The Flood and Clean Water: The Threat of Building a New Nation's Capital with the Concept of a Forest City

Agus Suntoro(✉), Ade Angelia Yusniar Marbun, and Prasetyo Adi Nugroho

Law Research Center (National Research and Innovation Agency), Jakarta, Indonesia
agussuntoro08@gmail.com

Abstract. The government's decision to move the centre of government from Jakarta to the State Capital (IKN) in East Kalimantan has similar threats and risks, such as flooding and the provision of clean water. This indicator is reflected in data from the Central Kalimantan Region, which shows rainfall in level four IKN candidates in the wet category with an average of 2200 – 2500 mm/year. Likewise, in August 2022, within a week, there were two floods in four villages located in IKN locations. Referring to Law Number 3 of 2020 concerning IKN, the government projects that development will be carried out using the concept of "a green and forest city."Based on this, this paper will focus on two discussions: (a) the existing condition of IKN and the potential for natural disasters, such as the threat of flooding and lack of clean water in the IKN area. One of the analyzes related to this is approached from the perspective of human rights with the context of the right to the environment, and (b) how the concepts of forest city and green city in the framework of IKN development are related to the protection of the right to the environment to mitigate the risk of flooding and provide clean water for the community. Within the framework of the analysis of this problem, this research was conducted using a qualitative method with a descriptive form of presentation. Primary legal materials are obtained through interviews and discussions, while secondary legal materials come from reports, journals, books, and laws and regulations. This research concludes that (a) there is a threat of flooding caused by natural and non-natural factors, including limitations in the provision of clean water in the IKN area, and; (b) consistency and further testing are needed to be related to the reliability of the green and forest city concepts as the State's efforts to mitigate the impact of flooding in IKN.

Keywords: the state capital · human rights · forest city · environment

1 Introduction

The plan to relocate the State Capital (IKN) of the Republic of Indonesia was stated by President Joko Widodo on August 16, 2019, in a state speech at the special session of the House of Representatives (DPR) and the Regional Representatives Council (DPD). In a press conference on August 26, 2019, the President decided that the new IKN will

H. Saptaningtyas et al. (Eds.): ICOMSI 2022, ASSEHR 751, pp. 326–334, 2023.
https://doi.org/10.2991/978-2-38476-072-5_31

be in Penajam Paser Utara Regency and Kutai Kertanegara Regency, East Kalimantan Province. The location selected as the new capital was conducted after analyzing the advantages and rational considerations compared to other candidates, namely Palangka Raya, Central Kalimantan Province [1].

The government argues that the relocation of IKN from Jakarta to East Kalimantan with several considerations, namely (1) Jakarta has become a multi-complex city because it is the center of government, economy, services, finance, and trade; (2) Gross Domestic Product (GDP) of 58% is concentrated in Java Island so that it is necessary to distribute development throughout Indonesia; [2] and (3) IKN will be a safe, modern, sustainable and resilient area. This new concept will become a role model in the development or arrangement of various other regions in Indonesia. To support the acceleration of IKN development in East Kalimantan, the government has allocated Rp. 466 (four hundred and sixty-six) sourced from the State Revenue and Expenditure Budget or 19% of the total need for development [3].

Mapping and identification from civil society coalitions, such as the Indonesian Forum for the Environment (WALHI), the Anti-Mining Advocate Network (JATAM), and various other organizations, reveal the fact that there are 162 mining, plantation, and forestry companies with the area of 180,000 hectares or three times the size of DKI Jakarta that have business permits in IKN location. Especially in the area of the central core of the government (KIPP) is located wholly inside the concession owned by PT. IHM (Sukanto Tanoto). Another problem is the 94 mining holes left by the corporation after exploiting coal [4].

From the selection of IKN locations Penajam Paser Utara and Kutai Kartanegara Regencies, East Kalimantan ecologically has various threats, one of which is flooding. The second ecological problem that could interfere with fulfilling the right to a healthy environment is clean water. Therefore, if there is uncontrolled deforestation for development purposes and no mitigation, the IKN area has challenges and problems with flooding and providing clean water.

