

UNDERSTANDING THE FOOD ESTATE PROGRAM FROM THE SUSTAINABLE DEVELOPMENT PERSPECTIVE IN INDONESIA

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Abstrak Pertubuhan Makanan dan Pertanian (FAO) meramalkan krisis makanan akan datang. Sebagai tindak balas, kerajaan Indonesia segera memulakan Program Strategik Nasional, termasuk program Estet Makanan. Tujuan kertas kerja ini adalah untuk meneliti secara terperinci pelaksanaan program Food Estate dari perspektif pembangunan lestari di Indonesia, mensasarkan tahun 2030. Dalam meneliti program ini, timbul persoalan: “Bagaimanakah program Food Estate diselaraskan dengan Indonesia Wawasan 2030 dalam perkembangannya?” Kaedah kajian yang digunakan dalam kertas ini adalah deskriptif kualitatif, menggunakan kedua-dua sumber primer dan sekunder. Sumber utama diperoleh daripada kenyataan rasmi kerajaan berkenaan Estet Makanan, manakala sumber sekunder diambil daripada buku, jurnal dan sumber dalam talian yang lain. Teknik analisis yang digunakan melibatkan penggunaan perisian VOSviewer. Kertas kerja ini menggunakan rangka kerja SDG (Sustainable Development Goals) dalam Wawasan Indonesia 2030 dalam menganalisis fenomena yang dihadapi. SDG mewakili usaha terancang yang mengintegrasikan aspek alam sekitar, sosial dan ekonomi ke dalam strategi pembangunan untuk memastikan integriti alam sekitar serta keselamatan, keupayaan, kesejahteraan dan kualiti hidup untuk generasi sekarang dan akan datang. Hipotesis kajian ini ialah program Food Estate merupakan salah satu halangan yang menghalang pencapaian wawasan 2030 kerana proses pelaksanaannya yang merosakkan ekosistem.

Kata kunci: Ladang Makanan, Wawasan Indonesia 2030, SDGs, Program Strategik Nasional

Abstract *The Food and Agriculture Organization (FAO) predicts a future food crisis. In response, the Indonesian government promptly initiated the National Strategic Program, including the Food Estate program. The purpose of this paper is to scrutinize in detail the implementation of the Food Estate program from the perspective of sustainable development in Indonesia, targeting the year 2030. In examining this program, the question arises: "How is the Food Estate program aligned with Indonesia's Vision 2030 in its development?" The research method employed in this paper is descriptive qualitative, utilizing both primary and secondary sources. Primary sources are derived from official government statements regarding the Food Estate, while secondary sources are drawn from books, journals, and other online resources. The analytical technique employed involves the use of VOSviewer software. This paper utilizes the SDGs (Sustainable Development Goals) framework of Indonesia's Vision 2030 in analyzing the phenomenon at hand. SDGs represent a planned effort that integrates environmental, social, and economic aspects into development strategies to ensure environmental integrity as well as the safety, capability, well-being, and quality of life for both present and future generations. The hypothesis of this research is that the Food Estate program is one of the obstacles hindering the achievement of the 2030 vision due to its implementation process that damages ecosystems.*

Keywords: *Food Estate, Indonesia's Vision 2030, SDGs, National Strategic Program*

INTRODUCTION

Sustainable development is an important aspect in the development of a country in the modern era. Countries in the European region have implemented various methods to implement this policy. Limited natural resources, technological developments, health, industrialization, and social needs of society are part of forming sustainable policies. With technological advances from Europe, other countries should also develop their technology.

The Covid-19 outbreak has caused production shortages both internationally and nationally in various sectors, one of which is the agricultural and food production sector. The Food and Agricultural Organization (FAO) has advised countries that there is a possibility of a food crisis. Indonesia, as a country with the majority of the population working in the agricultural sector, faces complex food security challenges. The increasing population and the impact of the COVID-19 pandemic are exacerbating food insecurity and disrupting the food supply chain because food is a vital sector in the continuity of social life. If the food sector is disrupted it will disrupt other sectors (Pérez-Escamilla, 2017).

