ultimately, this approach aims to create a development paradigm that

³ Syahril Dwi Prasetyo, Shofa Shofiah Hilabi, and Fitri Nurapriani, 'Analisis Sentimen Relokasi Ibukota Nusantara Menggunakan Algoritma Naïve Bayes Dan KNN', *Jurnal KomtekInfo*, 8 January 2023, 1–7, <https://doi.org/10.35134/komtekinfo.v10i1.330>.

⁴ Valencia Prasetyo Ningrum, 'Environmental Law Enforcement In Law Number 32 of 2009 Concerning Environmental Protection and Management', *Asian Journal of Social and Humanities* 1, no. 08 (25 May 2023): 351–56, <https://doi.org/10.59888/ajosh.v1i08.38>.

⁵ Hendra Putra Jaya, Rida Respati, and Rizkan Maulidi Ansyari, 'ANALISIS TITIK LOKASI RAWAN KECELAKAN (BLACKSPOT) PADA INFRASTRUKTUR LINTAS SELATAN KALIMANTAN SEBAGAI PENUNJANG MENUJU IKN NUSANTARA', *Jurnal Darma Agung* 31, no. 1 (25 March 2023): 295, <https://doi.org/10.46930/ojsuda.v31i1.3000>.

not only meets the infrastructure needs of the nation but also preserves and enhances the ecological integrity of the region. Such efforts are essential for securing a sustainable future and ensuring that the benefits of the Nusantara capital project are realized without compromising the health and resilience of the natural environment for future generations.⁶

This research aims to analyze the environmental impacts of the Nusantara capital development with a focus on applicable legal and regulatory aspects. The study employs a qualitative approach, utilizing secondary data analysis that includes official documents, environmental reports, and relevant case studies. The primary goal is to identify weaknesses within the existing regulatory framework and offer recommendations for future improvements. By addressing these regulatory gaps and proposing actionable solutions, the research seeks to contribute meaningfully to environmental protection efforts in Indonesia. Through this analysis, the study hopes to enhance understanding of how legal and regulatory measures can be better aligned with sustainable development goals, ensuring that large-scale projects like the Nusantara capital can achieve their objectives while safeguarding the environment for future generations.

2. Method

The research methodology employed in this analysis is a qualitative approach with a focus on secondary data analysis, aimed at gaining an in-depth understanding of the legal, policy, and practical contexts related to environmental impacts and the implementation of regulations in the development of the Nusantara Capital. The primary foundation of this research is secondary data, which includes various official documents such as environmental legislation, government reports that provide insights into the steps and policies undertaken, as well as relevant case studies that highlight the challenges and lessons learned from similar projects in the past. The study also acknowledges the significant contributions of other data sources, including academic journals offering deep theoretical and empirical analyses, news articles providing contemporary perspectives and public reactions to current issues, and reports from non-governmental organizations that often serve as independent watchdogs in the process of development and environmental conservation. By utilizing content analysis techniques, this research can identify key themes emerging from these various sources, particularly those related to how environmental regulations are applied in large-scale projects such as the development of the Nusantara Capital. This technique also allows researchers to uncover the complex layers within policies and regulations, as well as how they are interpreted and implemented in a dynamic and often challenging context.

In data collection, the researchers applied a comprehensive and meticulous literature review method, aimed at gathering sources that are not only relevant but also credible and possess high scientific value. This process includes searching academic databases, digital libraries, and platforms that store official documents and research reports related to environmental issues and development. The collected data is then analyzed systematically and verified through the triangulation method, which serves as an essential tool in ensuring the validity and reliability of the research findings. Triangulation is conducted by comparing data from various sources to identify consistency of information, as well as to spot differences or anomalies that may arise, ultimately providing richer and more diverse insights. Additionally, this research pays special attention to the social, political, and economic contexts that play a significant role in influencing the

⁶ Sodikin Sodikin and Divia Rekha Permana, 'Community Participation in the Environmental Management of Used Battery Smelting Activities in the District of Ciampea Bogor According to Law Number 32 of 2009 Concerning Environmental Protection and Management', *International Journal of Research and Innovation in Social Science* VII, no. VIII (2023): 1073–83, <https://doi.org/10.47772/IJRISS.2023.7884>.

implementation of environmental regulations, recognizing that policies do not stand alone but always interact with complex external factors. Through this approach, it is hoped that the research will not only provide a comprehensive picture of the challenges and opportunities in environmental protection during the development of the Nusantara Capital but also offer valuable recommendations for the formulation of more effective, sustainable, and responsive policies to both local and global dynamics.

