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ARTICLE

Developing a Forest City in a New Capital City

A Thematic Analysis of the Indonesian Government's Plans

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Abstract: This study analyzes the Indonesian government's plans to develop a forest city in the new capital (IKN). This study uses a qualitative approach by examining several relevant official government documents. It is done by thematic analysis. The findings of this study indicate that the forest city development plan in IKN is based on the principles; of conservation of natural resources and wildlife habitats, connected with nature, low carbon development, development of water resources, controlled development, and community involvement. In addition, the government has also calculated the benefits gained from the development of the forest city economically, socially, and environmentally. However, the government cannot only calculate the benefits but also considers other negative aspects that could occur, such as forest ecosystem problems. Development that is not carried out carefully can cause environmental damage and threaten survival. This study encourages the government to act following an orientation towards quality and sustainable environmental management. This can only be done if the government implements strong and strict regulations. The government also needs to consider financial problems and socio-economic challenges. This is useful for ensuring sustainable development can run harmoniously between the government, the environment, and the social community.

Keywords: forest city; urban forest; IKN; urban development; sustainable development; environmental damage

1. Introduction

Moving the nation's capital to Kalimantan is currently the focus of the Indonesian government (Rifaid et al., 2023). The relocation of the capital has long been planned, but during President Joko Widodo, this idea began to be seriously considered (Baharuddin et al., 2022). This is evidenced by Law No. 3 of 2022 concerning the State Capital. In addition, the government has also budgeted a large amount of funding to accommodate plans to build a new capital city (IKN) in Kalimantan. The latest information is that the Indonesian government is preparing Rp23 trillion for the construction of IKN in 2023 (Medianti, 2023). The appointment of Kalimantan as the center for the development of the IKN drew responses from many parties, including national and international researchers (Baharuddin et al., 2022; Hackbarth & De Vries, 2021). Kalimantan is a region that has the largest forest and adequate natural ecosystems. Because of this, many public and observer responses are concerned about damage to nature, forests, or the environment (Baharuddin et al., 2022; Rahmat et al., 2021; Teo et al., 2020).

There is a big plan from the Indonesian government to develop a new capital city (IKN) with the concept of a forest city. The concept of a forest city emerged to mitigate opportunities for environmental damage, especially forests, in the planning and development of IKN (Mutaqin et al., 2021). The issue of forest city development has become popular in recent years, especially in the Asian Region (Moser, 2018; Moser & Avery, 2021). Forest City is promoted as a beautiful and ideal concept among the urban population. Developing a forest city is also very strategic for investment, even though it leaves various problems behind (Moser & Avery, 2021; Nesticò et al., 2019). Several cases show that the development of forest cities globally faces criticism and controversy, such as environmental problems, ecosystems, financial challenges, and local community displacement (Campbell-Arvai & Lindquist, 2021; Li & Zhao, 2022; Patarkalashvili, 2017; Xu et al., 2020; Young & Bauer, 2022). Several studies show that the development of a forest city can store carbon to minimize the release of excess carbon into the atmosphere (Ariluoma et al., 2021; Wang et al., 2018). General efforts are needed to minimize problems that may arise from the development of a forest city, namely planning, design, readiness, and government response (Avery & Moser, 2023; Koh et al., 2022; Y. Zhang et al., 2021).

Much research has been conducted to analyze the concept of a forest city and the concept of developing a new capital city (IKN). Nevertheless, among these studies, there are still very few studies that focus on analyzing the two topics simultaneously, especially research on cases in Indonesia. However, several previous studies are considered quite relevant. First, studies on moving the national capital and building a new one have been conducted in many countries outside Indonesia (Baharuddin et al., 2022). Second, the development of a new capital city in Kalimantan also initiates the concept of a forest city, which requires the plans and readiness of the Indonesian government (Mutaqin et al., 2021). Third, the development of a forest city also requires social adaptation and governance (Avery & Moser, 2023; Lagbas, 2019; Morzillo et al., 2022). Fourth, developing a forest city is always associated with environmental problems and natural ecosystems around the development area (Lagbas, 2019; Xu et al., 2020). Fifth, government planning is needed to minimize the problem of environmental damage due to the development of a forest city and maintain its sustainability (Gabrys, 2022; Su et al., 2018).