2 Methods

Based on this, this paper will focus on two discussions: (a) the existing condition of IKN and the potential for natural disasters, such as the threat of flooding and lack of clean water in the IKN area. One of the analyzes related to this is approached from the perspective of human rights with the context of the right to the environment, and; (b) how the concepts of forest city and green city in the framework of IKN development are related to the protection of the right to the environment to mitigate the risk of flooding and provide clean water for the community.

Within the framework of the analysis of this problem, this research was conducted using a qualitative method with a descriptive form of presentation. Primary legal materials are obtained through interviews and discussions, while secondary legal materials come from reports, journals, books, and laws and regulations. The team has also visited IKN locations in East Kalimantan to complete the data and sharpen the analysis.

3 Result and Discussion

Based on the provisions of Article 6 paragraph (2) of Law Number 3 of 2022 concerning the State Capital, the total area of IKN is set at approximately 256,142 hectares (two hundred fifty-six thousand one hundred forty-two hectares), and the marine waters area of roughly 68,189 hectares (sixty-eight thousand one hundred and eighty-nine hectares). The selection of Penajam Paser Utara Regency and Kutai Kartanegara Regency as IKN is the central point of the two big cities that have developed, namely Samarinda and Balikpapan [5].

Linguistically, the capital city, or in English referred to as a capital city, comes from the Latin caput, which means head. In Black's Law Dictionary, the word capital has many meanings depending on the context in which it is used. Regarding the capital city, Black's Law Dictionary defines capital as a place where the legislative department holds its sessions and where the chief offices of the executive are located; a political and governmental metropolis. Capital can also be defined as the seat of government [6].

In the IKN area, there are 26 villages and sub-districts in Sepaku District, 23 villages and urban villages in Samboja District, eight villages and sub-districts in Muara Jawa District, and 15 villages and sub-districts in Loa Kulu District, with an estimated population of 185 thousand people. The Alliance of Indigenous Peoples of the Archipelago (AMAN) estimates that at least 20,000 indigenous peoples will become victims of the new IKN project in East Kalimantan. Around 20,000 indigenous peoples are divided into 21 indigenous groups/communities, 19 groups in Penajam Paser Utara and 2 in Kutai Kartanegara [7] (Fig. 1).

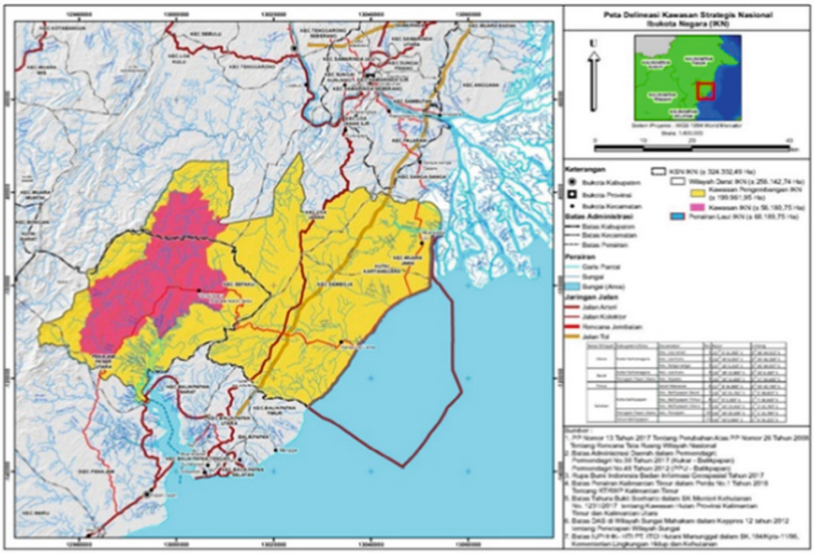

Fig. 1. The Map of IKN Nusantara Source: Attachment to Presidential Decree 63/2022