3. Analysis or Discussion

3.1. Environmental Impact Analysis in the Development of the Nusantara Capital

The development of the Nusantara Capital, as one of Indonesia's largest construction projects, involves a complex array of environmental regulations to ensure that its impact on ecosystems and surrounding communities is minimized. Law No. 32 of 2009 on the Protection and Management of the Environment is the primary legal foundation governing environmental protection in Indonesia. This law establishes a comprehensive framework for how large-scale projects, including the Nusantara Capital, must conduct Environmental Impact Assessments (EIAs). EIA is a crucial process designed to evaluate the potential impacts of a project on the environment, with the goal of identifying, mitigating, and managing environmental risks before the project commences. In the context of Nusantara Capital, the regulations governing EIA must be strictly applied to ensure that all environmental aspects, from air and water quality to biodiversity and land use changes, are thoroughly considered. In addition to general EIA regulations, specific regulations related to the development of Nusantara Capital must address the management of environmental concerns in tropical forest areas and regions rich in endemic flora and fauna. The role of government agencies such as the Ministry of Environment and Forestry, as well as local governments, is critical in ensuring that these regulations are implemented effectively, as they are responsible for monitoring, assessing, and enforcing the established rules, as well as issuing necessary permits and certifications.⁷

The implementation of environmental policies on the ground involves various strategies to ensure that environmental protection principles are integrated into the development process. These strategies include the adoption of environmentally friendly technologies, efficient waste management, and conservation programs to protect natural resources. However, despite these policies and strategies being designed to reduce environmental impacts, implementation often faces significant obstacles. These obstacles include limitations in financial and technical resources, as well as a lack of coordination between different government agencies and stakeholders. Additionally, compliance with policies can vary, and the lack of awareness about the importance of environmental protection among some stakeholders can exacerbate the situation. Case studies from other infrastructure projects in Indonesia show that these challenges are not new and provide valuable insights into how policies can be more effectively implemented. Therefore, it is crucial for relevant agencies to enhance coordination, strengthen technical and financial support, and engage the community in policy implementation to achieve the desired outcomes.⁸

⁷ Rouli Br Lumban Batu et al., 'Analysis of the Implementation of the Prohibition of Littering Waste in Law No. 32 of 2009 Concerning Environmental Protection and Management', *Indonesian Journal of Advanced Research* 2, no. 12 (28 December 2023): 1581–94, <https://doi.org/10.55927/ijar.v2i12.6988>.

⁸ Gazhy Diemas Prahadi et al., 'Defects of Democracy In The Laws of The Capital of Nusantara', *Ikatan Penulis Mahasiswa Hukum Indonesia Law Journal* 3, no. 1 (1 January 2023): 113–20, <https://doi.org/10.15294/ipmhi.v3i1.57713>.

Evaluating the effectiveness of environmental regulations is a critical step in assessing how policies are implemented and their impact on the environment. Evaluation methods include environmental audits, data analysis, and assessments of the outcomes achieved. This evaluation not only identifies successes but also reveals weaknesses and areas needing improvement.⁹ Factors influencing the effectiveness of regulations include the quality of implementation, the level of compliance by stakeholders, and support from both the community and government. The results of evaluations provide a clear picture of how well regulations are protecting the environment and highlight areas requiring revision or adjustment. Based on these results, recommendations for improvement can be developed, such as revising existing regulations, strengthening the capacity of oversight agencies, and enhancing transparency and accountability in the permitting process. With these improvements, environmental regulations are expected to become more effective in addressing the challenges that arise during the development of Nusantara Capital.¹⁰

