

SUSTAINABLE ENVIRONMENTAL MANAGEMENT IN NUSANTARA CAPITAL CITY: LEGAL PERSPECTIVES AND BEST PRACTICES

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Abstract

The establishment of Ibu Kota Nusantara (IKN), Indonesia's future capital, introduces both challenges and opportunities for sustainable environmental management. Effective spatial planning is essential to balance developmental needs with ecological conservation. This study examines how spatial planning principles can be integrated within IKN's environmental management framework, addressing key legal issues related to infrastructure development, environmental preservation, and the social and economic impacts of spatial policies. Through a normative legal research methodology, incorporating statutory and conceptual approaches, this paper assesses relevant laws, regulations, and environmental planning practices applicable to IKN. The findings highlight the importance of comprehensive spatial planning, robust legal enforcement, and continuous monitoring for long-term sustainability. The study argues that embedding spatial planning in policy-making is critical to mitigating environmental impacts, strengthening community resilience, and supporting sustainable development goals for Nusantara Capital City.

Keywords: *Environmental Management; Legal Framework; Sustainable Development; Policy-Making; Community Resilience.*

1. Introduction

As a form of effort to create prosperity for the Indonesian people, the President moved the country's capital, which is currently located in Jakarta, to East Kalimantan, named Ibu Kota Nusantara (IKN) or Nusantara Capital City. The president highlights that economic activity is currently concentrated in Jakarta and on the island of Java, leading to overpopulation and significant disparities with other islands. Without substantial efforts to address this issue, such inequality will deepen over time. This underscores the need for inclusive development across all regions, particularly in the Nusantara capital city.

The development aims to improve existing infrastructure and resources in a way that benefits for the entire community. Such efforts are designed to be sustainable, with a phased approach that provide long-term advantages. Sustainable development, also known as the Sustainable Development Goals (SDGs), has seventeen interconnected goals that promote balanced growth and equitable benefits for present and future generations. One of the goals is to make cities and settlements inclusive, safe, resilient, and sustainable. Cities also drive economic growth, material and energy consumption, waste production, as well as greenhouse gas emissions. Global

environmental prosperity focuses on sustainability and resource efficiency.¹ This research is beneficial as it can determine the role of spatial planning in environmental management in the Nusantara capital city area, which aim to support sustainable development. A directed and measurable spatial plan to implement city plans are also necessary. Therefore, seventeen sustainable development goals become an ideal framework for spatial planning, realizing integration, harmonious development between regions, and creating quality spatial planning. SDGs are based on current and future world problems.

Relocating the capital city to the island of Kalimantan serves not only a symbol of identity, but also a representation of the nation's progress through the adoption of a modern, smart, and environmentally sustainable city model. This approach emphasized the use of renewable energy rather than reliance on fossil energy. Fossil fuels, such as coal, petroleum, and natural gas, are hydrocarbon-rich natural resources that form naturally in the Earth's crust. However, their use has disadvantages, including increased pollution through airborne toxins (free radicals), acid rain, soil and water contamination, health risks for mine workers, intensification of global warming, and contribution to extreme climate change.

In addition, the green city concept aims to establish a multi-scalar ecological network that provide many functions and benefits. In the future, implementing this concept effectively requires appropriate support and attention from all levels of society, technical experts, as well as economic and political stakeholders. Such collaboration is essential to ensure the sustainable development of the city without affecting the social welfare.²

The stipulation of spatial planning has a constitutional basis in the form of the 1945 Constitution in Article 33 paragraph (3), which states that the Earth, water, and natural resources contained therein are controlled by the state and used as much as possible for the benefit of the people. Under the state's right to control, the government has the authority to regulate the use of land, water, space, and natural resources contained therein, as stipulated by Article 2 of Law Number 5 of 1960 concerning Basic Agrarian Principles. Article 14 further specifies that, within the framework of Indonesian socialism, the government is responsible for creating a comprehensive plan regarding the supply, allocation, and utilization of earth, water, and space, as well as the natural resources contained therein. Land use planning theory emphasizes the

¹ Niloufar Fallah Shayan et al., "Sustainable Development Goals (SDGs) as a Framework for Corporate Social Responsibility (CSR)," *Sustainability* 14, no. 3 (2022): 1222, <https://doi.org/10.3390/su14031222>.

