



Risk analysis of the environment regarding the new capital city relocation

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ABSTRACT

Background: The relocation of Indonesia's capital from Jakarta to East Kalimantan is a major governmental decision with significant environmental implications. This study examines potential environmental risks, such as deforestation, biodiversity loss, and water resource challenges, which have been noted in previous urban expansion projects but remain understudied in this context. **Methods:** A literature review approach is used, analyzing scholarly works, policy documents, and regulations. The study employs qualitative analysis to assess environmental impacts related to large-scale infrastructure development. **Findings:** The results indicate risks such as deforestation, biodiversity disruption, and water scarcity, alongside increased carbon emissions and land use changes. These findings highlight the need for strategic planning and government commitment to environmental sustainability. **Conclusion:** Effective policies and mitigation strategies are essential to minimizing environmental risks in the capital relocation process and ensuring sustainable development. **Novelty/Originality of this article:** This study contributes to the limited research on Indonesia's capital relocation by providing an environmental risk assessment and emphasizing the need for proactive management.

KEYWORDS: capital relocation; environmental risks; sustainable development.

1. Introduction

Early in 2022, the administration and the parliament made a significant policy decision in which they agreed on the legal foundation for deciding the location of the National Capital City. The government took into account a number of factors before deciding that the State Capital, which had been in Jakarta, would be moved to Penajam Paser Utara in East Kalimantan. To ensure that the relocation of the State Capital does not end up being a "failed product" of the government, numerous plans have been introduced, numerous rules are being created, and as many investors as possible are being sought.

Despite the thought that moving the State Capital will give Indonesia fresh hope in addressing its many issues, this choice ultimately raises the benefits and disadvantages of numerous parties, from members of the general public to politicians to professionals in various sectors. Environmental issues are among the topics that are most commonly discussed. Environmental issues are currently exceedingly diverse and pose a threat to the continuation of life on Earth, making them a hot topic that is very interesting to further investigate.

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Relocating the National Capital is not something new, this agenda has been discussed for a long time with several considerations and thoughts. This happens because Jakarta as the capital city seems to be unable to bear the burden of activities centered on the capital city. There are several reasons behind moving the capital city. several acceptable reasons for moving the new Indonesian State Capital by looking at the following aspects: (1) the risk of a small disaster impact; (2) representation of national identity; (3) in the middle of the Unitary State of the Republic of Indonesia; (4) energy availability; (5) safe from major disasters; (6) there is the carrying capacity of the surrounding environment; (7) economic and population equality; and (8) better environmental quality (Bappenas, 2022).

However, relocating the National Capital will not necessarily run smoothly. This is because risks and negative impacts are likely to occur. One aspect that is likely to be affected is the environmental aspect. No one can guarantee that Kalimantan will not end the same as what happened in Jakarta, the environmental problems that have occurred in Jakarta cannot be denied. Therefore, the government's commitment is needed to continue to protect the environmental quality of the new State Capital. The Indonesian Forum for the Environment stated the same thing, which considered that relocating the capital city could pose various risks to the environment, including risks to the water system and climate change risks due to the disrupted hydrological system and inadequate groundwater records, then relocating Mother New State Cities also threaten the survival of flora and fauna, even though they function to protect ecosystems, and thirdly, the transfer of IKN also has an impact on pollution and environmental damage such as increasing the risk of forest fires, oil pollution, decreased nutrients in coastal and marine areas, mining pits that not closed it contaminates groundwater, thus hampering community logistics routes (Walhi, 2022).

Various environmental problems are feared to occur due to the relocation of the national capital, because the environment is an inherited property that must be preserved intact from irresponsible parties, especially 'greedy' parties who destroy the environment to meet their economic needs. Satisfaction and fulfillment of economic needs in a conservative modern society, human greed, corruption and conspiracy carried out by the ruling elite, cooperation between the ruling elite and world-class businessmen, seem to be the cause of the emergence of various irregularities in environmental management, whether carried out by the ruling elite, businessmen and the community (Fahrudin, 2019).

The government must have an understanding that the relocation of the capital must be based on the government's commitment to create a competent and professional bureaucracy, also based on the understanding that the relocation of the capital must be supported by visions and goals that are oriented towards the future, not only on locality, the issue of disparities in economic growth and equitable development. currently being a problem in governance (Herdiana, 2022). Apart from that, as an effort to minimize all the risks that might occur, proper risk management is needed as an effort to protect the environmental aspects in the new National Capital.