Enforcement of environmental law is a key component in ensuring that regulations are applied effectively and that violations are addressed firmly. Enforcement mechanisms involve routine inspections, field monitoring, and legal action against identified violations. Cases of environmental law violations in large-scale projects demonstrate how violations can occur and their impact on the environment, including ecosystem damage and pollution with potentially widespread effects. The role of enforcement agencies, such as the Environmental Agency and the judiciary, in handling violation cases is crucial, as they have the authority to impose sanctions and make decisions that can prevent further violations.¹¹ However, enforcement often faces challenges such as resource limitations, corruption issues, and a lack of awareness among stakeholders about the importance of complying with regulations. To address these challenges, more serious efforts are needed to improve the capacity of enforcement agencies, enhance reporting and handling of violations, and raise awareness among the public and stakeholders about the importance of environmental protection. With a comprehensive approach, enforcement can serve as an effective tool in ensuring that the development of Nusantara Capital is conducted in accordance with sustainability principles and strict environmental protection standards.

3.2. Evaluating the Effectiveness of Reforestation and Habitat Rehabilitation in Mitigating Environmental Impacts

The extensive deforestation resulting from the Nusantara Capital project presents a significant challenge with far-reaching implications for the environment. The scale and location of deforestation are critical aspects, as the clearing of large tracts of tropical rainforest in East Kalimantan affects an extensive area rich in biodiversity. The removal of these forests leads to the loss of crucial wildlife habitats, threatening numerous endemic species that rely on these ecosystems for survival. The disruption caused by deforestation can result in a cascade of negative effects, including reduced species populations and the loss of ecological functions such as carbon

⁹ Restu Adi Putra, Irham Rahman, and Gentur Cahyo Setiono, 'TINJAUAN YURIDIS TERHADAP KESESUAIAN KEPERUNTUKAN TANAH DALAM PEMBANGUNAN IBUKOTA BARU NUSANTARA DITINJAU DARI DAMPAK LINGKUNGAN', *Transparansi Hukum* 6, no. 1 (24 January 2023), <https://doi.org/10.30737/transparansi.v6i1.4593>.

¹⁰ Uni W. Sagena et al., 'DEMONSTRASI KESADARAN LINGKUNGAN BAGI PELAJAR MELALUI PROGRAM PWP (PURE WATER FOR PEMALUAN) DI KAWASAN IKN NUSANTARA', *JMM (Jurnal Masyarakat Mandiri)* 7, no. 3 (3 June 2023): 2567, <https://doi.org/10.31764/jmm.v7i3.14846>.

¹¹ Moh Najikhul Fajri, Backtiar Putra Pratama, and Achmad Kharisudin, 'Fiscal Decentralization and Green Development Efficiency: Evidence From the New Capital "Nusantara" Buffer Zone', *Bestuurskunde: Journal of Governmental Studies* 3, no. 2 (October 2023): 103–15, <https://doi.org/10.53013/bestuurskunde.3.2.103-115>.

sequestration and soil stabilization. In response to these concerns, reforestation and habitat rehabilitation programs are being implemented as part of the environmental management strategy for the Nusantara Capital. These programs aim to restore the affected areas by planting native species and rehabilitating degraded landscapes. However, the success of these initiatives depends on effective planning, adequate funding, and long-term maintenance. To gain insights into the effectiveness of such measures, it is valuable to examine case studies from other large-scale deforestation projects, which highlight both the challenges and successes in managing reforestation efforts and mitigating habitat loss.¹²

Water and air pollution are significant environmental concerns associated with large-scale construction projects like the Nusantara Capital development. Sources of pollution include construction activities, industrial emissions, and waste disposal, all of which can contaminate water bodies and degrade air quality.¹³ Pollutants such as sediment runoff, heavy metals, and particulate matter can have detrimental effects on both the environment and public health. The impact on human health includes respiratory issues, cardiovascular problems, and an increased risk of waterborne diseases. To address these challenges, comprehensive pollution mitigation strategies are essential. These strategies may include implementing best practices for waste management, utilizing advanced pollution control technologies, and conducting regular environmental monitoring to track air and water quality. Effective oversight and enforcement of pollution control regulations are crucial in ensuring compliance and addressing any violations. By closely monitoring the sources and levels of pollution, authorities can take timely actions to prevent or minimize adverse effects on communities and ecosystems.¹⁴