3.1 The Threat of Flood Disasters and Obstacles to the Provision of Clean Water

The government's initiative to relocate the country's capital city to East Kalimantan was motivated by various reasons, including the population of the island of Java which is already too dense, the government's efforts to distribute economic growth evenly, the threat of a clean water crisis in Java and Bali, high land consumption the development of the island of Java, high urbanization growth in the Greater Jakarta area and the threat of disaster conditions in the Greater Jakarta area such as floods, earthquakes, and landslides in Jakarta. The government's consideration of the threat of a clean water crisis and the threat of disasters such as floods, earthquakes, and land subsidence is a reasonable effort to fulfilling people's human rights.

The National Research and Innovation Agency (BRIN) explained that the DKI Jakarta area experienced a drastic decrease in groundwater due to excessive water exploitation. In addition, climate change and rising sea levels are factors that encourage the potential for sinking several areas in DKI Jakarta by 2050. In addition, various narratives related to the sinking of the DKI Jakarta area continue to emerge; for example, United States President Joe Biden, President Director of PAM Jaya Arief, Nature Communication Research, Trisakti University Urban Observer Yayat Supriatna, and Deltares Research Institute Giller Erkens.

Based on these conditions, the narrative of moving to the national capital can be an alternative solution to the many problems of the capital city in DKI Jakarta. Then the question arises whether the IKN area in East Kalimantan is the right solution to overcome the issue of the threat of flooding and the provision of clean water in the current capital city.

Data from the National Disaster Management Agency (BNPB) for ten years between 2010–2020 confirms that 46 floods occurred in Kutai Kartanegara Regency and 23 floods in Paser Penajam Utara Regency. In particular, in August 2020, two floods entered four villages in the IKN core location [8] Meanwhile, data from the Mahakam Watershed Forum (DAS) shows that there were 30 flood disasters in all provinces in 2020–2021, with more than 80,000 victims. The affected areas include all districts and cities, including areas that are planned as new IKN areas [9].

The Acting Head of the Data Center, Agus Wibowo, confirmed that there is a threat of flooding at the IKN location and most of East Kalimantan. One of the reasons is the potential for flood clouds which are the typical characteristics of East Kalimantan [10] High rainfall causes flood disasters. Based on data from the Central Kalimantan Regional Office, the IKN area is included in category four with a wet level with an average of 2200–2500 mm/year. With this potential, it is estimated that the annual rainfall is 2,732 mm/year; there are 3,386 million m3/sec during the year [11] High rain and wet categories imply that the Penajam Paser Utara and Kutai Kertanegara Regencies are recorded as flooded areas.

In general, the Mahakam watershed area of 7.6 million hectares with a length of 920 km also affects the potential for flooding in IKN and East Kalimantan. Although not in the critical category, there is a decrease in the quality of the Mahakam watershed, potentially increasing necessary land, sedimentation, flood, and drought events [9] To reduce the impact of flooding due to watershed problems, especially in Sepaku District

as an IKN location, BNPB requires a fee of up to three billion rupiah for watershed revitalization, bridges, and siring construction [12].

The research results by Benny Arianto, Directorate General of Highways, The Ministry of Public Works and Public Housing, indicate the potential for land with soft soil properties in the area around IKN. Field and laboratory investigations revealed soft soil in the area around IKN, as noted in the soil test (Uji Tanah) results with a cone resistance value of less than 10 kg/cm2. Not only soft soil, but the investigation also shows the potential for soil movement, expanding soil, liquefaction, and illicit soil with moderate to medium-high activity. With these characteristics, the infiltration ability of the earth is low. If extreme weather occurs, there will be a potential for flooding. The IKN area is 23% prone to flooding [13].

The second threat that needs to be anticipated and mitigated is the problem of providing and distributing clean water in IKN. Considering that clean water is an essential element and source of community life. Water is used for sanitation, e.g., for washing and sewage systems. In addition, clean water is critical for consumption by residents of the new capital city. Therefore, it is vital to prevent pollution [14].