² Schrey de Vries, "Geospatial Approaches to Model Renewable Energy Requirements of the New Capital City of Indonesia," *Frontiers in Sustainable Cities* 4, no. 848309 (2022): 1–15.

importance of a thorough, just, and well-considered plan, evaluating aspects, such as equity, implementation speed, and the choice between phased or simultaneous execution.³

The urgency of relocating the National Capital is stated in Law Number 3 of 2022 concerning the National Capital, which was recently amended by Law Number 21 of 2023. This law asserts that Jakarta can no longer fulfil its role as the national capital due to rapid, uncontrolled population growth, environmental degradation, and declining living standards.⁴ The relocation is anticipated to reduce regional disparities and foster economic growth outside of Java, particularly the Eastern Region of Indonesia.

The preparation, construction, and relocation of the new capital, as well as the implementation of regional government structure specifically for the state capital, are dependent on land availability. In accordance with the Regulation of the Governor of East Kalimantan Number 6 of 2020 concerning Control of Transition, Land Use, and Licensing in the Candidate Area for the National Capital and Buffer Areas, approximately +490,000 ha (approximately four hundred and ninety thousand hectares) are required for the capital and surrounding buffer zones. This area spans several sub-districts in Kutai Kartanegara Regency, North Penajam Paser Regency, and Balikpapan City.

The Nusantara Capital Authority has the priority right to purchase land in Nusantara Capital City. The transfer of land rights in Nusantara Capital City must obtain approval from the Head of the Nusantara Capital Authority. In line with one of the goals of moving the country's capital, to become a world city, everything was built and managed with the aim of becoming a sustainable city in the world, as well as driving the Indonesian economy in the future. In Article 2 of Law Number 21 of 2023 defines a sustainable city as one that manages resources appropriately and provides services effectively, emphasizing the optimal use of water and energy resources, sustainable waste management, integrated modes of transportation, and a livable, healthy environment. This concept is embodied in the development of the Nusantara Capital, envisioned as a 'forest city' to ensure environmental sustainability, with a minimum of 75% green areas. The

³ Munir Fuady, *Teori-Teori Dalam Hukum Agraria* (Jakarta: PT RajaGrafindo Persada, 2023).

⁴ Arwin Sanjaya et al., "The Influence of Economic Conditions and Psychological Conditions of the Community on Government Readiness in the Development of the National Capital," *Jurnal Ad'ministrare* 9, no. 1 (May 31, 2022): 103, <https://doi.org/10.26858/ja.v9i1.33328>.

master plan for the Nusantara Capital woven is designed as a sustainable ecosystem, aiming to balance natural ecology, built areas, and existing social systems harmoniously.⁵

Despite these goals, there are potential environmental impacts associated with the development of the state capital in East Kalimantan, including: forest degradation in the state capital area, threats to animal habitat, potential carbon emissions from clearing forested land, limited raw water supply, and the potential flood risk.⁶ In fact, the national capital area is part of Kalimantan Island, whose spatial planning direction aims to realize the sustainability of biodiversity conservation areas and functional protected areas with wet tropical forest vegetation at least 45% of the area of Kalimantan Island covered in wet tropical forest. This aligns with the island's role as 'the lungs of the world,' supporting global ecological balance.⁷

Based on the above explanation, this aims to determine the role of spatial planning in environmental management in the Indonesian capital region. This article distinguishes itself from others by focusing on the critical role of spatial planning in the Nusantara capital area to ensure that each land aligns with its intended function, thereby preserving and protecting the environment to establish Nusantara as a sustainable city. It builds upon the previous research conducted by scholars, such as Yanti Fristikawati and Nugroho Adi Pradana, whose studies provided a legal perspective on Environmental Protection and Development of the National Capital City (IKN), addressing the pros and cons of this development along with government efforts and existing regulations.⁸ Unlike their work, this research diverges by the urgency of the spatial plan implemented in IKN, offering a unique perspective that depends the discussion on spatial planning's role and introduces new insights to the academic discourse.

This article also differs from Nailus Sa'adah, Muhammad Rafiqul Hayyat, and Resti Fevria, entitled *Analysis of Issues in Environmental Ethics Related to IKN*, which examines the government's responsibilities in protecting and managing the environment regarding the

⁵ 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*, 2022, <https://api.semanticscholar.org/CorpusID:259510807>.

⁶ Medrilzam Medrilzam et al., "The Socio-Ecological Drivers of Forest Degradation in Part of the Tropical Peatlands of Central Kalimantan, Indonesia," *Forestry: An International Journal of Forest Research* 87, no. 2 (April 1, 2014): 335–45, <https://doi.org/10.1093/forestry/cpt033>.

⁷ Dadang Mutaqin, Muhajah Babny, and Nur Rahayu, "Analisis Konsep Forest City Dalam Rencana Pembangunan Ibu Kota Negara," *BWP Update* 4 (March 31, 2021): 23–26, <https://doi.org/10.47266/bwp.v4i1.87>.