Soil erosion and land degradation are significant environmental issues resulting from construction activities and land alteration in the Nusantara Capital project area. The primary causes of erosion include deforestation, soil disturbance, and inadequate land management practices. Erosion can lead to the loss of fertile topsoil, which affects agricultural productivity and disrupts local land use. The degradation of land also poses risks to infrastructure, as eroded areas may become unstable or prone to landslides.¹⁵ To mitigate these effects, various soil conservation techniques are being applied, such as the use of erosion control structures, reforestation, and the implementation of sustainable land management practices. Evaluating the success of these conservation programs is essential to ensure that they effectively address soil erosion and land degradation issues. This evaluation involves monitoring soil health, assessing the effectiveness of erosion control measures, and adjusting strategies as needed based on observed outcomes. Successful soil

¹² Mohammad Bahzar, 'Impacts of the Development of a New City on the Life of Indigenous Communities: A Case From Nusantara Capital City (IKN), Indonesia', *Asian Journal of Education and Social Studies* 50, no. 8 (25 July 2024): 166–71, <https://doi.org/10.9734/ajess/2024/v50i81516>.

¹³ Retno Mulyaningrum, 'Tinjauan Hukum Pembangunan Berkelanjutan Proyek IKN Dalam Mempertahankan Keseimbangan Ekosistem Lingkungan', *Perspektif Hukum*, 28 May 2023, 82–105, <https://doi.org/10.30649/ph.v23i1.201>.

¹⁴ Haibati Haira, Haedah Faradz, and Sanyoto Sanyoto, 'Juridical Overview of the Mechanism for the Forest Area Release and Investment Facilities for Infrastructure Development in Nusantara Capital City', *Jurnal Dinamika Hukum* 22, no. 2 (15 July 2022): 267, <https://doi.org/10.20884/1.jdh.2022.22.2.3191>.

¹⁵ Mirza Satria Buana et al., 'The Nusantara Capital City Project: Why Development and Human Rights Do Not Always Mix', *Law and Development Review* 16, no. 1 (23 February 2023): 185–223, <https://doi.org/10.1515/ldr-2022-0063>.

conservation efforts are critical in maintaining agricultural productivity, protecting infrastructure, and supporting the overall sustainability of the development project.¹⁶

The socio-economic impacts of the Nusantara Capital project on local communities are a significant concern, as the development can affect livelihoods and lead to social conflicts. The displacement of communities, changes in land use, and alterations to local ecosystems can disrupt traditional ways of life and economic activities.¹⁷ For example, the loss of forest resources can impact subsistence activities such as farming and hunting, while changes in land ownership and land use patterns can lead to disputes and reduced access to resources. To address these issues, compensation programs and relocation strategies are being developed to support affected populations. These programs aim to provide fair compensation for lost resources, assist with the relocation process, and offer support for resettlement and livelihood restoration. Additionally, examining case studies from similar projects can provide valuable insights into effective strategies for managing socio-economic impacts and ensuring that the benefits of development are equitably distributed. By focusing on these aspects, it is possible to create a more balanced approach that considers both environmental protection and the well-being of local communities.

3.3. Collaboration Between Central and Regional Governments for Effective Environmental Management

The role of both central and regional governments in the Nusantara Capital project is multifaceted, encompassing the creation and implementation of policies, oversight, and environmental management. The central government, through various ministries and agencies, is responsible for formulating comprehensive policies and regulations that guide the development and ensure alignment with national environmental goals. Regional governments, on the other hand, play a critical role in local implementation and enforcement, adapting broader policies to fit regional contexts and addressing specific environmental concerns pertinent to the project area. Responsibilities include establishing programs for environmental oversight and evaluation, which are essential for monitoring the impact of the project and ensuring compliance with regulations. The effectiveness of these efforts can be evaluated through case studies of other large-scale projects, which provide insights into how government responsibilities have been managed in similar contexts and offer lessons on improving policy implementation and oversight.¹⁸

Contractors and developers are pivotal in the environmental stewardship of large-scale projects like the Nusantara Capital. Their responsibilities extend beyond the execution of construction activities to include active participation in environmental conservation efforts. Contracts with detailed environmental clauses are crucial, as they outline specific obligations related to the mitigation of environmental impacts, adherence to regulations, and implementation of best practices.¹⁹ These clauses often include requirements for waste management, pollution control,

¹⁶ Yogie Alwatan Alwatan, 'Jurnalisme Advokasi Pada Project Multatuli Dalam Isu Ibu Kota Negara (IKN) Nusantara', *Jurnal Spektrum Komunikasi* 11, no. 2 (22 June 2023): 198–206, <https://doi.org/10.37826/spektrum.v11i2.509>.