2. Methods

The data collection method in this study is a literature review, which aims to explore relevant concepts and theories in explaining potential environmental risks associated with Indonesia's National Capital relocation. Various sources are utilized, including peer-reviewed journals, official government reports, and credible electronic media, to ensure the reliability and comprehensiveness of the data. This approach allows for a thorough examination of existing knowledge and perspectives on the environmental implications of large-scale urban development.

The data analysis technique used in this study is qualitative analysis, which involves interpreting information based on theoretical frameworks, legal and regulatory provisions, and expert opinions. By synthesizing insights from different sources, this method provides a comprehensive understanding of environmental concerns linked to the capital relocation. The qualitative approach also facilitates the identification of key risks and challenges while offering strategic recommendations to mitigate negative environmental impacts.

Through this analytical framework, the study aims to assess and address environmental risks related to large-scale infrastructure projects in East Kalimantan. The integration of various perspectives allows for a more holistic evaluation of potential ecological consequences, including deforestation, biodiversity loss, and water resource challenges. The findings are expected to contribute to the development of sustainable strategies that minimize environmental degradation while supporting the transition to a new capital city (Johar, 2021).

3. Results and Discussion

In determining the National Capital, the government and its staff certainly know the advantages and disadvantages of the target area, here is a matrix of the weaknesses of the province of Kalimantan as the new National Capital (Kurniadi, 2019)

Table 1. Matrix of strengths and weaknesses of the State Capital

Strengths	Weakness
1. The threat of earthquake disasters is low	1. Prone to flooding in areas close to the upstream watershed.
2. Deal directly with the Java Sea	2. Availability of water resources is low
3. Availability of energy and clean water network infrastructure	3. The potential for forest fires.
4. Have availability of land with the status of Area for Other Use, concession-free production forest	

(Kurniadi, 2019)

Analysis of the advantages and disadvantages of an area is an important thing to do with the aim of analyzing the risks that are likely to occur to the environment, which is further referred to as Environmental Risk Analysis. Environmental Risk Analysis is the process of estimating the risk to an organism, system or population (sub) with all the accompanying uncertainties, after exposure to a particular agent, considering the characteristics of the agent and specific targets (Bagian Kesehatan Lingkungan, 2017). In short, risk analysis is a quality management tool to anticipate not achieving what is expected. This risk analysis is a fundamental thing that must be applied in every environmental sector, some of which are forestry and land, mining and quarrying, waters, and agriculture. The following is a brief risk analysis that may occur due to the relocation of the National Capital

Table 2. Risk analysis table

Sector	Risk	Strategy
Forestry and Land	Increase the risk of forest fires.	Enforcement of environmental laws against forest fires.
	Conversion of land is used for settlements and offices.	Provision of adequate Green Open Space.
	Disturbing the sustainability of forest ecosystems	To protect conservation areas.
Flora and Fauna	Extinction of indigenous flora and fauna in Kalimantan	Implementation of Strategic Environmental Assessment Consider areas that are identified as having high biodiversity value and being a place for flora and fauna species that need to be protected

3.1 Forestry and land

Kalimantan Island as one of the lowland tropical forest areas has peat forest areas that are prone to fire and have been converted a lot. The activities that will be carried out in the new National Capital will also increase the risk of deforestation and the risk of causing thick fog (Tacconi et al., 2019). Moving the capital city means clearing land to make room for new

government buildings, houses and other associated infrastructure. Very large populations close to the Mahakam River can increase the risk of fire in nearby peat forests. The inflow of migrants to the new capital city could encourage agricultural expansion, resulting in people still frequently burning land for agricultural expansion in Indonesia despite the ban on using fire to clear land (Salsabila & Nurwati, 2020). If linked to the economy, a massive increase in deforestation due to the potential for massive population migration will occur due to changes in economic interaction with the local population which will require natural resources. In the past 50 years, Kalimantan forests have been cleared. Borneo has significant levels of biological endemism as well, yet some of its defining endemic species are in grave danger of extinction.

When an area, be it a forest or non-forest, then turns into a residential area, then the area will be dominated by buildings and human settlements on a large scale if the land conversion forms an urban area. The discourse on the formation of the national capital area will automatically form a spatial pattern that will make residential and office areas large. This is to accommodate government facilities such as office areas, residential areas for employees, economic areas, industrial areas, sports and green areas and other facilities.

In overcoming and anticipating these things to happen, we need a reference in the form of law enforcement. The articles contained in the Constitution Number 32 of 2009 can be used as a guide to be able to pay more attention to how important law enforcement is in various environmental problems, especially cases of forest fires. Citizen awareness in protecting and preserving the environment is one of the foundations in realizing sustainable development in the future (Nisa & Suharno, 2020). The government should also provide Green Open Space to maintain land balance in the new National Capital (Tolok, 2020).