⁸ Yanti Fristikawati and Nugroho Adipradana, "Perlindungan Lingkungan, dan Pembangunan Ibukota Negara (IKN) Dalam Tinjauan Hukum," *Jurnal Justisia : Jurnal Ilmu Hukum, Perundang-undangan dan Pranata Sosial* 7, no. 2 (December 31, 2022): 375, <https://doi.org/10.22373/justisia.v7i2.15586>.

relocation of capital.⁹ This research shifts the focus to the pressing necessity of implementing a spatial plan in IKN, thereby contributing novel insight and contributing to the ongoing scholarly conversation.

Furthermore, there are differences with the article written by Rahmah Ramadhani and Yusa Djuyandi with the title *The Indonesian Government's Efforts to Overcome the Risk of Environmental Damage as an Impact of Moving the National Capital*, which explains the concept of a forest city as the government's effort to overcome the risk of moving the national capital.¹⁰ This research uniquely highlights the importance of spatial plan for IKN, enabling a more in-dept analysis of spatial planning practices and adding valuable perspectives to the ongoing scholarly conversation.

Spatial planning is crucial for achieving sustainable development as it offers a strategic framework for the optimum, equitable, and sustainable management of land use. Research addressing the need of a comprehensive spatial planning document for the development of IKN remains insufficient to date. In urban planning, especially for cities located in vulnerable ecosystems including low-lying coastal regions, flood-prone areas, biodiversity hotspots, and regions experiencing significant water stress, effective spatial planning is essential. Therefore, the researchers are motivated to investigate this issue further.

This research emphasizes the urgent need for a spatial plan to serve as a guideline capital region, supporting balanced environmental management that aligns with sustainable development objectives. The Sustainable Development Goals (SDGs) aim to achieve a more inclusive, resilient, safe, and sustainable society, ensuring equitable access to resources and fulfil their right to life and livelihood.¹¹ This plays a vital role in the implementation of development in the nation's capital, which is carried out in stages, alongside necessary preparatory processes, including location readiness and resources needed for the development of the nation's capital.

⁹ Nailus Sa'adah, Muhammad Rafiqul Hayyat, and Resti Fevria, "Analisis Issue Dalam Etika Lingkungan Terkait IKN," vol. 2, 2022, 421–30, <https://semnas.biologi.fmipa.unp.ac.id/index.php/prosiding/article/view/406>.

¹⁰ Rahmah Ramadhani and Yusa Djuyandi, "Upaya Pemerintah Indonesia Dalam Mengatasi Resiko Kerusakan Lingkungan Sebagai Dampak Pemindahan Ibu Kota Negara," *Aliansi : Jurnal Politik, Keamanan Dan Hubungan Internasional* 1, no. 3 (January 24, 2023): 144, <https://doi.org/10.24198/aliansi.v1i3.44008>.

¹¹ Idiano D'Adamo et al., "An Analysis of Sustainable Development Goals in Italian Cities: Performance Measurements and Policy Implications," *Land Use Policy* 120 (September 1, 2022): 106278, <https://doi.org/10.1016/j.landusepol.2022.106278>.

2. Methods

This article employed a normative juridical approach,¹² Utilizing secondary data sources, such as relevant laws, regulations, and other document references. The descriptive analytical research specification offers a comprehensive overview of the studied problems, utilizing data from laws and regulations that are relevant to the issues in this article. The researchers also adopted a qualitative data analysis method that scrutinized the connections among phenomena derived from normative searches and scientific reasoning, leading to the formulation of conclusions. A literature review serves as the primary data collection method, involving the identification of secondary data and legal regulations associated with the issues under investigation.

3. Results and Discussion

3.1. Spatial Planning in the Nusantara Capital City (IKN)

The Nusantara Capital City (IKN) is a unified geographical area, housing the National Capital, governed by the Head of the Nusantara Capital Authority. The regional government of the Nusantara Capital City has a special nature that carries out government affairs in the Nusantara Capital City, including the regulation of spatial planning. Nonetheless, spatial planning regulations in the National Capital are still governed by existing spatial planning laws. The government holds the authority over spatial planning at the national, provincial, and district/city areas, including responsibilities for regulation, guidance, and oversight.

The understanding of spatial planning in a broad sense includes the connection and harmony of land, water, and air use, as well as resource allocation through coordination and efforts to resolve conflicts between different interests. Effective planning has a vital role in development because spatial planning contributes to and reflects fundamental regional management, which aims to increase the integration of various spatial developments and economic development. As stipulated by Law Number 26 of 2007 on Spatial Planning, it is necessary to increase management efforts in a wise, efficient, and effective manner to promote general welfare and social justice.¹³

Starting from the spatial plan owned by East Kalimantan Province, as outlined in Regional Regulation Number 1 of 2016 on the Regional Spatial Plan for 2016 – 2036, plays a crucial role in guiding sustainable resource use within the province. This planning strategy aims to realize

¹² Soerjono Soekanto and Sri Mamudji, *Penelitian Hukum Normatif: Suatu Tinjauan Singkat* (Jakarta: PT RajaGrafindo Persada, 2001).