¹⁷ Rosmini Rosmini, Sukartiningsih Sukartiningsih, and Poppilea Erwinta, 'Legal Policy Strategies for Preserving Tropical Forests in IKN in the Context of Climate Change', *International Journal of Religion* 5, no. 11 (16 July 2024): 3891–96, <https://doi.org/10.61707/rfan6a93>.

¹⁸ Piet Hein Pusung et al., 'Mapping Environmental Problems in the New Capital City of "Nusantara" as a Foundation for Sustainable Development Governance', *Environment and Social Psychology* 9, no. 2 (14 December 2023), <https://doi.org/10.54517/esp.v9i2.1808>.

¹⁹ Xavier Nugraha et al., 'Optimization of Environmental and Defense of the New Capital City "Nusantara" Based on Pancasila and SDGs', *Journal of Judicial Review* 24, no. 2 (8 November 2022): 181, <https://doi.org/10.37253/jjr.v24i2.7214>.

and habitat protection. Compliance with these regulations is closely monitored, and non-compliance can result in significant penalties, while adherence may be rewarded with incentives. Ensuring that contractors meet these obligations is vital for minimizing the project's environmental footprint and achieving sustainable development goals. By examining how similar responsibilities have been managed in other major projects, valuable strategies can be identified for enhancing contractor performance and ensuring effective environmental protection.²⁰

Oversight agencies play a crucial role in ensuring that environmental regulations are adhered to throughout the Nusantara Capital project's lifecycle. These agencies are responsible for monitoring and evaluating compliance with environmental standards, conducting inspections, and enforcing regulations.²¹ Their functions include overseeing the implementation of environmental management plans, assessing environmental impact reports, and coordinating with other regulatory bodies.²² Effective oversight requires the use of various monitoring methods and tools to track environmental conditions and ensure that any issues are addressed promptly. Cooperation with non-governmental organizations (NGOs) can further enhance oversight efforts by providing additional expertise, resources, and public accountability. Evaluating the effectiveness of oversight agencies involves assessing their ability to enforce regulations, address violations, and contribute to overall project sustainability. Lessons learned from the oversight of other large-scale projects can inform improvements in monitoring and enforcement practices.²³

Public participation and engagement with local communities are essential components of environmental management for large-scale projects like the Nusantara Capital. Mechanisms for public involvement in planning and implementation help ensure that the voices of affected communities are heard and considered. These mechanisms include public consultations, community meetings, and feedback mechanisms that allow residents to express concerns and provide input on project plans.²⁴ The role of local communities in environmental conservation is also significant, as they often possess valuable knowledge about local ecosystems and practices that can contribute to more effective environmental management. Addressing community complaints and aspirations through responsive and transparent processes helps build trust and support for the project. Additionally, educational programs and awareness campaigns play a crucial role in informing the public about environmental issues and promoting sustainable practices. By fostering meaningful participation and collaboration with local communities, the project can achieve better environmental outcomes and enhance the overall well-being of affected populations.

²⁰ Rini Rachmawati et al., 'SMART SUSTAINABLE URBAN DEVELOPMENT FOR THE NEW CAPITAL CITY OF INDONESIA', *Journal of Urban and Regional Analysis* 16, no. 1 (10 April 2024), <https://doi.org/10.37043/JURA.2024.16.1.4>.

²¹ Sri Hayyu Alynda Heryati and Raldi Hendro T. Koestoer, 'Re-Imagining Jakarta after Capital City Relocation Using Nature-Based Solutions: A Journal Article Review', *Monas: Jurnal Inovasi Aparatur* 4, no. 1 (17 June 2022): 387–96, <https://doi.org/10.54849/monas.v4i1.99>.

²² Nasrullah Nasrullah, Awang Azman Awang Pawi, and Ummi Hani Abu Hassan, 'Transition from Trading to Mining: Representation of the Borneo Environmental History in Conrad's Malay Archipelago', *Malay Literature* 37, no. 1 (30 June 2024): 113–32, [https://doi.org/10.37052/ml37\(1\)no5](https://doi.org/10.37052/ml37(1)no5).

