

# LOCAL GOVERNMENT EFFORTS IN PROTECTING PRODUCTIVE WETLAND FORESTS AS THE BASIS FOR FOOD SECURITY IN SOUTH KALIMANTAN

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**Abstract:** *The environment as a legal subject is fundamentally regulated by law. Efforts to protect and manage the environment in Indonesia continue to experience developments in its regulations, especially with the enactment of Law No. 32 of 2009 concerning Environmental Protection and Management, which replaced Law No. 23 of 1997 concerning the Environment. In addition to Law No. 32 of 2009, which serves as the parent law in the environmental sector, there are also other sectoral laws related to the environment, such as laws in the fields of forestry, mining, natural resources, and others. Peat swamp forests are one of the types of wetlands that are most threatened in Indonesia due to pressure from various human activities. Forest conversion or forest conversion into agricultural land, plantations, and production forests can threaten the existence of natural peat swamp forests. The purpose of this study is to determine and analyze the role of local governments in protecting wetland production forests in supporting food security in South Kalimantan and analyze converted agricultural land. Based on the research results obtained, 1,300 hectares of agricultural land have become yellow due to the increasingly rampant land conversion. Farmer groups in South Kalimantan are still active as farmers, 75% of whom are sharecroppers. By using annual crops, farmers in South Kalimantan produce 10-11 tons of rice per year with a 6-month planting period. However, unfortunately, the government program that encourages farmers to achieve an agricultural index of 200 per year has not been fully achieved.*

**Keywords:** *Food Security; Wetlands; Agriculture.*

## 1. INTRODUCTION

Law cannot be separated from the human dimension of life, so in order to understand a law, we cannot ignore the role of humans. Every human being has interests, which are individual or group demands that they hope will be fulfilled.

Therefore, the role of humans can shape legal regulations related to environmental law, so that environmental sustainability and preservation are maintained.

Currently, the classical legal division that is still frequently used is public law and private or civil law. The term "*environmental law*" is a relatively new concept in the scientific world in general and specifically in legal circles, which has developed in line with increasing environmental awareness. With increasing understanding and awareness of environmental protection and preservation, legal attention to it has also increased.

Wetlands are physical environments that include climate, relief, soil, water, vegetation, and objects on the surface as long as they influence land use. Wetlands can also be defined as areas with standing water or areas with large water storage, with terrestrial and aquatic characteristics. Wetlands in the surrounding environment include swamps, mangroves, brackish areas, floodplains, and similar flooded forests. Wetlands are included in the category of waterlogged environments in swampy areas and peatlands. Wetlands are divided into natural and artificial, permanent and temporary, with stagnant or flowing water.

In the context of sustainable agricultural development, the use of wetlands for agriculture has been a major focus of the government over the past decade, particularly in addressing the challenges of conversion of productive agricultural land and increasing national food demand. The use of peatlands for agriculture has also increased, from 2.26 million hectares in 2015 to 2.75 million hectares in 2025. Of the total peatland area in Indonesia, approximately 20 million hectares, it is estimated that only 9 million hectares can be used for agriculture, indicating that current use is still within environmentally safe limits.

Wetlands function as a life support system and directly support life, such as providing food sources. Wetlands play a vital role in terms of ecological and economic functions. An example of a wetland environment is a river environment. River environments represent wetland environments consisting of rivers and other components outside the river, such as settlements on the riverbanks, which can have a negative impact, namely pollution of wetland environments by littering in the river.

The importance of the role of local governments in regulating and enforcing strict environmental laws, especially in wetlands, in order to minimize environmental damage such as illegal logging, degradation, flooding, and other environmental pollution. The floods that hit South Kalimantan at the end of January 2021 were the worst disaster ever to occur in South Kalimantan. Approximately 3,000 households or 9,600 people were affected by the floods. Even the city of Banjarmasin, which had never experienced flooding before, was submerged.

The purpose of conducting wetland research is so that the community can better preserve the environment and become more educated not to pollute the wetland environment so that the wetland environment remains preserved in the future. This paper aims to conserve wetlands, given their numerous benefits. Local

governments are expected to regulate wetland conservation and implement proper management and oversight to preserve them.

Regarding efforts to protect and manage the environment in Indonesia, there has been continuous development in its regulation, most recently with the enactment of Law No. 32 of 2009 concerning Environmental Protection and Management, replacing Law No. 23 of 1997 concerning the Environment. In addition to Law No. 32 of 2009 concerning Environmental Protection and Management as the main law in the field of environmental protection, there are also sectoral environmental laws, including those related to forestry, mining, natural resources, and others. These laws are the main legal basis related to environmental protection, including wetlands.