In response to this appeal and to mitigate this threat, the Indonesian Government promptly enacted regulations pertaining to Food Estate (food development). The concept of Food Estate, proposed by the President of the Republic of Indonesia, Joko Widodo, serves as a National Strategy Program (PSN) with the objective of extensive food production. The Food Estate program extends its operations beyond agriculture to include the livestock sector. The Minister of Defense directly oversees this program, as the Indonesian government views food security as a crucial component of national defense. In its initial phase, the program selected Central Kalimantan as the site and prioritized the management of key commodities such as rice, cassava, and corn. (Mahendra Wiswayana & Desy Arya Pinatuh, 2022). It is hoped that this Food Estate will involve the development of an independent food system that can meet the needs of local communities and reduce dependence on external sources.

In Presidential Regulation No. 59 of 2017, Indonesia includes *the Sustainable Development Goals* (SDGs) program as a form of implementing the global agenda by society. One of the initiatives included in the SDGs Agenda is reducing hunger, achieving optimal food security and nutrition, and improving the agricultural sector in a sustainable manner. In the context of the Food Estate program, this is not rooted in the urgent need to fulfill national food needs, but also in crucial aspects of sustainable development.

However, on the other hand, sustainable development is not just the achievement of quantitative targets, but rather a series of programs that

require integration between environmental, economic and social dimensions. Therefore, a comprehensive understanding of the implementation of a Food Estate program will involve an assessment of its impact on ecology, the economic well-being of local communities, as well as the program's ability to be sustainable in the long term. This highlights the need for a balanced and insightful approach in designing and implementing such programs, so that they not only meet current needs but also maintain a long-term balance between economic growth, environmental conservation and social justice. However, the Food Estate program seems rushed, causing land ownership problems, inadequate human resources, and less than optimal policies, causing this program to require careful planning and accurate implementation methods, even though Indonesia itself also has the Indonesia Vision 2030 (Pérez-Escamilla, 2017). Furthermore, the question arises about whether the Food Estate is in line with Indonesia's Vision 2030 in its development?

LITERATURE REVIEW

Research on Food Estate has become an academic goal and field practice. The research conducted focuses a lot on the process of implementing Food Estate until it occurs in the field. As in research conducted by (Lasminigrat et al., 2020) which emphasizes how the Indonesian government deals with food threats and the Indonesian Government which makes a policy on Food Estate development in Central Kalimantan for these problems (Lasminigrat & Efriza, n.d.). Another research on Food Estate was conducted by (Marwanto & Pangestu, 2021) in the study to look more at the availability of land that can be used for the sustainability of the Food Estate itself, besides that the study also looked at how effective this program is despite the many challenges and threats that come. This study emphasizes the need for cooperation between parties to ensure the running and success of the Food Estate (Marwanto & Pangestu, 2021). There is also research conducted by (Nasrullah et al., 2022) not specifically discussing Food Estate, but rather looking at the legal normative whether the Government of Indonesia has implemented its policies in the food sector in accordance with SDGs 2030 (Nasrullah & Ovitasaki, 2022). The results of this study see that the Government of Indonesia has legally implemented policies that refer to SDGs 2030 in the agricultural sector.