¹³ Rosyid Hermawan, Novizas Shebubakar, and Sadino Sadino, "Legal Aspects of Land Acquisition for the National Capital City (IKN) of the Nusantara," *Journal of Law, Politic and Humanities* 4, no. 5 (July 24, 2024): 1636–48, <https://doi.org/10.38035/jlph.v4i5.544>.

sustainable development by balancing economic, investment, and social activities by considering to carrying capacity and environmental sustainability. Notably, these regulations do not address spatial planning related to the relocation of Indonesia's capital from Jakarta to East Kalimantan, as this was stipulated on February 15 2016, before the President's announcement on August 16, 2019, at People's Consultative Assembly regarding the need to relocate the capital, which was later formalized into law on February 15, 2022.

The initial regulation regarding the national capital was after the President conveyed the urgency of relocating the capital to East Kalimantan in 2019 with the enactment of Law Number 3 of 2022 concerning the National Capital. This law provides a framework for the unique administrative governance of the new capital, distinct from existing regional administration models, in line with Article 18B paragraph (1) of the 1945 Constitution, which allows for special administrative arrangements through legislative measures, including those involving spatial planning.

Presidential Regulation Number 63 of 2022 concerning Details of the Master Plan for the Nusantara Capital City, detailing directions for the spatial and regional planning of the Nusantara capital are regulated, including directions for structural planning, space patterns and control of space utilization, as well as for structural planning of spatial patterns and control of space utilization in its area. The development stage of the Nusantara capital city must at least contain a project/activity/land use plan, an indication of the financing scheme, as well as an indication of the operational year. Furthermore, there are also regulations regarding directions for designing the building layout and environment of the central government core area; monitoring and evaluating the detailed implementation of the Nusantara capital city master plan. These guidelines encompass principles and strategies for land use, environmental protection, and resource management in the new capital.

At the national level, spatial planning has an important role as adequate planning to ensuring sustainable and balanced regional and local development.¹⁴ The urgency of spatial planning is critical in the development of the Nusantara capital city in East Kalimantan, particularly to ensure that regional growth is sustainable and environmentally balanced. Spatial planning serves as both a technical instrument and an essential policy tool for balancing development with the preservation

¹⁴ Maciej Nowak et al., "Spatial Planning at the National Level: Comparison of Legal and Strategic Instruments in a Case Study of Belarus, Ukraine, and Poland," *Land* 12, no. 7 (2023), <https://doi.org/10.3390/land12071364>.

of natural ecosystems.¹⁵ Consequently, the need for spatial planning in the development of IKN arises from environmental legal concerns grounded in the idea of sustainable development, necessitating a balance among economic, social, and environmental requirements.

Legally, the establishment of a new capital city must be regarded as a fundamental component of national policy necessitating meticulous planning with appropriate consideration for ecological factors. Spatial planning also plays a crucial role in land distribution, natural resource use, and the conservation of regions of significant biological significance in accordance with Law Number 26/2007 on Spatial Planning.¹⁶ This mandates that spatial planning shall prioritize the equilibrium between environmental carrying capacity and human requirements, that functions as a legislative framework and protects the natural carrying capacity of the IKN area, particularly given that East Kalimantan is among the areas with the highest biodiversity in Indonesia.

The growth of IKN may result in considerable environmental consequences if not executed with meticulous planning. According to Law Number 32/2009 on Environmental Protection and Management, all major development mandates, including all large-scale development projects of capital city development, perform a comprehensive environmental effect assessment via an environmental effect assessment (AMDAL). This serves as both a preventative mechanism to anticipate environmental harm and a strategic initiative to guarantee that all future developmental activities in the capital city region are compatible with the preservation of ecosystems and natural resources. Consequently, the presence of spatial planning in this context functions as a framework that incorporates the outcomes of environmental impact assessments at all stages of development planning and execution.¹⁷

In this regard, the significance of spatial planning is intrinsically correlated to climate change, necessitating that the building of a new capital city be executed in a manner that does not exacerbate greenhouse gas emissions or compromise climate change mitigation initiatives.¹⁸ The Indonesian government has demonstrated its commitment to addressing climate change by ratifying the Paris Agreement, thereafter implementing numerous national policies that promote low-carbon growth. Presidential Regulation Number 61/2011 pertains to the National Action Plan

¹⁵ Helen Miller and Daniel J. Brown, “Spatial Planning for Biodiversity Conservation,” *Land Use Policy* 42 (2015): 357–67, <https://doi.org/10.1016/j.landusepol.2015.01.003>.