Wetlands are areas of brackish, swamp, peat, or water, whether natural or artificial, permanent or temporary, with flowing or still water, fresh, brackish, or saline, including areas with sea water whose depth at low tide (low tide) does not exceed 6 meters (Ramsar Convention). This research aims to examine the importance of protecting wetlands and production forests through legal approaches and legal policies and strict sanctions for food security sustainability in Indonesia, particularly in South Kalimantan Province, so that food production and welfare can increase for the prosperity of the people of South Kalimantan.

Besides wetlands, Indonesia has production forests spread across various regions in Indonesia. Production forest is a type of forest that is utilized sustainably for economic purposes, especially in the production of timber and non-timber forest products. In Indonesia, production forests have an important role in providing timber for industrial purposes, such as construction, furniture, and others. Due to the existence of wetlands and production forests that are very important for food security for the nation's future generations. The government has a big role in maintaining and utilizing wetlands and production forests so that they remain sustainable and maintained.

## 2. METHODS

The method used in this study is empirical. The word empirical itself comes from the Greek word *empeiria*, which means experience or trial and error. In finding empirical evidence, it is closely related to the five human senses. According to Sugiono (2013), empirical is a method that can be observed by the human senses, so that the method used can be known and observed by others. The type of approach used in this study is qualitative. Qualitative research is a deep perception of the phenomenon being studied by examining the phenomenon in more detail on a case-by-case basis, as the nature of the problem being studied can vary. state that qualitative methods can reveal and understand something behind unknown events. This type of method relies on observing social phenomena in society. The results of these observations are presented in this paper to provide knowledge and education to readers, as well as to inform local government policies on preserving wetlands for

sustainable agricultural use in South Kalimantan.

The purpose of this research is to identify the role of local governments in protecting production forests in wetlands to support food security in South Kalimantan. This study also provides insights by analyzing how legal policies are harmonized with the concept of sustainable development. Within the framework of scientific validity, the empirical approach in legal research is based on the principle of correspondence, namely that a statement is considered true if it corresponds to objective reality that can be proven through measurable empirical data and systematically verified (Sukmawan & Damayanti, 2025). This truth also contains a pragmatic element, meaning that it is accepted as true to the extent that there is agreement or consensus among practitioners and academics in the field of law (Ishaq, 2017). Philipus M. Hadjon contends that for the advancement of legal science, it is essential to define the scope of study and its efficacy. This definition can be achieved through various strategic measures, which include: firstly, assessing the degree to which the established legal theory possesses a level of truth that can be scientifically validated; secondly, developing stages or procedures that allow other parties to confirm the outcomes of the legal theory development; and thirdly, explicitly specifying the rationale for choosing the research methods employed, considering both their theoretical appropriateness and the analytical techniques utilized (Kothari, 2004).

### **3. RESULTS AND DISCUSSION**

#### **3.1. The Role of Local Government in Protecting Productive Wetland Forests in Supporting Food Security in South Kalimantan**

Food security refers to the condition of having sufficient food, both in quantity and quality, that is safe, diverse, nutritious, equitable, and affordable, while also respecting local religions, cultural norms, or beliefs, enabling individuals to lead long, healthy, and productive lives (Misselhorn et al., 2012); (Aberman, 2018); (Keovilignavong & Suhardiman, 2020); (Tembo et al., 2024). This concept also applies to individual citizens. A food estate is a large-scale food enterprise that encompasses various operations aimed at fulfilling human needs through the integrated production of food products, utilizing capital, technology, and other resources (Lasminingrat & Efriza, 2020); (Herrero et al., 2021); (Yenny et al., 2023). These operations may include food crops, horticulture, plantations, livestock, and fisheries within a forest area. The Forest Area for Food Security, abbreviated as KHKP, is a designated Forest Area specifically aimed at enhancing food security through the development of Food Estates (Pangestu & Habib, 2024).

In South Kalimantan, the area of freshwater swampland spans 208,893 hectares, which includes shallow freshwater swampland (46,918 ha), medium freshwater swampland (106,076 ha), and deep freshwater swampland (55,899 ha). Of this total, 76,634 hectares have already been developed (Alwi and Tafakresnanto, 2017). The history of freshwater swampland development in South Kalimantan dates

back to 1930, when the polder system was first implemented. Notably, the Alabio Polder in North Hulu Sungai Regency, which covers 6,000 hectares, was one of the initial projects. However, due to inadequate water management infrastructure, only 3,000 hectares are currently being used for paddy cultivation, resulting in less than optimal yields. (Anwar & Susilawati, 2017). The successful rice harvest in South Kalimantan, particularly the rice variety "BERAS SIAM", illustrates the potential for enhancing rice production on freshwater swampland, achieving a productivity rate of 6.5 t ha<sup>-1</sup>. Given that there are around 8.88 million hectares of appropriate freshwater swampland available for food crops and horticulture, a simple 40% increase in either the area planted or the intensity of planting, along with a productivity rate of 6.5 t ha<sup>-1</sup>, could lead to an additional yield of 23.09 million tons of paddy. 2,500 farms in the city of Banjarmasin have been divided into two areas, namely the original agricultural area and the land conversion area. There are 1,900 hectares of agricultural land, but another 8,300 hectares have been converted. In South Kalimantan, many farmer groups are still active in agricultural land management. According to 75% of the data obtained, smallholder farmers can produce 10-11 tons. Various types of crops are harvested annually, such as Siamese rice, which takes approximately six months to grow.