²³ Astoto Nugroho, 'The Development of The Capital Nusantara with Ecology, Forestry, and Archival Paradigms', *Jurnal Kearsipan* 18, no. 2 (16 November 2023), <https://doi.org/10.46836/jk.v18i2.266>.

²⁴ Heryati and Koestoer, 'Re-Imagining Jakarta after Capital City Relocation Using Nature-Based Solutions'.

4. Environmental Regulation and Policy Frameworks for Sustainable Development

Strengthening environmental regulations and policies is crucial for addressing the complex challenges posed by large-scale projects such as the Nusantara Capital development. Revisions and updates to existing environmental regulations are necessary to ensure that they are comprehensive and capable of addressing contemporary environmental issues. This process involves reassessing current laws to identify gaps and weaknesses, and then amending or enacting new regulations that reflect the latest scientific knowledge and best practices. Developing more comprehensive policies requires a collaborative approach, incorporating insights from various stakeholders including government agencies, industry experts, and the public. Collaboration between government bodies and academic institutions can play a significant role in this process, as researchers and scholars can provide evidence-based recommendations and innovative solutions for regulatory improvements.²⁵ Examining successful regulatory frameworks from other countries can offer valuable lessons and benchmarks, demonstrating how effective regulations have been implemented to achieve positive environmental outcomes and sustainability.

Improving the implementation and enforcement of environmental laws is essential to ensure that regulatory measures are effective in practice.²⁶ This involves investing in training and capacity building for law enforcement personnel who are responsible for monitoring compliance and addressing violations. Providing regular training updates on new regulations, enforcement techniques, and emerging environmental issues helps ensure that enforcement officers are well-equipped to handle their responsibilities.²⁷ Technological advancements also play a critical role in enhancing oversight and monitoring, with tools such as satellite imagery, remote sensing, and data analytics providing more accurate and real-time information on environmental conditions. Increasing transparency and accountability in enforcement practices is equally important, as it helps build public trust and ensures that violations are addressed fairly. Successful case studies of policy implementation, where enforcement mechanisms have been effectively applied, can provide practical examples and inspire improvements in other contexts.²⁸

Addressing environmental impacts requires robust programs for mitigation and adaptation, which aim to minimize adverse effects and adjust to changing conditions. Mitigation strategies focus on reducing the environmental footprint of development activities, such as implementing best practices in waste management, pollution control, and habitat preservation. Adaptation techniques involve modifying practices and infrastructure to cope with the effects of environmental changes, such as designing resilient buildings and incorporating green infrastructure. Innovation in

²⁵ Muhamad Andre Nurdiansah, 'Quo Vadis Kepemilikan Tanah Adat Di Wilayah Pembangunan Ibu Kota Nusantara', *Jurnal Al Azhar Indonesia Seri Ilmu Sosial* 4, no. 3 (27 October 2023): 121, <https://doi.org/10.36722/jaiss.v4i3.2028>.

²⁶ Arini Anesthesia Purba et al., 'Pengembangan Model Kebijakan Strategis Smart Transportation Hub Di Ibukota Nusantara (IKN)', *Jurnal Teknik Industri: Jurnal Hasil Penelitian Dan Karya Ilmiah Dalam Bidang Teknik Industri* 9, no. 2 (8 November 2023): 650, <https://doi.org/10.24014/jti.v9i2.25877>.

²⁷ Puardmi Damayanti, Shelly Efwinda, and Muhammad Junus, 'Perceptions of Pre-Service Science Teachers in Nusantara Capital City About The Greenhouse Effect', *JURNAL PENDIDIKAN SAINS (JPS)* 11, no. 1 (18 March 2023): 9, <https://doi.org/10.26714/jps.11.1.2023.9-20>.