This study aims to fill in the gaps in previous research with a thematic analysis approach. This approach is used to examine official government documents that

contain information about the development of a forest city in the new capital city (IKN). The results of the examination of the official documents help us know how the plans of the Indonesian government are related to the government's readiness and capacity. The research questions are as follows (1) What are the principles for developing a forest city in the new capital city (IKN)? (2) What are the advantages of developing a forest city in IKN? (3) What are the challenges of developing a forest city in IKN? These three questions make it possible to determine how the Indonesian government plans to develop a forest city in the new capital (IKN). It is also possible to find out how the Indonesian government's forest city development plan in IKN is based on development principles and with adequate consideration of profits. This study also contributes to mapping the government's challenges in the future. The findings of this study may also become important lessons for future relevant studies.

2. Methods

This study uses a qualitative approach with a focus on thematic analysis. The thematic analysis was chosen to maximize the analysis of the idea of developing a Forest City in the new capital city of Indonesia. This approach was chosen to guide researchers in finding official document sources available for analysis. Another reason for choosing thematic analysis is that it is more flexible and accommodative in answering research questions, especially for tracing development plans that still need to fully complete all stages of development. Relevant documents found are Law No. 3 of 2022 concerning the State Capital (IKN), and documents in the form of Regulation of the President of the Republic of Indonesia, No. 63 of 2022 Concerning Details of the Capital City Master Plan (IKN/Nusantara). This representative document is used to determine the plans for the Indonesian government's development of a forest city and a new capital city.

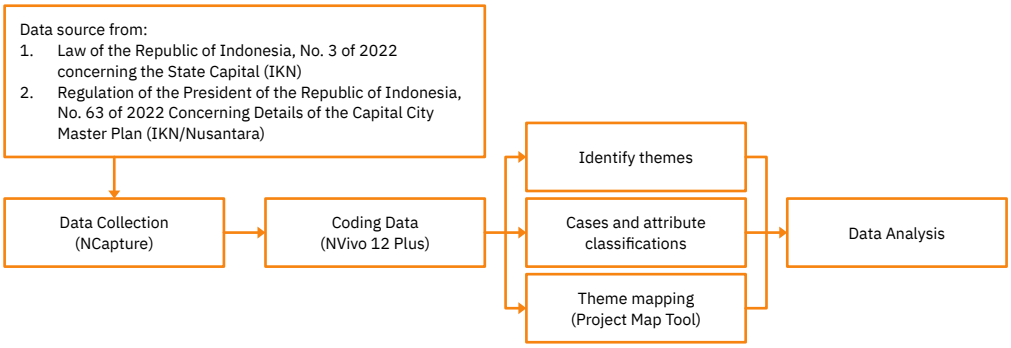

Figure 1. Data Analysis Process

Figure 1 shows the analysis process starting with data collection and determining relevant data sources. Relevant data sources were found in the form of official government documents: Law of the Republic of Indonesia, No. 3 of 2022 concerning the State Capital (IKN), and Regulation of the President of the Republic of Indonesia, No. 63 of 2022 Concerning Details of the Capital City Master Plan (IKN/Nusantara). Data collection relies on NCapture in Google Chrome. The collected data is then transferred to an analysis tool for data coding. The analysis tool relies on the NVivo 12 Plus analysis tool. The data coding process with NVivo 12 Plus maximizes the available analysis features: identifying themes, cases and attribute classifications, and theme mapping (Project Map Tool). Identifying themes help to identify information contained in official government documents. Cases and attribute classifications help categorize the collected data. Theme mapping helps map the

overall results of coding data that have previously been categorized. Data collection and coding results were then analyzed and described to answer research questions.

3. Results and Discussion

3.1. Principles of Forest City Development in the New Capital City (IKN)

The new capital city (IKN) is located in and around forest areas and has high biodiversity. Therefore, planning and development needs to be focused on efforts to maintain and restore forests. The development of a forest city uses a landscape approach integrated with cities dominated by landscape with forest structures or ecosystem service functions, such as forests. The following is empirical information in the form of a physical example of developing a forest city in IKN, which can be seen in Figure 2.