Another research conducted by (Maskun et al., 2021) discusses normative conflicts related to the use of protected forests in the Food Estate program which are considered to provide legal certainty and are contrary to higher regulations. In addition, the use of protected forests for this program can increase deforestation and environmental degradation, which is contrary to Indonesia's commitment to reduce greenhouse gas emissions from the forestry sector (Maskun et al., 2021). According to the results of research conducted by (Rasmanan et al., 2023), there are several factors that cause the failure of the Food Estate program. These factors include poor planning without considering location, water availability, climate, technology, and the relationship between government and farmers (Rasman et al., 2023). In addition, land disputes are also one of the obstacles that hinder the implementation of this program, resulting in conflicts between the government, communities, and entrepreneurs. Research conducted by (Binsar Sianipar and Audrey, 2020), found factors in Food Estate *development*, namely, as an alternative in maintaining food security due to the Covid-19 pandemic (Sianipar & Tangkudung, 2020). Another study by (Rizghina Ikhwan et al., 2023), found the potential for gender injustice in the farming process towards the development of Food Estate programs in Bataguh District, Kapuas Regency and Padi Batu District, Pulang Pisau Regency (Ikhwan & Suharyono, n.d.).

Based on previous studies, this study brings novelty, namely seeing why this Food Estate is actually one of the causes of hampering the success of the 2030 SDGs itself seen through the concept of SDGs.

Theoretical Framework

1. Food Security

Food security, which means having access to sufficient, safe, and nutritious food, is an important issue in the world that has a profound impact on the health of people and the planet (Pérez-Escamilla, 2017). Other challenges include urbanization, income inequality, overcrowding, ecosystem damage, and animal health (Havas & Salman, 2011). To ensure food security, it is imperative to improve food safety in terms of microbiology, with emphasis on innovative technologies to reduce and control microbiological risks (MIKŠ-KRAJNIK et al., 2015)

In addition, according to the Food Agriculture Organization through the 1996 World Food Summit, food security is achieved when every individual, at all times, has physical and economic access to sufficient, safe, and nutritious food that suits their needs and food preferences to lead an active and healthy life.

The following are the four main pillars of food security:

- a. Physical availability of food: It talks about the “supply side” of food security and is determined by the level of food production, the number of stocks, and net trade.
- b. Economic and physical access to food: While there is sufficient food supply at the national or international level, this does not guarantee food security at the household level. Therefore, there is a need to focus more on income, expenditure, markets, and prices in achieving food security goals.
- c. Food utilization: This refers to how the body utilizes the nutrients present in food. Adequate intake of energy and nutrients by individuals is the result of good care and feeding practices, food preparation, diversity, and food distribution within the household. This, coupled with good biological utilization of the food consumed, determines the nutritional status of an individual.
- d. Stability of the other three dimensions over time: Even though food intake is sufficient for today, it may still be considered food insecure if you have insufficient access to food periodically, which risks worsening the nutritional status of each individual. While factors such as adverse weather conditions, political instability, or economic factors (such as unemployment, rising food prices) can affect an individual’s food security status in achieving food security goals, these four dimensions must be met simultaneously.

2. Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs) are a series of visions adopted by the United Nations (UN) in 2015 to achieve sustainable development by 2030. The SDGs are designed to address pressing issues such as poverty, inequality, climate change, food, and environmental degradation, among others, and are intended to apply universally to all countries, regardless

of each country's level of development. The goal is not only to focus on economic development but also on social and environmental aspects. The SDGs recognize that sustainable development is a key factor in maintaining international peace and security, as well as in fostering economic growth and reducing inequality.

SDGs are an important component of global governance, as they provide a framework for countries to work together towards achieving sustainable development and addressing global challenges. The SDGs are a universal call to action that requires cooperation and coordination among countries, international organizations, and other stakeholders to achieve their goals. UN member states have agreed and ratified the SDGs, so they should continue to strive to realize this vision.

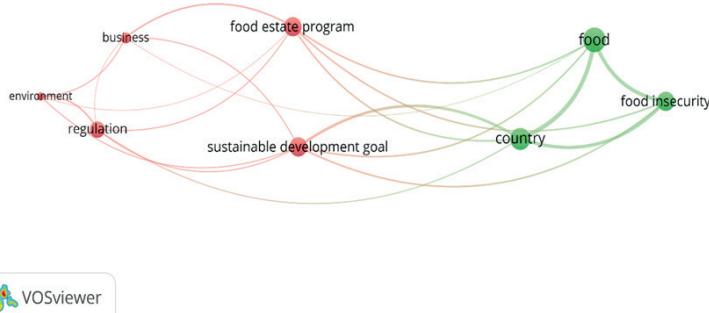
Food Estate should be one of the policies towards the realization of SDGs 2 ending hunger and 12 ensuring sustainable consumption and production patterns. Thus, in this study it is necessary to see the progress of this Food Estate program whether it is in line with the 2nd and 12th vision of the SDGs.