The problem of clean water occurs due to high pollution levels in the upstream area, mainly due to mining in Kutai Kertanegara Regency and Penajam Paser Utara Regency. River water pollution can be seen from the results of laboratory tests of the Environmental Agency of Penajam Paser Utara Regency on Lawe-Lawe River water (Purwa, 2015) and the results of Kartika Dewi's research (2014) on seven rivers in Kutai Kartanegara [8].

Another cause that affects clean water reserves is deforestation for the benefit of the forestry, mining, and plantation industries. Airlangga University, Faculty of Science and Technology lecturer Nurina Fitriani said that groundwater reserves could not be separated from the presence of forests. The existence and sustainability of the forest are fundamental elements because it is a natural regulator of the hydrology system. Forests can store and filter and clean water for storage in aquifers. Therefore, if there is uncontrolled deforestation for development purposes and no mitigation, the IKN area has challenges and problems in providing and distributing clean water [15].

However, in the document for the preparation of a Strategic Environmental Study for the 2020 State Capital Masterplan, the government is optimistic that from the existing conditions, the potential for water availability in the IKN area can meet the population's water needs in the area at that time. However, the absence of water infrastructure has resulted in articles on the distribution of water. The water supply is carried out by (1) The municipal waterworks (PDAM) Intake Sepaku has a discharge of 5 L/second with the condition of the piping distribution network that is still inadequate accompanied by the absence of good maintenance so that many pipe leaks are found, (2) Provisions of Maridan Raw Water has a discharge of 5 L/second operating in inadequate conditions where the distribution pipe is still not fully installed, (3) PDAM Samboja has a raw water source originating from the Merdeka River with a capacity of 105 L/second where the river has a water quality that is quite murky and the condition of the distribution network pipe is not adequate, (4) PDAM Bukit Raya Samboja Branch which has a raw water source comes from the Hitam River Samboja with a water capacity of 10 L/second, (5) PDAM Salok Api Samboja which has a Water Treatment Plant (WTP) with a capacity of 20 L/second, (6) IPA Gunung Pasir has WTP has raw water sources that come from

wells which have a depth of 106 m below the surface soil with a pump discharge of 4 L/second and (7) the Samboja Reservoir WTP which has a raw water flow of 3 L/second [16].

3.2 Adoption of Forest City in IKN Development

Based on the provisions of Article 2 letter an of Law Number 3 of 2022, IKN is designed and has a vision of being a world city for all that is built and managed to become a sustainable city in the world. In the context of the future city, the emphasis is on managing natural resources effectively and providing services effectively in the efficient use of water and energy resources, sustainable waste management, integrated modes of transportation, a livable and healthy environment, and a sustainable natural and built environment. To fulfill this vision, a forest city IKN is declared with a minimum of 75% (seventy-five percent) green areas [5].

The concept of a forest city has developed widely in the international dimension. For the first time, scholars in the United States and Canada proposed the idea of forest cities in the 1960s, and it was promoted in the United States, Europe, and Japan. Therefore, the forest city centered on green space construction is likely to be an important driving force for environmental improvement and sustainable development, particularly in reducing carbon emissions [17] Meanwhile, Stefano Boeri defines a forest city as a city with several buildings covered by trees and plants. The tree acts as a giant air filter and pollution controller, which with the vertical foresting method, is expected to restore space naturally to protect the earth. Urban vegetation is believed to lower air temperatures, create noise barriers, and increase biodiversity by providing a habitat for birds, insects, and other small animals [18].

The government guarantees that the development of IKN in East Kalimantan is carried out in an area that has sensitive ecological limitations and is carried out carefully. Development is still based on the results of studies conducted related to applying the concept of a sustainable city and considering aspects of the carrying capacity of natural resources and the carrying capacity of the environment.[19] The Minister of PPN/Head of Bappenas H Suharso Manoarfa guarantees and is committed that the direction of the government's development policy in developing the IKN area would continue to maintain Kalimantan's role as the "lungs" of the world [20].