Figure 2. Portrait of the Forest City Development Process at IKN

Source: *Captured by the researchers at detik.com, 2023*

Figure 2 shows the existence of empirical information about the idea of developing a forest city in IKN. In the figure, it can be seen that road infrastructure is being constructed to support the development plan. It also means that the development idea is in a serious stage of development, at least in the early stages. Developing a forest city using a landscape approach integrated with forest structures has an important goal. The goal is to create life alongside nature and support sustainable development. To support the idea of building a forest city in the new capital city (IKN), the Indonesian government has planned its development based on several principles. The principle of forest city development in IKN is seen as follows:

Figure 3 shows that the Indonesian government is very serious about developing a forest city in the new capital city (IKN) by formulating its development principles. The principles of forest city development in IKN include conservation of natural resources and wildlife habitats, connection with nature, low-carbon development, holistic, integrated, sustainable water resources development, controlled development (Anti-sprawl development), and the principle of community involvement (citizen forester). Related principles (conservation of natural resources and animal habitat) focus on minimizing damage to existing natural ecosystems

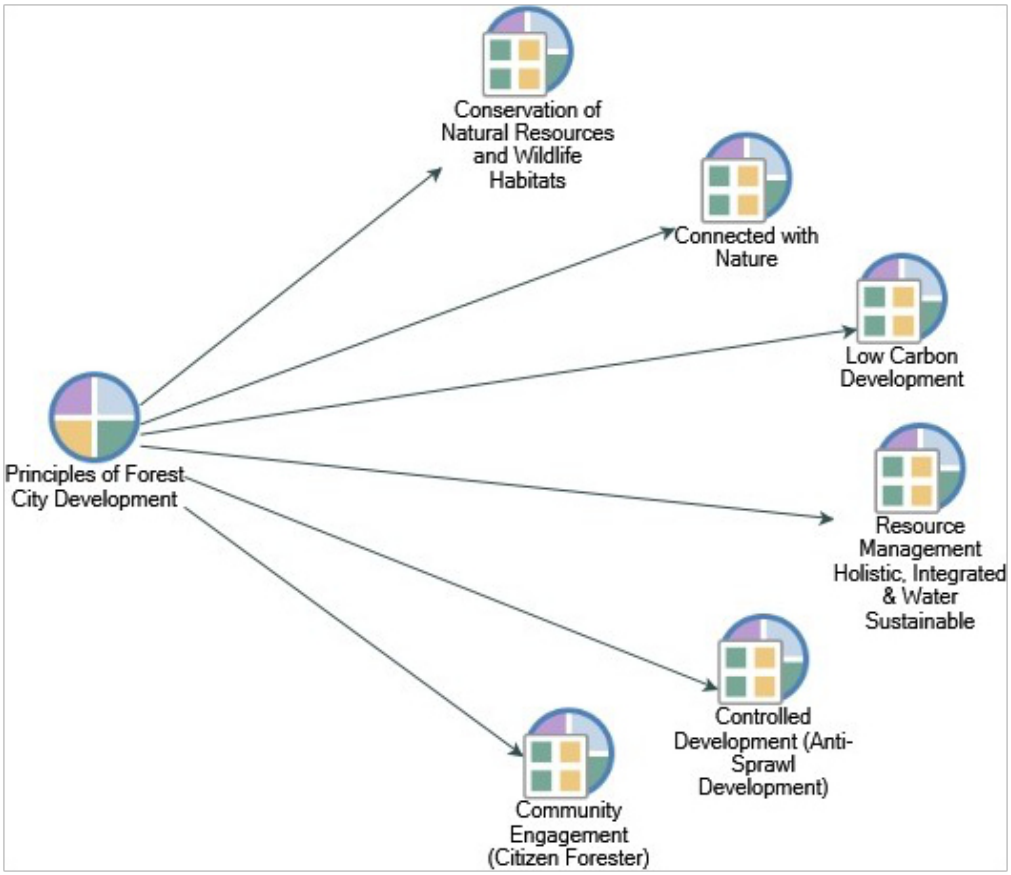

Figure 3. The Principle of Forest City Development in IKN Is Based on the Government's Plan