METHODOLOGY

The research method used in this paper is descriptive qualitative, using primary and secondary sources. Primary sources are obtained from official government statements about Food Estate, while secondary sources are obtained from books, journals, and other *online* sources . This study uses qualitative descriptive methods, which allow researchers to understand the phenomenon in depth. With a focus on descriptive data collection and qualitative analysis, researchers can explore context, meaning, and differences in a phenomenon. This approach can explain the characteristics, behaviors, or processes observed in greater depth.

The analysis technique used is VOSviewer software. The use of VOSviewer here is intended to visualize what can be discussed through the included references. The following is a visualization of data from VOSviewer regarding the Food Estate program in Indonesia:

Figure 1
VOSviewer Data Visualization



RESULTS AND DISCUSSION

Food Estate

The Food Estate program launched by the President and directly supervised by the Minister of Defense, the Food Estate program in Indonesia is a national strategic program that aims to ensure the availability, accessibility, and consumption of high-quality food for the community, as well as maximize domestic production. This program is part of the National Strategic Program (PSN) 2020-2024 and involves the development of an integrated food system covering agriculture, horticulture, and animal husbandry in designated areas(Diaz Ananta, 2023).

The program is designed to address food security issues in Indonesia by creating new food storage facilities, especially in areas such as Java, Kalimantan, Sumatra, and Papua. It involves the development of large-scale agricultural projects, including the cultivation of various crops such as rice, corn, soybeans, and fruits, as well as animal husbandry (Diaz Ananta, 2023). This program is considered important in addressing food security challenges in Indonesia, which faces food availability and affordability issues. The government aims to achieve this through the development of Food Estates

that can provide a stable food supply, reduce dependence on imports, and increase the country's food self-sufficiency. The program is also expected to create jobs and stimulate the local economy, as it involves developing infrastructure such as irrigation systems, roads, and storage facilities. In addition, the program is designed to be environmentally sustainable, by incorporating practices such as conservation agriculture and integrated pest management to minimize the environmental impact of agriculture.

Food Estate development is a collaborative effort involving various government agencies, including the Ministry of Agriculture, the Ministry of Public Works and Housing, and the Ministry of Defense. The program is also supported by international organizations and private sector partners. Overall, the Food Estate program in Indonesia is an important initiative aimed at ensuring the country's food security and promoting sustainable agricultural practices.

The main components of Food Estate include production, storage and distribution, food processing, and market access. Production involves developing different types of crops, storage and distribution ensuring food availability and accessibility, food processing adding value to agricultural products, and market access ensuring farmers and food producers can sell their products. The author will explain more about the components of Food Estate (Rochmadi, 2022).

Production is the initial stage in Food Estate. It involves the development of different types of crops, including staple foods such as rice, corn, and soybeans, as well as fruits and vegetables. The aim is to ensure a diverse and balanced food supply, which can meet the nutritional needs of the people. In addition, crop diversification is also important to maintain soil fertility and prevent erosion.

After harvesting, agricultural products need to be properly stored and distributed. Proper storage can prevent damage and spoilage, while efficient distribution can ensure that agricultural products reach consumers in the best condition. *Food Estates* need to have adequate infrastructure for storage and distribution, such as warehouses, roads, and transportation.