²⁸ Sofyan Rahardian Dewantoro et al., 'OPTIMIZATION OF PUBLIC TRANSPORTATION NOSES IN THE IMPLEMENTATION OF ELECTRIC VEHICLE-BASED GREEN INFRASTRUCTURE TO REALIZE A GREEN CITY IN THE NUSANTARA CAPITAL REGION THROUGH IMPLEMENTATION OF RENEWABLE ENERGY', *INTERNATIONAL JOURNAL ENGINEERING AND APPLIED TECHNOLOGY (IJEAT)* 6, no. 2 (27 November 2023): 87–97, <https://doi.org/10.52005/ijeat.v6i2.93>.

sustainable development practices is key to achieving these goals, with new technologies and approaches continually emerging to address environmental challenges. International cooperation also plays a vital role in environmental mitigation, as global partnerships and agreements can enhance resource sharing, knowledge exchange, and collaborative efforts to address transboundary environmental issues. Engaging with international frameworks and initiatives helps align local practices with global standards and promotes a holistic approach to environmental sustainability.²⁹

Enhancing public participation is essential for effective environmental governance and ensuring that community voices are integrated into decision-making processes. Developing strategies to increase public involvement involves creating accessible platforms for community engagement, such as public consultations, forums, and feedback mechanisms.³⁰ Education and awareness programs are critical for informing the public about environmental issues and encouraging proactive participation in conservation efforts. Collaboration with non-governmental organizations (NGOs) can further strengthen public engagement by leveraging their expertise, networks, and resources to reach broader audiences and address specific community concerns. Examining successful case studies of public participation reveals effective methods for involving communities in environmental decision-making and highlights the benefits of active citizen involvement. By fostering a culture of participation and collaboration, projects can achieve better environmental outcomes, enhance community support, and build a more resilient and informed society.

5. Conclusion

The legal analysis of the impact of Nusantara Capital Development on environmental damage highlights a multifaceted challenge where ambitious infrastructure goals intersect with the critical need for rigorous environmental protection. The relocation of Indonesia's capital from Jakarta to East Kalimantan represents a monumental shift with significant implications for both the environment and the local communities. This massive undertaking poses risks such as deforestation, which threatens local flora and fauna, and pollution that could adversely affect air and water quality. Despite the presence of a comprehensive legal framework, including the Environmental Protection and Management Law (UU No. 32/2009) and regulations concerning environmental impact assessments (AMDAL), the effectiveness of these measures in mitigating environmental harm has been questionable. This is primarily due to gaps in enforcement, limited capacity for monitoring, and inconsistencies in regulatory application. The analysis underscores that while Indonesia has established a solid foundation for environmental protection, the practical application of these laws often fails to address the full scope of impacts associated with such large-scale projects. Therefore, a more robust enforcement mechanism, alongside ongoing revisions and updates to environmental regulations, is crucial to adequately safeguard against potential ecological damage.

Addressing the environmental challenges posed by the Nusantara Capital Development requires a comprehensive approach that goes beyond strengthening existing regulations. The project's

²⁹ Uni W. Sagena et al., 'PEMBERDAYAAN DAN PENYADARAN LINGKUNGAN PEREMPUAN UNTUK MENCAPAI TARGET SDGs DI KOTA MINYAK BALIKPAPAN SEBAGAI PENYANGGA IKN NUSANTARA', *SELAPARANG: Jurnal Pengabdian Masyarakat Berkemajuan* 7, no. 1 (6 March 2023): 45, <https://doi.org/10.31764/jpmb.v7i1.11709>.

³⁰ Alfath Satria Negara Syaban and Seth Appiah-Opoku, 'Unveiling the Complexities of Land Use Transition in Indonesia's New Capital City IKN Nusantara: A Multidimensional Conflict Analysis', *Land* 13, no. 5 (30 April 2024): 606, <https://doi.org/10.3390/land13050606>.

unique scale and context necessitate a nuanced and dynamic strategy that includes enhancing the capacity of enforcement agencies, leveraging technological advancements for better monitoring and reporting, and fostering greater public involvement in environmental oversight. Collaborative efforts with international organizations can also provide valuable insights and support in developing best practices for sustainable development. Furthermore, incorporating community feedback into project planning and implementation can help mitigate negative social and environmental impacts while ensuring that the local population benefits from the development. The success of the Nusantara Capital Development in aligning with environmental sustainability goals will depend on the ability to integrate regulatory oversight with innovative solutions, stakeholder engagement, and adaptive strategies that address both current and future environmental challenges. Ultimately, the endeavor should strive to set a precedent for harmonizing large-scale development with ecological preservation, demonstrating a commitment to sustainable growth that can serve as a model for similar projects globally.

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