Source: *Processed by researchers using NVivo 12 Plus, 2023*

during development. It also encourages efforts to maintain natural ecosystems, including natural habitats for animals and plants. This principle is also the basis for ensuring forest sustainability by protecting or restoring forest ecosystems to improve environmental quality. With the condition of the new capital city (IKN), where most of the land is in forest areas, it is necessary to create a city built in the forest to ensure that IKN can still support Kalimantan's role as the world's lungs.

The following principle of forest city development is (connected with nature). This principle seeks to create urban development that can accommodate human interaction with nature or be connected to nature and forests in and around cities. This principle can be applied by providing Green Open Space (RTH) in urban areas, including green corridors. Connected with nature can also be realized by dominating the landscape with green vegetation between buildings, namely green zones for integrated recreation and life. This principle is good for future forest city development campaigns in the new capital city (IKN). Connecting humans with nature can be a promising avenue for promoting action to protect the environment and prevent damage to nature (Cheng & Monroe, 2012; Mackay & Schmitt, 2019). Being connected to nature can build an emotional connection with nature and attitudes toward urban forest management (Baur et al., 2020). It requires high awareness from society and government response through policy instruments (Ordóñez et al., 2020; Van Der Jagt & Lawrence, 2019).

The principle (low carbon development) is intended to support national policies regarding reducing greenhouse gas emissions and maximizing the role of green open spaces (RTH) or forests in carbon sequestration, as well as to improve air quality

which must be supported from the use of new and renewable energy. Many countries are initiating low-carbon development but with adequate measures and policies (Fragkos et al., 2021). That significantly impacts reducing energy consumption and expanding access to high-quality energy carriers (Bonatz et al., 2019; Hao et al., 2021). Another principle is (the management of water resources) where the principle emphasizes holistic, integrated, and sustainable principles. Management of water resources should be based on two primary principles. First, watersheds (DAS) and water sources need to be maintained and conserved to maintain the quantity and quality of water. Second, the allocation of water resources needs to pay attention to environmental preservation, primarily to support vegetation preservation for social and economic needs by considering the water balance in a single watershed.

Related principles (controlled development; Anti-sprawl development) are considered because the new capital city region (IKN) is an area that has a sensitive ecosystem, so control is needed in its development. Implementing compact settlement development can reduce dependence on private vehicles and protect IKN partner areas, green areas, and water catchments, including avoiding the development of settlements in disaster-prone zones and providing better access to city facilities and services. The creation of a green belt that surrounds the city is implemented to limit urban expansion, particularly in locations that are hotspots for biodiversity, and to maintain the environment's carrying capacity and quality. The related principle (controlled development; Anti-sprawl development) is becoming quite realistic as anti-sprawl policies have started to be considered in other large cities as a legitimate reaction to a continuously increasing rate of urban growth and expansion in the 21st century (Charmes & Rousseau, 2021; Dianati, 2021).

The last principle is (the involvement of the community-citizen forester) based on the explanation that forests and the environment benefit the community. The sustainability of forests and the environment is very dependent on activities carried out by humans or society (Baumgartner, 2019). Local community wisdom is adopted in utilizing forest resources that represent national identity. In addition, a form of community involvement to support the creation of a forest city is carried out by involving the community as citizen foresters in tree planting and managing and monitoring trees in an urban area. The term citizen forester with community involvement is considered to be able to guide the healing of the environment and the city. In another study, it was explained that the city government had viewed citizens as experts or citizen foresters by facilitating the training of residents interested in urban forest care (Gulsrud et al., 2018). That means the government's response is also needed in it. From the principles of forest city development in IKN, it is known that government plans and responses are needed to accommodate sustainable development based on the specified principles.