Food processing is the process of converting raw agricultural products into ready-to-consume or semi-finished products. Food processing can add value to agricultural products, increase their shelf life, and make them easier to consume. The last component is market access. Market access alone is a key factor in the success of Food Estate. Farmers and producers need to have access to markets where they can sell their products at the best prices. Food Estate itself can support market access by providing market information, training, and logistical support.

Improper Land Management

The concept of the Food Estate program was initially implemented from 1955 to 1999 as a Peatland Project or PLG with the aim of empowering food reserves. According to Presidential Regulation Number 83 of 1995 concerning Peatland Development, the project aims to convert one million hectares of peatland and swamp land into rice development. However, PLG suffers from many obstacles, including the government's lack of calculation of moisture levels, land slope, and soil content. As a result, this project was terminated through Presidential Decree Number 80 of 1999. The development of peatlands that was previously expected by the community to bring prosperity, causing environmental problems, such as floods during the rainy season and fires during the dry season. Forest areas that were previously used by the community as rattan forests, sacred forests, and fields were damaged due to logging during the implementation of this project (Nur Izzati et al., 2023).

The development of peatlands that was previously expected by the community turned out to have negative impacts such as floods during the rainy season and fires during the dry season became a serious problem. In addition, forest areas that were previously used by the community as rattan forests, sacred forests, and fields were damaged due to logging during the implementation of this project. In its implementation, this project faces various obstacles in the relationship between the government and society, especially in social and economic aspects. Land rights and natural resource rights for communities do not receive adequate attention from the government during the development process. As a result, there are

conflicts between the government and communities due to logging without considering land use rights. In addition, this project did not get support from the community due to lack of trust in the government, so the results were not in line with expectations (Rasman et al., 2023).

In the Food Estate policy, the government issued Minister of Environment and Forestry No. 24 of 2020 by regulating two schemes for providing forest areas for food security. The scheme is considered to have the potential to accelerate the process of environmental exploitation and deforestation in the Central Kalimantan region which previously experienced failure in the PLG project. The rearrangement of the Food Estate program area needs to be reviewed because some soil conditions in the PLG area cannot be planted with certain varieties. In addition, several blocks of protected forest areas are a means for the community to access transportation and cultivation in the environment (Ayu, 2022).

Peatland areas, which originally acted as sustainable ecosystems and preserved nature, suffered damage due to improper management in the framework of business activities. The situation is exacerbated by the high rate of water depletion, which causes drought and increases the risk of forest fires. This shows that the natural condition of peatlands has been lost due to the damage caused by this program. In the socio-economic context, human resources in the Food Estate area must actively participate in achieving goals related to increasing food production and national economic growth. Key socio-economic aspects that have potential implications include population demographics, livelihoods, community involvement with peatlands, and farmer institutions (Yeny et al., 2022).

Peat forest areas in Central Kalimantan are used by the community as agricultural land and settlements with a cultivated area of around 2-5 hectares per family head. However, the resulting productivity tends to be low. The implementation of social, economic, and cultural development policies and strategies aims to improve people's welfare. In the context of peatlands, the program has two main objectives; first, creating a healthy environment to protect humans from environmental threats, thereby improving the health of individuals, families, and communities; Second,

empowering individuals, families, and communities in the health sector so that they can maintain, improve, and protect personal health and the environment (Nur Izzati et al., 2023).

Efforts that need to be taken to use peatlands sustainably can contribute to the income of local communities. In addition, improving the welfare index of rural communities can be achieved through the development of community-based plantations. Policies that allocate forest areas for Food Estate utilization and social forestry integration programs require the use of natural capital for the welfare of the community. The social forestry program is a harmonization effort in land management that considers the functions of protection and planting.