¹⁶ Bruce Stiftel and Vanessa Watson, “Urban Resilience and Spatial Planning,” *Cities* 60 (2016): 402–9, <https://doi.org/10.1016/j.cities.2016.04.009>.

¹⁷ M. Cashmore and A. Bond, “Environmental Impact Assessment and Sustainable Development,” *Environmental Impact Assessment Review* 24 (2004): 595–616, <https://doi.org/10.1016/j.eiar.2004.01.002>.

¹⁸ Jürgen H. Scheffran and Peter D. Howe, “Integrating Climate Change Adaptation into Spatial Planning,” *Environmental Science & Policy* 33 (2013): 110–20, <https://doi.org/10.1016/j.envsci.2013.04.009>.

for Reducing Greenhouse Gas Emissions (RAN-GRK), which requires that all significant development projects minimize emissions and enhance energy efficiency. Within the framework of IKN, spatial planning must align development with greenhouse gas emission reduction objectives. This may be achieved by ensuring that land use, transportation, and energy infrastructure in the future capital city adhere to low-carbon development principles.

Alongside environmental considerations, spatial planning must also include socio-economic factors, particularly for indigenous and local groups residing in the East Kalimantan area. The establishment of a new capital city would undoubtedly induce significant alterations in the lives of nearby villages; without comprehensive spatial planning, this may precipitate land disputes, social inequality, and displacements.¹⁹ According to Law Number 5/1960 on Basic Agrarian Principles (UUPA), indigenous people possess customary rights that must be acknowledged and upheld in all regional development initiatives. Consequently, spatial planning in the IKN area must include the safeguarding of indigenous peoples' rights, including the acknowledgment of customary territory and the establishment of public consultation procedures in all development planning processes. The concepts of social justice must be included in the spatial design to ensure that the development of IKN proceeds equitably and sustainably.

Conversely, the establishment of a new capital city presents a chance to use eco-friendly technology and creative solutions aligned with sustainable development objectives. In this context, spatial layouts have to encourage the use of renewable energy, water efficiency, and sustainable waste management. Government Regulation Number 79/2014 on National Energy Policy emphasizes the importance of renewable energy use and diminishing reliance on fossil fuels. Spatial planning must effectively guide the development of energy infrastructure in IKN to harness the existing renewable energy potential, including solar, wind, and biomass energy, therefore facilitating the establishment of a greener and more sustainable capital city.

In summary, the need for spatial planning in the advancement of IKN Nusantara in East Kalimantan serves not only to guide physical development, but also as a legal mechanism that guarantees a balance between economic growth and environmental conservation. Spatial planning is the primary instrument for achieving sustainable development that safeguards the ecological carrying capacity, conserves forests and coastal regions, and honours the rights of local

¹⁹ Mazher Iqbal and Sarah Naimatullah, "The Role of Urban Planning in Achieving Sustainable Cities," *Sustainable Cities and Society* 45 (2019): 215–23, <https://doi.org/10.1016/j.scs.2019.01.024>.

populations. The development of IKN can exemplify the principles of sustainable development, social justice, and ecological balance.

3.2. The Spatial Planning Role in Environmental Management in the National Capital City

Spatial planning in accordance with Law Number 26 of 2007 concerning Spatial Planning is a form of spatial structure and spatial pattern. Spatial structure means the arrangement of residential centers and a network system of infrastructure. It also facilities that function to support socio-economic activities of the community, which have a hierarchical functional relationship. Meanwhile, spatial pattern is the distribution of space allocation in an area, which includes space allocation for protection functions and space allocation for cultivation functions. Spatial planning is an instrument for policy makers to plan, implement and supervise development, especially in the context of environmental protection and management.²⁰

Plans can be found in various areas of government activity, for example in spatial planning. A plan is a total of interrelated actions from state administration that seeks to implement certain conditions in an orderly manner. According to Saul M. Katz, the reasons for implementing a plan includes several key aspects: planning aims to provide direction for activities, establish guidelines for implementing activities aimed at achieving specific foals, and create estimates for anticipated challenges during implementation. Additionally, planning seeks to minimize uncertainties, offers the opportunity to explore various alternatives or select best combinations, establishes a priority plan, and provides a standard or measuring tool for monitoring or evaluation.²¹