3.2. Advantages of Developing a Forest City in the New Capital City (IKN)

In planning the development of a forest city in the new capital city (IKN), the Indonesian government has explained some of the advantages that can be obtained. Based on the Presidential Regulation of the Republic of Indonesia No. 63 of 2022 regarding the details of the capital city master plan, these benefits include the economic, social, and environmental sectors. The advantages of developing a forest city in IKN based on the plan of the Indonesian government are described as follows:

Figure 4 shows that the Indonesian government has explained the reasons for the forest city development plan in the new capital city (IKN). This reason is based on the

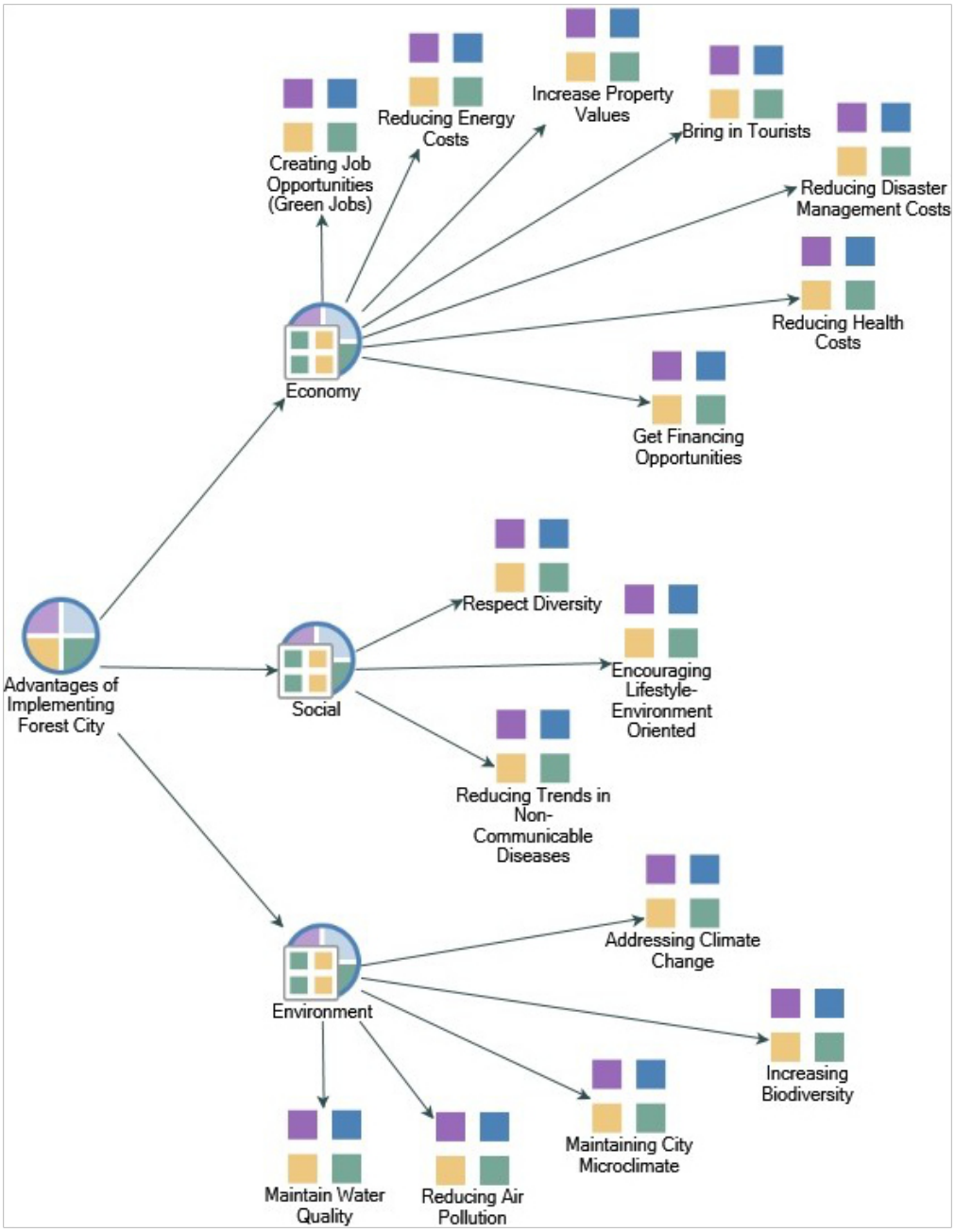

Figure 4. The Advantage of Developing a Forest City in IKN Is Based on the Government's Plan