In studying this, *strong sustainability* theory can be used as a basis for Food Estate, especially in aspects of peatlands and the surrounding environment. There are several strategies in developing sustainability systems that can be included in the Food Estate program to achieve the goal of community empowerment on peatlands, there are several strategies that need to be implemented, namely:

- a. Landscape Management: Ensuring holistic land management, including maintaining ecosystem diversity and strengthening landscape areas.
- b. Protected Areas: Maintain conservation values and identify vulnerable areas that need to be protected.
- c. Habitat Connectivity: Prevents land fragmentation and ensures connectivity between habitats.
- d. Low Impact Land Management: Reducing negative impacts on the environment and paying attention to socio-economic aspects.
- e. Integrated Multibusiness: Develop an integrated business model, covering agriculture, animal husbandry, fisheries, and forestry.
- f. Community-Based Food Agriculture: Encourage active community participation in food production.
- a.

Through the steps above, the focus of Food Estate development is not only on rice and seasonal crops, but also adding commodities to

other species. In addition, community empowerment through government policy support that refers to business in developing market opportunities through commodity choices can provide social, ecological, and economic benefits (Nur Izzati et al., 2023). Although rice cultivation can be done on degraded peatlands, the methods used must be appropriate to improve their sustainability. A key factor influencing success is the increase in farmers' knowledge about reducing greenhouse gas (GHG) emissions. In addition, crop productivity also has a significant impact on the economic dimension. Therefore, the application of innovative technologies must be carried out with the supervision of agricultural extension officers. In addition, improvements in agricultural infrastructure, including irrigation systems, farm roads, and markets, are also important factors to support agricultural production. Support from government agencies in this regard is crucial (Lestari et al., 2020).

Ecological Aspects

According to regulations issued by the government through the Regulation of the Minister of Environment and Forestry No.24 of 2020, forest areas allocated for Food Estate development aim to strengthen economic recovery efforts with a focus on community empowerment and human resource improvement (Policy review of the provision of forest areas for Food Estate development). Food security, according to this regulation, refers to the condition of food needs that are met for both countries and individuals. This condition includes aspects of good food quality, nutritious, equitable, and affordable, without being influenced by religious, creed, or cultural factors of the community. In addition, food security also contributes to a healthy, active, and productive life in a sustainable manner.

To achieve this goal, the concept of Food Estate has been formed as a food effort on a wide scale. This concept prioritizes natural resource management through the optimization of capital, technology, and other resources. The result is a food product that meets human needs, involving various sectors such as horticultural food crops, plantations, animal husbandry, and fisheries in a forest area (Rahutomo et al., 2023).

In planning a Food Estate program, it is very important to include ecological considerations as the main foundation. Environmental health is the main key that supports the success of any program. Indonesia, with its vast tropical rainforests in Kalimantan, plays a vital role as one of the lungs of the earth. Therefore, maintaining the integrity of protected forests is our collective responsibility to ensure that global ecosystems remain balanced. It would be better to conduct a review of the Food Estate program that has the potential to reduce protected forest areas, to ensure that agricultural development does not come at the expense of this invaluable natural heritage.

However, the use of forest areas as locations for large-scale food businesses has drawn criticism. In addition, the practice of grabbing protected forests that occur can damage ecological health. For example, in the case of Papua, the use of 2.7 hectares of forest area can cause deforestation and threaten the environment and people's relations with nature. In addition, the implementation of Food Estate does not involve Indigenous peoples and Indigenous Papuans to change their staple food from sago to rice. The plant varieties used should also follow local conditions. Considering that not all Indonesians make rice as their staple food.

A review of the Food Estate program that rules out planning that considers ecological aspects can lead to environmental damage and accelerate deforestation rates (Pandu, 2022). Extensive land use without boundaries is an important thing that needs to be addressed to ensure the sustainability of this program, while supporting the achievement of Indonesia's Vision 2030. Without evaluation and adjustment to ecological aspects, this program has the potential to become a barrier to sustainable development efforts that should be Indonesia's main commitment. The balance between agricultural progress and environmental preservation through this program should be a priority to ensure sustainable development.