The government program has successfully implemented a planting index, or IP. This planting index is approximately 100-200 per year, and farmers are required to replant twice a year. This also includes the additional planting area required for each farmer in South Kalimantan. The Banjarmasin city government also supports and targets the optimization of agricultural land by increasing the planting index. The planting index below sea level is very difficult to implement because the planting period is only six months. The commodities produced are high-quality rice, such as Javanese rice, which is harvested in September, October, and November with a five-time sowing period. In the sub-district of North Banjarmasin, there are 200 hectares of agricultural land available, but there has been land acquisition for conversion from agricultural use. This applies to all sub-districts in Banjarmasin, except for Central Banjarmasin.

The Banjarmasin City Food Security Agency is also involved in drafting regional regulations, namely Banjarmasin City Regional Regulation No. 6 of 2021 concerning the Spatial Plan for the Banjarmasin City Area and Regional Regulation No. 23 of 2010 concerning Guidelines for the Implementation of Neighborhood and Community Institutions in the Banjarmasin City Area. With the existence of regional regulations that have been established, it is hoped that local wisdom will be preserved, and that the rights of local farmers will also be protected and not infringed upon.

The results of this study aim to provide an overview of the role of local governments in protecting production forests in wetlands to support food security in South Kalimantan. Production forests in wetlands (such as swamp or peat forests) are legally under the forestry regime. However, the Environmental Protection and

Management Law and specific regulations on peat ecosystems, such as Government Regulation No. 57 of 2016 in conjunction with Government Regulation No. 71 of 2014, state that ecological protection functions must take precedence over production functions in the event of degradation. The role of local governments is to integrate peat ecosystem protection into production forest policies, not simply to facilitate exploitation.

The failure of local governments to enforce the prohibition on clearing or draining peatlands for industrial timber plantations (HTI) on protected peatlands constitutes a violation of environmental administration law. Furthermore, low food yields in South Kalimantan are often a direct result of the conversion of productive land to non-agricultural uses, or damage to water systems from upstream production forest/plantation activities. Legally, local governments have failed in their preventive role to protect peatlands as a source of local food. Local governments face two obligations: maintaining the productive function of forests for the local economy, while simultaneously protecting ecological functions (as stipulated in the PPLH Law) and food security (as stipulated in the PLP2B Law). Local government policies must demonstrate that protecting the ecological function of wetlands is crucial for sustainable food and forest production. This study also provides an overview by analyzing how legal policies align with the concept of sustainable development.

### 3.2. Figures



Based on the interviews we conducted with the Department of Agriculture in Banjarmasin in 2025, South Kalimantan achieved first place in the 2025 Food Security Index. This is a form of local government commitment in maintaining the sustainability of food security. Due to the importance of food security to ensure sustainable food security, the South Kalimantan Provincial Government is committed to continuing various strategic programs, including strengthening food reserves, developing technology-based agriculture, and empowering farmers so that production is maintained throughout the year. With this achievement, South Kalimantan is expected to become an example for other provinces in developing a sustainable food security sector.

The biggest challenge faced by the South Kalimantan regional government in maintaining the ecological function of wetlands from the threat of land conversion

and climate change is the conflict of interests across sectors, both with landowners and other parties who want to use the land for other purposes. One concrete solution that can be implemented by the South Kalimantan regional government to measure the success of the wetland protection program in relation to increasing food production and farmer welfare is to compare the area of land that has been acquired with the target area that has been set. The land that has been purchased can be used to implement government programs aimed at increasing food production and farmer welfare. However, in implementing wetland protection policies, the local government involves community participation, especially farmers, so that the programs carried out can be successful and sustainable by purchasing agricultural land that has been funded by the city government, and involving farmers in its utilization through a profit-sharing system at harvest time. In addition to regulations that also govern the smooth running of the harvest, there are innovative programs that have been or will be implemented by local governments to provide incentives or support to farmers to remain productive in wetlands without damaging the environmental ecosystem in the form of providing facilities.

The Banjarmasin city government also provides the website <https://simtaru.banjarmasinkota.go.id/> to access public spatial data so that wetlands remain under supervision, especially as this is a form of implementation of efforts that can be made by local governments to prevent them from being converted into land for non-agricultural development, such as infrastructure and housing, by purchasing land to be used as LP2B or KP2B land. The local government faces many challenges and obstacles in protecting wetlands from uncontrolled land conversion, especially to support food security in South Kalimantan, which is to conduct evaluations directly supervised by the relevant SKPD. Some concrete steps taken by local governments to rehabilitate wetlands that have been degraded due to conversion or other human activities include identifying and mapping degraded land, as well as attempting to restore the ecosystem functionally.