One direction of classification of spatial planning systems is plan-based and development-based systems. Based on a system plan, spatial planning findings are universally binding, and the scope of implementation often reveals integration challenges with other instruments. This classification also considers the spatial plan's connections to environmental and natural elements, social issues, energy concerns, and the real estate market.²²

Spatial planning is important to increase land use efficiency. This is relevant for policymakers in the fields of spatial planning, agricultural policy, and energy. Spatial planning is carried out to produce a general spatial plan and a detailed spatial plan. Moreover, spatial planning

²⁰ Sri Kusriyah, "Spatial and Regional Planning as a Basis for Development Implementation in Indonesia," in *The 4th Legal Internasional Conference and Studies*, vol. 4, 2021, 11–30, <https://doi.org/10.26532/pdih.v4i4.20779>.

²¹ Asep Warlan Yusuf, *Pranata Pembangunan* (Bandung: Parahyangan University, 1997).

²² Nowak et al., "Spatial Planning at the National Level: Comparison of Legal and Strategic Instruments in a Case Study of Belarus, Ukraine, and Poland."

is used as a guide in uncertain situations and problems related to spatial development. The general spatial planning plan is prepared based on an administrative area approach with substantive content, including spatial structure plans and spatial pattern plans. A detailed spatial planning plan is prepared based on the strategic value approach of the area and/or regional activities with substantive content, which include determining allocation blocks and sub-blocks. The preparation of a detailed plan is intended as an operationalization of the general spatial planning plan.²³

Article 19 of Law Number 26 of 2007 concerning Spatial Planning outlines considerations for national regional spatial planning, which can inform as a reference in spatial planning plans for the capital of the Nusantara. There are several things that must be considered, including: archipelagic insight and national resilience; developments in regional and global problems as well as results of studies on the implications of national spatial planning; efforts to equalize development and economic growth and stability; alignment of national development aspirations and regional development; environmental carrying capacity and capacity; national long-term development plan; national strategic area spatial plan; as well as provincial spatial planning and district or city spatial planning.²⁴

According to research conducted by Charles Hoch, three concepts to guide the future can help spatial planning, including utopia, scenarios, and plans. Utopia offers a concept of social change, illustrating how different goals can be presented in detailed images that depict specific relationships and outcomes for future places. Scenarios can be employed by spatial planners to uncover unknown or poorly understood connections and to engage a broader public audience in the planning process. Most spatial plans drawn up by professionals describe the goals and conditions that exist from the start. Spatial planners use a variety of techniques and tools to process information about complex urban systems and behaviour. Population projections, economic estimates, land use suitability assessments, and other similar studies do not reveal the truth of cities, but provide orderly relationships framing future conditions depending on assessments that combine future expectations, prior assumptions, and current observations.²⁵

²³ C. Sponagel et al., “Exploring the Climate Change Mitigation Potential and Regional Distribution of Agrivoltaics with Geodata-Based Farm Economic Modelling and Life Cycle Assessment,” *Journal of Environmental Management* 359 (May 2024): 121021, <https://doi.org/10.1016/j.jenvman.2024.121021>.

²⁴ F. Amhar and M. Darmawan, “Recent Development in Spatial Planning after the Omnibuslaw Job Creation,” in *IOP Conference Series: Earth and Environmental Science*, vol. 950 (IOP Publishing, 2022), 012079, <https://doi.org/10.1088/1755-1315/950/1/012079>.

²⁵ Charles Hoch, “Utopia, Scenario and Plan: A Pragmatic Integration,” *Planning Theory* 15, no. 1 (February 1, 2016): 6–22, <https://doi.org/10.1177/1473095213518641>.

This aligns with existing research indicating that sustainable landscape patterns can effectively support spatial planning to determine planning targets, analyze spatial patterns, compare and select schemes by assessing target landscape elements, identifying key spatial areas, as well as carrying out simulation of future development scenarios. A sustainable landscape pattern combines the composition and configuration of landscape elements that enable social-ecological processes to provide a sustainable, stable ecosystem to improve human welfare in a specific area. A landscape results from the interaction between two environmental components: the natural component (the influence of geology, soil, climate, flora, and fauna) and the cultural component (the impact of land use determination, residential areas, and various other forms of human intervention).²⁶

The obligation for conducting strategic environmental studies lies with the government and regional governments. In accordance with the contents of Article 15 of Law Number 32 of 2009 concerning Environmental Protection and Management, making strategic environmental studies is an obligation for the government and regional governments, and its implementation is outlined in the preparation or evaluation of regional spatial plans and their detailed plans, long-term development plans long-term, and medium-term development plans, whether national, provincial, district or city. Likewise in policies, plans and/or programs that have the potential to cause environmental impacts and/or risks.²⁷