The Fade of Local Wisdom

Food Estate initiatives initiated outside Java, covering Kalimantan and Papua, do not seem to have fully taken into account the availability and capability of local human resources. This program tends to generalize the

types of commodities cultivated, adopting the same pattern applied in Java, without considering the fundamental differences in terms of clearly different soil and climate conditions between Java, Kalimantan, and Papua (Damiana, 2024).

Another aspect that deserves further attention is the transformation of farmers into part of the farmer corporation in the Food Estate scheme (Rochmadi, 2022). This change marks a significant shift from the practice of self-sufficient agriculture that has been carried out, which prioritizes local knowledge and wisdom that has been cultivated for generations. The Food Estate program, which emphasizes standardization of crop species without regard to the unique characteristics of each region, can override traditional knowledge and practices that should be the main foundation in developing a sustainable agricultural sector that is relevant to local conditions.

The policy of standardizing farming methods in the Food Estate program, which requires farmers throughout Indonesia to adopt uniform cultivation techniques, has caused culture shock for them. Farmers, who have been accustomed to farming practices passed down through generations, are now faced with sudden changes that shake up their routines (Gerhana & Rindayati, 2023). Furthermore, this policy also demands the unification of major types of food crops, such as rice, which are not in accordance with consumption patterns in several regions outside Java. For example, people in some areas who traditionally do not consume rice, now have to adapt to planting rice on land that has never been used for the commodity before. This situation demands deep reflection from policymakers to respect and strengthen local wisdom, not erode it. Agricultural policies should be designed taking into account the ecological and cultural diversity of each region, in order to be not only environmentally sustainable, but also socially and economically.

Active community involvement is an important key to the success and continuity of the Food Estate program. A skilled and knowledgeable workforce of local agriculture can accelerate the process of adaptation and efficiency in land management. However, the challenge faced today is the lack of qualified human resources, which often leads to unsatisfactory yields

or delays in achieving program targets. This obstacle is not the result of farmers' lack of experience, but rather the existence of policies that force them to adopt farming methods that are not suitable for their specialty. This situation not only hinders the achievement of Indonesia's Vision 2030, but also contradicts the principles of sustainable development that should prioritize the use of local resources and traditional knowledge in agricultural development. The lack of coordination between the government and the community in this Food Estate program, can repeat the failure of PLG.

CONCLUSION

Indonesia's Food Estate program to address the food crisis needs to be re-evaluated. In this study, the author sees that there are aspects that can hinder Indonesia in achieving Indonesia's Vision 2030 and are not in accordance with the principles of sustainable development, such as improper land management, ecological aspects, and the fading of local wisdom. Improper land management can be seen in the environmental management of peatlands to the surrounding social aspects. Peatland ecosystems, which originally functioned as a sustainable environment and preserved nature, suffered damage due to inadequate management in the context of business activities. The strategy that should be applied in overcoming this is holistic management of landscape land, maintaining the conservation value of vulnerable areas, ensuring connectivity between habitats, reducing negative impacts on the environment in socio-economic aspects, developing sustainable multi-business, and encouraging community participation in food production. Ecological aspects that have received less attention have become critical issues in efforts to achieve food security without sacrificing sustainable development. Significant reductions in protected forest areas require urgent action to ensure that efforts to create food security do not cause damage to natural ecosystems and contribute to climate change. In addition, social dimensions such as the fading of local wisdom also require attention. The traditional practices of local communities should be respected and cannot be generalized. For example, the culture of rice farming is not universal throughout Indonesia, considering that rice is not a staple food for all groups of people. In addition, people's habits in managing crops that are appropriate to the local environment should also not be ignored,

because local knowledge of soil and climate conditions is a valuable asset that allows optimal plant growth.

The author underlines the importance for the Indonesian government to review and update the policies that have been implemented in the Food Estate program. This step is considered crucial to ensure that the program does not become an obstacle to the achievement of Indonesia's Vision 2030, which emphasizes the importance of sustainable development. For future research, it is suggested that the topic of Food Estate can be explored from various points of view such as technology development, information systems, and social equality.

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