Source: *Processed by researchers using NVivo 12 Plus, 2023*

opportunities and benefits of its development in several sectors. The economic benefits obtained are that it can create jobs. The field in question is the type of work (Green job). Green jobs encourage community involvement in protecting forests, such as patrolling, fire control, tree planting, and nature tourism activities around cities in sustainable land management. Green job creation is one component of the "going green" process (Dordmond et al., 2021; King & Shackleton, 2020). Another economic advantage is that it can reduce energy costs. Forest city development is considered a nature-based solution far more cost-effective than technology and infrastructure use. One of the impacts of a forest city is cool air that relies on the natural surroundings. This can reduce the cost of excessive energy use.

The next economic benefit is increasing property values. It is based on the argument that trees and parks can increase aesthetic and location value. Tree shade can also increase the life of buildings and water absorption, reducing environmental drainage loads. Another economic advantage is being able to bring in tourists. It is based on the idea that a city dominated and surrounded by nature will increase tourism potential. The potential to bring in tourists has previously been studied and has a relatively positive relationship with the development of forest cities (Majumdar et al., 2011; L. Zhang et al., 2022). The next advantage is that it is considered to reduce disaster management costs and health costs. Forests are considered capable of making cities more resilient and resilient to disasters. Forests are also considered capable of reducing the risk of various physical and mental illnesses. The last economic advantage is getting financing opportunities from payments for ecosystem services such as carbon trading, biodiversity values, water supply services, nature tourism, and several other ecosystem market mechanisms.

The social benefits of the government's plan to develop a forest city in the new capital city (IKN) include harmonizing and respecting diversity, encouraging environmentally oriented lifestyles, and reducing the trend of non-communicable diseases. Forests and green open spaces can become a forum for public participation and influence interactions within diverse communities, as well as the application of local values and wisdom in forest conservation and sustainable livelihoods. Adequate forest and environment encourage residents to carry out activities and lifestyle patterns that interact directly with nature and are oriented towards preserving the environment, such as sustainable consumption, saving water, recycling waste, and converting energy. This lifestyle can reduce non-communicable diseases, including mental illness (forest healing/bathing). Views of and access to green open spaces and forests positively calm the mind (Elsadek et al., 2020; Paul et al., 2020; Reyes-Riveros et al., 2021). These social benefits require in-depth research, especially the government's future response.

The environmental benefits of the government's plan to develop a forest city in the new capital city (IKN) include tackling climate change, increasing biodiversity, maintaining the city's microclimate, reducing air pollution, and maintaining water quality. The development of a forest city can absorb carbon dioxide and store it in the form of carbon (Park et al., 2018). Forest cities can also increase biodiversity because forests are considered capable of supporting the preservation of various species, including those threatened with extinction and with high conservation value (Dickinson & Ramalho, 2022). Trees and plants in cities can reduce urban heat temperatures (Ballinas & Barradas, 2016). Leaves reflect much sunlight and absorb less heat than concrete buildings. It can maintain the city's microclimate. Forest cities can also reduce air pollution due to photosynthesis, where trees absorb carbon dioxide, sulfur dioxide, nitrogen, and carbon monoxide. Meanwhile, tree roots help reduce the content of nitrogen, phosphorus, and heavy metals in rainwater. Trees and plants can retain rainwater, filter running water, and delay runoff.