The preparation of strategic environmental studies is carried out in an integrated manner with the preparation of the Nusantara capital master plan, employing a participatory approach that engages various parties, including ministries/institutions, regional governments, civil society organizations, and business actors. The aims of the strategic environmental study document for the master plan for the Indonesian capital city is to ensure that planning and development process align with environmental preservation and protection efforts, thereby facilitating development in line with established visions. The strategic environmental study of the master plan for the Indonesian capital city contains at least five aspects: information on existing conditions, especially related to natural resources and the environment, as well as ecosystem services; directions for space utilization without ignoring aspects of the carrying capacity of natural resources and the carrying capacity of the environment; recommendations for preventing environmental impacts and

²⁶ Jianquan Dong et al., “Sustainable Landscape Pattern: A Landscape Approach to Serving Spatial Planning,” *Landscape Ecology* 37, no. 1 (January 1, 2022): 31–42, <https://doi.org/10.1007/s10980-021-01329-0>.

²⁷ Sulbadana Sulbadana, “Sustainable Development Principles: Legal Aspect Disaster Management Policies,” *Fiat Justisia: Jurnal Ilmu Hukum* 16 (October 4, 2022): 227–38, <https://doi.org/10.25041/fiatjustisia.v16no3.2661>.

risks; recommendations for protecting areas that have important values; and recommendations for restoring degraded environmental quality.

Similar to trends observed in China, developed regions prefer an excellent environment, while less developed areas pay more attention to economic development. Different city development goals lead to varying development modes. This makes less developed cities pollution havens for more developed cities. Therefore, local officials tend to implement less stringent environmental regulations to attract investment. In this situation, polluting industries are removed from high-income areas with stricter environmental regulations to low-income areas with looser regulations.²⁸ To effectively support environmental management in the Nusantara capital city, spatial planning must be actualized in the development framework of the Nusantara capital and implemented consistently, ensuring that it aligns with the region's carrying capacity and environmental needs.

The East Kalimantan government has established environmental protection regulations, such as East Kalimantan Province Regional Regulation Number 2 of 2020 concerning Environmental Protection and Management Plans, East Kalimantan Province Regional Regulation Number 7 of 2019 concerning Climate Change Adaptation and Mitigation, East Kalimantan Province Regional Regulation Number 7 of 2018 concerning Sustainable Plantation Development. This certainly strengthens the importance of protecting the environment in the Nusantara capital city, which is of course integrated with the existing spatial planning.

The spatial plan of the Nusantara capital city is crucial for development in the area. Moreover, in order to support sustainable development, a balanced environment is also necessary. The development policies play a critical role in advancing sustainable practices, directly supporting the balance of natural resources, human well-being, and environmental sustainability.²⁹ This commitment is reflected in the issuance of Circular Letter Number 03/SE/Kepala-Otorita IKN/I/2023, which address the Control of Environmental Pollution and Damage in Construction Development in the Nusantara Capital City. Directed at officials in the Nusantara Capital Region, the Capital City Task Force, ministries and agencies representatives, as well as stakeholders from

²⁸ Shimei Wu and Haotian Zhang, "The Existence and Mechanism of the Domestic Pollution Haven Hypothesis: Evidence from 265 Cities in China," *Letters in Spatial and Resource Sciences* 15, no. 3 (December 1, 2022): 287–310, <https://doi.org/10.1007/s12076-021-00285-2>.

²⁹ Etika Khairina, Eko Priyo Purnomo, and Ajree D Malawnai, "Sustainable Development Goals: Kebijakan Berwawasan Lingkungan Guna Menjaga Ketahanan Lingkungan Di Kabupaten Bantul Daerah Istimewa Yogyakarta," *Jurnal Ketahanan Nasional* 26, no. 2 (September 18, 2020): 155, <https://doi.org/10.22146/jkn.52969>.

the State-Owned Enterprises (BUMN), Village-Owned Enterprises (BUMD), and Private Business Entities sectors, this directive mandates environmental responsibility for all entities involved in construction projects in the new the capital.

The reason behind the issuance of this circular letter aims to carry out the mandate contained in Law Number 3 of 2022 on the National Capital, emphasizing ecological balance, low-carbon approaches, and resilience through circular development. Its purpose is to establish the new capital as a world city that restores, maintains, and preserves the environment, ensuring the Nusantara becomes a sustainable city. Additionally, it supports Phase I of the capital's development, scheduled from 2022 to 2024, focusing on the core government area and providing guidelines for environmental protection across the region, particularly in bugger and food resilience zones. This alignment with the master plan, national strategic spatial planning, and related regulations ensures efficient control of potential pollution and environmental damage.