3.2 Flora and fauna

As quoted in the Media Indonesia news, the location chosen as the target for the study is in Sepaku District, North Penajam Paser Regency, East Kalimantan, which is rich in biodiversity (Media Indonesia, 2019). The biggest possibility that will happen if the development is not carried out very carefully and does not look at the ecosystem then it will be able to damage the existing flora and fauna. Flora and fauna could be threatened with extinction due to loss of habitat with the massive construction in East Kalimantan.

It is not surprising that organizations such as Greenpeace Indonesia are concerned about the impact of the physical development of the country's new capital city on forests and the species within them, such as orangutans (Goma et al., 2021). Even worse, the relocation of the capital city could have caused the extinction of indigenous animals in North Kalimantan due to negligence in development, this is still in line with the potential for forest fires in Kalimantan which could affect the loss of flora and fauna habitat there. To overcome this, it is necessary to monitor and implement a Strategic Environmental Study designed by the Ministry of Environment and Forestry which recommends changes in land use in the new capital city area to consider areas that are identified as having high biodiversity value and being a place for living flora and fauna that need to be protected and maintained

3.3 Energy

The composition of fossil energy still dominates with NRE achievements so far still around 1/10-2/10 of the total, even nationally it is still at 12%, with a projection of 2025 when IKN starts operating the composition of coal is still quite high, namely around 62%, EBT and other energy around 35-38%. This could have been exacerbated by an increase in population and industrial activity in Kalimantan. If we look at the current situation and position of energy use, especially in Kalimantan, it is in the category of still depending on fossil and non-renewable energy, even though the construction of EBT-based power plants has been encouraged. Energy supply, especially for new IKNs, must review not only aspects

of fulfillment such as reliability, affordability, and accessibility, but must also review energy cleanliness, continuity, and efficiency.

For the new IKN, which is predicted to be a smart city and environmentally friendly in the middle of a Kalimantan Forest, it doesn't feel like it's worth using dirty and high-emitting energy. Therefore, clean energy, namely renewable energy, must be absolutely applied without bargaining anymore. The use of clean energy has a domino effect, starting from fulfilling energy, improving the quality of the population, increasing the efficiency of fulfilling energy, increasing the nation's reputation, increasing trade and the economy, stabilizing industrial raw prices and their output (Nugroho, 2020). Therefore, it is necessary to maximize the use of Kalimantan's potential to meet clean energy, Indonesia is the largest CPO (crude palm oil) producer in the world, and Kalimantan is the largest location besides Sumatra. Indonesia's oil palm plantation's location, which are also the largest in the world, are located, this can be utilized by Kalimantan as a source of renewable energy (Aprina, 2014).

3.4 Agriculture

Challenges in the food sector have the potential to occur. East Kalimantan rice granaries, right at North Penajam Paser and Kutai Kartanegara, are the location of choice for the National Capital. The risk that occurs is that a lot of agricultural land is reduced because it is converted or turned into a business sector. This is the government's main task in ensuring that the availability of food for residents and prospective residents will be fulfilled, especially with Kalimantan as the National Capital, the population will also increase. If it is estimated that the total per capita food needs of East Kalimantan are 500 kg/year, which means 1.36 kg/day. So, the total food needs for East Kalimantan in 2024 are 2,113,213.23 tons.

The government should focus on preparing food buffers for the new nation's capital. One way is through the Cluster System for food crops, horticulture, animal husbandry and plantations using modern agricultural technology. East Kalimantan does have a variety of superior agricultural commodities for export including processed rubber products; processed wood products such as plywood, molding, veneer kruing; seed pepper; processed products derived from palm oil; etc (Bank Indonesia, 2022). The worst scenario is if the new State Capital cannot meet the food needs of its population, it is necessary to carry out a backup strategy such as regional cooperation with the surrounding areas.

4. Conclusions

The relocation of the national capital presents significant environmental risks, particularly affecting sectors such as forestry and land, energy, flora and fauna, and agriculture. Kalimantan, as the chosen location, possesses vast natural resources and ecological diversity, making it a region with great development potential. However, without proper management, large-scale infrastructure projects and population growth could lead to deforestation, biodiversity loss, and increased carbon emissions, ultimately threatening the environmental balance of the area.