Through the Ministry of Environment and Forestry (KLHK) led by Siti Nurbaya, the government has compiled a road map in the framework of developing environmental and forestry aspects in the IKN area. There are three approach models, namely (1) in the aspect of facilitating the development of IKN through the Integration of Strategic Environmental Studies (KLHS) with the process of preparing regional spatial layout revisions; (2) minimizing the impact on the environment, among others, maintaining the carrying capacity and capacity of the environment, maintaining conservation forests, and (3) emphasizing the principles of balance and sustainability in IKN development, one of which is safety, the quality of life, and community welfare [21]. Technically, a forest city developed by the Ministry of Environment and Forestry in the KLHS Rapid Assessment, it includes (a) Watershed (DAS) based management; (b) A structured green space network; (c) utilizes about 50 per cent of the area for development; (d) water consumption must be highly efficient; (e) the burden of meeting the population's consumption is low;

(f) have good air quality and cool average air temperature; (g) have good surface water quality; (h) protect animal habitats; (i) have good quality land cover and a revitalized Tropical Rain Forest landscape [18].

In this regard, the forest city concept, which aims to reduce the threat of environmental degradation due to flooding, is an effort to realize human rights, specifically the right to a good and healthy environment. John H. Knox, UN Special Rapporteur on Human Rights and the Environment, formulated one of the principles on the Framework Principles of Human Rights and The Environment: Human beings are part of nature, and our human rights are intertwined with the environment in which we live. Environmental harm interferes with the enjoyment of human rights, and exercising human rights helps protect the environment and promote sustainable development [22].

The United Nations Human Rights Council, through Resolution Number A/HRC/RES/48/13 concerning the human right to a clean, healthy and sustainable environment, provides principles for managing or regulating the climate. Through this resolution, the UN Human Rights Council emphasized that the State must protect and guarantee healthy environmental conditions because it cannot be separated from human life. In the context of protection and guarantee of the right to the environment, especially at the macro level, in terms of statutory regulations, Indonesia has regulated it. The constitution, through the provisions of Article 28 H paragraph (1) of the 1945 Constitution, has guaranteed that everyone has the right to live, and have a good and healthy environment. Furthermore, the constitution also guarantees the right to health services as a series of guaranteed rights to the environment. Thus, it is essential that any development activities being carried out at this time, including within the framework of building a new capital city, must comply with the principles set by the United Nations and the ideals of our constitution.

As a follow-up to higher regulations formulated in the constitution and various UN resolutions as soft law, the government and the DPR, through Articles 18 and 19 of Law No. 3 of 2022 concerning the Capital City, have regulated environmental management obligations and disaster management. Practically, this regulation mandates the Archipelago Capital Authority to implement it in the planning, development, and management of a new capital city, especially in national strategic areas (KSN). The spatial arrangement of the KSN IKN is used as a guideline in developing the IKN as a sustainable, safe, modern, and productive city that is in harmony with environmental protection and management. Therefore, through the IKN Authority, the government must ensure that the new capital city will protect the environment from damage caused by natural disasters or human actions.

Therefore, the concept of a forest city which is part of the planning and development of the IKN area must pay attention to the conditions of each region and its potential for disaster. Therefore, in implementing construction and development, it must be done carefully considering the impact of floods or other natural disasters. The government carries out flood prevention efforts by planning to provide open space in areas with the potential for flooding and planning to develop an integrated drainage system. Measures to prevent flooding in the IKN area should also pay attention to the environmental impact of the area around the IKN. The increase in population will impact the rights to the environment of the people in the IKN buffer area.

4 Conclusion

Based on the overall analysis, it is concluded that the selection of IKN areas in Kutai Kartanegara Regency and Penajam Paser Utara Regency, East Kalimantan, has legally been stipulated in the regulation of Law Number 3 of 2022 concerning the State Capital. The selection of the IKN location turned out to have the potential and threat of flood disasters and problems in providing clean water for its citizens with the characteristics of wet clouds, deforestation, and watershed degradation. However, efforts to develop IKN with the concept of sustainability in a forest city approach that maintains environmental functions and its carrying capacity should be used as a model for future urban planning in Indonesia.