It can be seen from this circular that the spatial planning of the Nusantara capital city plays an important role in managing the existing environment, requiring a comprehensive spatial plan to serve as a blueprint for sustainable development.

Spatial planning in East Kalimantan's National Capital City (IKN) functions as a critical mechanism for land use management, balancing physical development with environmental conservation in line with the sustainability principles outlined in several national legislation. In the context of IKN, one of Indonesia's major development projects, spatial planning is crucial for guaranteeing that the area's transformation prioritizes not just economic factors, but also the preservation of the current ecology.

The IKN area, located within East Kalimantan's biodiverse tropical forest, hosts ecosystem highly sensitive to land modifications. As such, spatial planning in this area must prioritize the ecological impacts of infrastructure development. Article 15 of Law Number 32 of 2009 legally requires the government to conduct a Strategic Environmental Assessment (SEA) to guarantee that the development of IKN does not harm the current environment. The SEA functions as a crucial tool that incorporates environmental factors into development strategies, plans, and programs executed in the region. Deforestation and urbanization significantly impact biodiversity, groundwater, and air quality; thus, any environmental study must also include strategies for mitigating these hazards.

Presidential Regulation Number 98 of 2021 mandates that IKN's spatial planning must consider land use that facilitates low-carbon development to achieve Nationally Determined

Contribution targets and control greenhouse gas emissions in national development. This aims to achieve the nation's objective of reducing greenhouse gas emissions. To preserve biological equilibrium and avert extensive development from disrupting sensitive regions, spatial plans must include green zones or conservation areas. Effective implementation of these restrictions must be reinforced by strong penalties for violations, especially in cases of land misuse leading to irreversible ecological damage.

Furthermore, spatial planning for IKN must effectively manage water resources. The area is susceptible to climate change, which may affect water supply and result in floods. Consequently, the spatial layout must include sustainable infrastructure design, including the development of reservoirs, green spaces, and effective drainage systems.³⁰ This complies with Government Regulation Number 37 of 2012 on Watershed Management, which mandates that water management in certain regions must consider the environmental carrying capacity, including groundwater absorption and erosion control.

Moreover, public participation in IKN's spatial planning is also legal requirement, as mandated by Law Number 26 of 2007, which mandates that local communities and environmental stakeholders must be engaged in the planning process. This inclusion is essential for ensuring that IKN's development delivers economic benefits while respecting the environmental rights of indigenous populations and minimizing adverse environmental impacts. This pertains to internationally recognized human rights concepts within the framework of sustainable development, including those outlined in the UN Declaration on the Rights of Indigenous Peoples.

In conclusion, the examination of environmental legislation should consider IKN spatial planning as a crucial tool for promoting sustainable development. All development decisions within this framework must rigorously adhere to the precautionary principle in environmental law for the environment's carrying capacity.³¹ The implementation of IKN development, emphasizing economic growth and environmental sustainability for future generations, will rely on spatial planning policies focused on environmental sustainability.

³⁰ Rossman Rawat, "Achieving Sustainable Urban Development for Indonesia's New Capital City," *International Journal of Sustainable Development and Planning* 15, no. 2 (2020): 65–78, <https://doi.org/10.2495/SDP-V15-N2-65-78>.

³¹ Francesco Moraci, "Planning Sustainable and Resilient Cities: The Role of Strategic Urban Planning," *Sustainability* 10, no. 5 (2018): 1212–25, <https://doi.org/10.3390/su10051212>.

4. Conclusion

This study concludes with two key findings that address the research questions. First, the role of spatial planning is essential in producing general and detailed plans that support sustainable development while respecting environmental carrying capacities. Strategic Environmental Assessments (SEA) integrate ecological and environmental considerations, leading to the creation of both spatial and master plans for the Nusantara capital city. Achieving balanced environmental and ecological management in this region requires consistent implementation of these spatial plans, especially for development in the Nusantara capital city. Sustainable development principles form the foundation of area development policies, plans, and programs. These policies play a significant role in achieving sustainable outcomes by protecting human life, balancing natural resources, and maintaining environmental sustainability. This is evident in the regional spatial planning frameworks, detailed plans, and environmental protection regulations in East Kalimantan, which aim to control pollution and prevent ecological damage during construction in Nusantara.

However, this research recognizes certain limitations, particularly in assessing whether the SEA processes for Nusantara have adequately addressed sustainable development issues through public consultation. Future research could focus on the importance of spatial planning in achieving sustainable development, engaging stakeholders such as central and local governments, universities, and non-governmental organizations. Emphasizing comprehensive SEA processes tailored to Nusantara could help prioritize critical issues for the government, providing a valuable framework for the region's future development planning.

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