To mitigate these risks, a systematic and well-planned strategy must be implemented, ensuring sustainable development while minimizing negative environmental impacts. Collaboration between government agencies, environmental organizations, private sectors, and local communities is essential in optimizing resource management and land use. The relocation should not only address the challenges faced by the previous capital but also prevent the emergence of new environmental issues that could further burden the region. Proper planning and commitment to sustainability are crucial in ensuring that the new capital supports long-term ecological and economic stability.

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Author Contribution

The author was responsible for the conceptualization, data collection, analysis, and manuscript writing. All aspects of the research, including the formulation of research questions, literature review, and interpretation of findings, were conducted independently. The author also reviewed and approved the final version of the manuscript.

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References

- Aprina, H. (2014). Analisis pengaruh harga crude palm oil (CPO) dunia terhadap nilai tukar riil rupiah. *Buletin Ekonomi Moneter dan Perbankan*, 16(4), 315–338. <https://doi.org/10.21098/bemp.v16i4.15>
- Bagian Kesehatan Lingkungan. (2017). *Analisis risiko dan sistem manajemen lingkungan. Kurikulum Program Studi Ilmu Kesehatan Masyarakat*. Universitas Udayana.
- Bank Indonesia. (2022). *Modernisasi pertanian Kalimantan dukung ketahanan pangan IKN baru*. Bank Indonesia.
- Bappenas. (2022). *Rencana Induk IKN dalam Lampiran UU IKN. Sosialisasi Undang-Undang No. 3 Tahun 2022 tentang Ibu Kota Negara*. Bappenas.
- Fahrudin, M. (2019). Penegakan hukum lingkungan di Indonesia dalam perspektif Undang-Undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup. *Veritas: Jurnal Ilmu Hukum*, 5(2), 81–98. <https://doi.org/10.34005/veritas.v5i2.489>
- Goma, E. I., Sandy, A. T., & Pangestuti, M. J. (2021). Analisis dampak pemindahan ibukota

- negara terhadap penggunaan lahan di Kabupaten Penajam Paser Utara. *Jurnal Teknik Sipil*, 1, 63–82. <https://repository.unmul.ac.id/handle/123456789/35278>
- Herdiana, D. (2022). Pemindahan ibukota negara: Upaya pemerataan pembangunan ataukah mewujudkan tata pemerintahan yang baik. *Jurnal Transformative*, 8(1), 1–30. <https://doi.org/10.21776/ub.transformative.2022.008.01.1>
- Johar, O. A. (2021). Realitas permasalahan penegakan hukum lingkungan di Indonesia. *Jurnal Ilmu Lingkungan*, 15(1), 54–65. <https://doi.org/10.31258/jil.15.1.p.54-65>
- Kurniadi, A. (2019). Pemilihan ibukota negara Republik Indonesia baru berdasarkan tingkat kebencanaan. *Jurnal Manajemen Bencana*, 5(2), 1–12. <https://doi.org/10.33172/jmb.v5i2.458>
- Media Indonesia. (2020). *Soal ibu kota baru, ini hasil kajian dan rekomendasi KLHK*. Media Indonesia.
- Nisa, A. N., & Suharno, S. (2020). Penegakan hukum terhadap permasalahan lingkungan hidup untuk mewujudkan pembangunan berkelanjutan. *Jurnal Bina Mulia Hukum*, 4(2), 294. <https://doi.org/10.23920/jbmh.v4i2.337>
- Nugroho, H. (2020). Pemindahan ibu kota baru Negara Kesatuan Republik Indonesia ke Kalimantan Timur: Strategi pemenuhan kebutuhan dan konsumsi energi. *Bappenas Working Papers*, 3(1), 33–41. <https://doi.org/10.47266/bwp.v3i1.53>
- Salsabila, A. H., & Nurwati, N. (2020). Deforestasi dan migrasi penduduk ke ibu kota baru Kalimantan Timur: Peran sinergis pemerintah dan masyarakat. *Prosiding Penelitian dan Pengabdian Kepada Masyarakat*, 7(1), 27. <https://doi.org/10.24198/jppm.v7i1.28259>
- Tacconi, L., Rodrigues, R. J., & Maryudi, A. (2019). Law enforcement and deforestation: Lessons for Indonesia from Brazil. *Forest Policy and Economics*, 108, 101943. <https://doi.org/10.1016/j.forpol.2019.05.029>
- Tolok, A. D. (2020). *Proyek IKN: Ruang terbuka hijau harus di atas 50 persen*. Bisnis.com.
- Walhi. (2022). *Walhi ungkap 3 dampak lingkungan serius akibat pemindahan ibu kota ke Kalimantan*. Suara.com.

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