References

1. Moniaga, S.: Penghormatan, Perlindungan dan Pemenuhan HAM Dalam Pemindahan Ibukota Negara Kesaturan Republik Indonesia (2021).
2. Ministry of National Development Planning/Bappenas.: Relocation Plan for the State Capi-tal. Jakarta, (2021).
3. Rongiyati, S.: Wewenang dan Kesiapan Pembentukan Ibu Kota Negara. Parliamentary Review II (Juni), 61–69 (2020).
4. Arizona, Y.: Governance Challenges and Opportunities for Indonesia's New Capital Nusantara (2022).
5. Government and the House of Representatives, Law Number 3 of 2022 concerning the State Capital. p. 54, (2022).
6. Fikri Hadi, R. R.: The Relocation of Indonesia's Capital City and the Presidential Powers in Constitutional Perspective. Jurnal Konstitusi, 17(September) (2020).
7. Aiqani, N.: Dimensi HAM Dalam Pembangunan Ibu Kota Negara. Brin.Go.Id, 1–2 (2022).
8. Qodriyatun, S. N.: Pemindahan Ibu Kota Negara: Antisipasi Permasalahan Ekologi. Parliamentary Review II(II), 81–88 (2020).
9. Sari, R.: Penyelamatan DAS Terbesar di Kalimantan Timur. Konservasi Alam Nusantara (2022).
10. Wismabrata, M. H.: Mengungkap Potensi Bencana di Ibu Kota Baru, Sesar Gempa Aktif hingga Banjir. Kompas.Com. (2019).
11. Fauzi, A.: Gambaran Geologi dan Potesi Kebencanaan Ibu Kota Negara Baru. Balikpapan, (2022).
12. Editor: BPBD: IKN areas prone to flooding need river normalization. Republika, (2022).
13. Arianto, B.: Studi Potensi Resiko Tanah Lunak dalam Pembangunan Ibu Kota Negara dengan Ajuan Penanganan Menggunakan Metode Prefabricated Vertical Drain Berbahan Alami. Jurnal Teknik: Media Pengembangan Ilmu dan Aplikasi Teknik 19(2), 171–180 (2020).
14. Mcneill, D.: The Concept of Sustainable Development. In Development Studies and Political Ecology in a North South Perspective, Issue September, pp. 26–46. Aalborg University, Denmark (2003).
15. Fitriani, N.: IKN Berpotensi Krisis Air Bersih? Ini Kata Pakar UNAIR. Unair.Ac.Id. (2022).
16. President of Republic Indonesia, Presidential Regulation Number 64 of 2022 concerning Spatial Planning for the National Strategic Area of the Capital of the Archipelago for 2022–2024, 2022, p. 12.
17. LishaLiao.: Towards low carbon development: The role of forest city constructions in China. Ecological Indicators 131(Nov), 108–199 (2021).

18. Mutaqin, D. J., Muslim, M. B., Rahayu, H., Madya, A., Sumber, K., Air, D., & Bappenas, K. P. P. N.: Analisis Konsep Forest City dalam Rencana Pembangunan Ibu Kota Negara Analisis Konsep Forest City dalam Rencana Pembangunan Ibu Kota. Bappens Working Papaers 4(1), 13–29 (2021).
19. Strategic Environmental Studies: Summary of Social Aspects related to the National Capital Relocation and Development Planning (IKN) in East Kalimantan. (2021).
20. Kaltim, H. P.: Mempertahakan Kalimantan Sebagai Paru-Paru Dunia. Kaltim.Go.Id. (2021).
21. Nurbaya, S.: Perspektif Lingkungan Hidup dalam Perencanaan Pemindahan Ibukota Negara (Dialog Nasional Kajian Pemindahan Ibu Kota Negara) (2021).
22. H.Knox.: Framework Principles on Human Rights and the Environment. In Office of the High Commissioner for Human Rights. (2018).