3.3. Forest City Development: A Consideration and a Challenge

The Indonesian government has planned to develop a forest city in the new capital city (IKN). This is done by applying several principles such as conservation of natural resources and animal habitats, connection to Nature, low-carbon development, holistic, integrated, and sustainable water resources development, controlled development, controlled development (Anti-sprawl development), and the principle of community involvement (citizen forester). In addition, the Indonesian government has also calculated the benefits gained from forest city development. These

advantages include economic, social, and environmental benefits. The government's plan is considered good enough by considering the aspects of the principles and benefits above. Developing a new capital city (IKN/Nusantara) as a forest city is considered a nature-based solution during the IKN development process. It confirms that the development of IKN and environmental preservation can go hand in hand. However, the government also needs to calculate the costs related to planting and maintaining it around the development area (Grant et al., 2022; Song et al., 2018; B. Zhang & Brack, 2021).

The Indonesian government also needs to consider the sustainability aspects of urban development (Baharuddin et al., 2022). It enables cities to manage resources efficiently and provide services effectively in the utilization of resources. This is by the plan of the Indonesian government, where forest cities will be designed according to natural conditions to create life side by side with nature to support sustainable development, in particular maximizing carbon absorption and conserving biodiversity, as well as supporting environmental management to improve environmental quality. The government must also realize the spatial planning policy for the new capital city (IKN). To support the development of forest cities in IKN, the government must also determine and strengthen protected areas, conduct rehabilitation and reforestation, preserve and create wildlife corridors as animal habitat connectivity in harmony with development, carry out reforestation, and restore ecosystems. This needs to be considered in the future because the foundation for the development of IKN is based on an extensive framework; smart, green, beautiful, and sustainable (Baharuddin et al., 2022).

This will be a bridge for the government to consider future challenges, especially those related to negative impacts on forest ecosystems in Kalimantan's forest city development area. Development that is not carried out carefully can cause environmental damage and threaten species' survival in the forest (Agbelade & Onyekwelu, 2020; Maseko et al., 2020). Therefore, it is essential to carry out good planning and ensure that the development of forest city and IKN is carried out in a manner that is by the principles of sustainability. The government can adopt policies related to regulating forest management, such as the Sustainable Forest Management Policy (PHBM) and Regional Spatial Planning (RTRW) which are expected to help reduce the negative impacts of the development of forest cities and IKN. In addition, the government's response to continuing to carry out good supervision and control and encourage active participation from the community is quite crucial, mainly to ensure that development is carried out in a manner that is by the principles of sustainability. This can reduce concerns over the issue of environmental damage, which is currently being debated, especially in the forest city development plan.

The government may face several challenges in developing a forest city besides policy and environmental issues, namely, financial and socio-economic challenges. Developing a forest city can be expensive (McPherson et al., 1997), and governments may need help obtaining the necessary funds. It requires budget allocation during development and maintenance after it is realized (Wu, 2008). In this context, it becomes very complex because the government has to think about plans for developing a forest city and the projection of moving the national capital to IKN. It requires a large budget and costs (Baharuddin et al., 2022). The next challenge is socio-economic problems. The development of a forest city can cause changes in land use and displacement of local people, which can have negative socio-economic impacts. The concept of land use transition highlights land use changes that will affect social systems. The transition is defined as a system change process in which

its structural character also changes (Lambin & Meyfroidt, 2010; Martens & Rotmans, 2005) had prompted some residents to move. Moreover, it raises problems with new adaptations for residents and may affect household livelihoods (Landry & Chirwa, 2011).

4. Conclusion

The plan for developing a forest city in the new capital city (IKN) is based on principles such as conservation of natural resources and wildlife habitats, connection with nature, low carbon development, development of water resources, controlled development, and the principle of community involvement. Apart from that, the government has also calculated the benefits to be gained from the development of the forest city, including economic, social, and environmental benefits. However, the government cannot only calculate the benefits but considers other negative aspects that could occur, such as forest ecosystem problems in the forest city development area in Kalimantan. Development that is not carried out carefully can cause environmental damage and threaten survival. This study encourages the government to act following an orientation towards quality and sustainable environmental management. This can only be done if the government implements strong and strict regulations. In addition, the government can consider financial problems and socio-economic challenges. The limitation of this research lies in the research method, which only relies on the results of examining documents, while observation is also considered important in this case. It can be the next research impetus to accommodate the results of analysis based on observation. It could answer a much more complex problem in the future.

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