The city of Banjarmasin has 2,500 hectares of agricultural land divided into two areas, namely the green zone agricultural area and the agricultural area that is slowly turning into a yellow zone. This is due to the increasing conversion of agricultural land into residential areas. Of the 2,500 hectares of agricultural land, 1,900 hectares are yellow zone agricultural land, while 600 hectares remain green zone agricultural land.

In order to maintain food security, the Ministry has launched programs that are expected to support agriculture, including:

1. Increasing the Agricultural Index (IP)
2. Increasing Planting Area (LTT)
3. Optimizing Land Use (OPLAH)

The current government program is the Increase in IP (Agricultural Index). Banjarmasin City initially had an IP of 100, which means 1 year of planting and 1

harvest. There has been an increase in IP to 200. This is different from Java, which already has an IP of 4 and above. This is also due to unfavorable natural conditions, which can be an obstacle to rice cultivation. Due to the pressure to increase the Planting Index (IP), farmers often crossbreed their rice with high-yield varieties such as IR. This is an initiative to speed up the harvest. High-yield varieties such as IR are harvested faster than regular rice, which is harvested once every six months, while high-yield varieties only take three months to harvest. Farmers usually mill rice to meet their families' food needs, and only sell any surplus rice. The city of Banjarmasin uses annual crops that take six months to grow. An example of an annual crop is Siamese rice.

Rice in the city of Banjarmasin goes through many stages that carry a high risk of failure. One of these stages is the seedling process, which must be carried out by farmers. In the city of Banjarmasin, farmers need to carry out the seedling process five times before they can bring the rice to the fields and plant it. This is because if there are fewer than five seedling stages, the rice stalks will be fragile and easily broken, which will cause losses for farmers. Seedling stages in Banjarmasin City are usually found around farmers' yards after the fifth seedling stage, when the rice is considered strong enough to be taken to the fields. Before planting rice, farmers also check the water depth, as the ideal water level for planting rice is neither too shallow nor too deep. This is one of the factors that makes Siam rice more expensive on the market because it goes through many stages.

In 2022, the Agriculture Office successfully acquired 7.2 hectares of land. This land acquisition benefited tenant farmers because they no longer had to pay rent to landowners. In addition, land acquisition minimized massive land conversion for housing development, which was becoming increasingly unavoidable. Therefore, it has become a focus of the Banjarmasin Agriculture Office for the next 5 years to acquire land in order to minimize land conversion and reduce land conversion to a certain extent. The 7.2 hectares of land that the Agriculture Office successfully acquired for agricultural use is not just any land. Rather, it is land that has been assessed for its future productivity. Through this regional budget, farmers do not need to rent land for cultivation, and the Department can generate local revenue. By providing a Memorandum of Understanding (MoU), farmers do not need to pay rent but must increase the rice planting index to 200. In addition, the Agriculture Department is also involved in the drafting of the Regional Spatial Planning Regulation (RTRW) on land. It is hoped that the involvement of the Agriculture Department will strengthen the legal framework for issues that may arise in the future. For the city of Banjarmasin, the target is 1,321 hectares, but after comparing the data, there is no land that can be designated as rice fields in the city of Banjarmasin.

In the city of Banjarmasin, the subdistricts of South Banjarmasin and East Banjarmasin have the most extensive planted rice fields, while the area with the

highest productivity is in the village of Kelayan Timur. In 2015, 1.3 hectares of land was acquired for LP2B in Sungai Lulut Village, East Banjarmasin. In 2022, 4.8 hectares of land was acquired for KP2B in Sungai Lulut Village, East Banjarmasin, and 1.3 hectares in Tanjung Pagar Village, South Banjarmasin, for LP2B purposes.

#### 4. CONCLUSION

This study, titled "The Role of Local Governments in Protecting Production Forests in Wetlands to Support Food Security in South Kalimantan," analyzes the significant challenges and opportunities facing agriculture in the city of Banjarmasin. The findings reveal a stark reality: despite having a large number of active farmer groups and high-yield potential, a considerable portion of agricultural land has been converted for other uses. Of the 10,200 hectares of farmland, 8,300 hectares have been converted, leaving only 1,900 hectares for agricultural purposes. This large-scale land conversion poses a serious threat to food security, particularly given the specific challenges of wetland farming. The data indicates that smallholder farmers can produce impressive yields of 10-11 tons per harvest, with high-quality rice varieties like Siamese and Javanese rice being successfully cultivated. Government initiatives, such as the Planting Index (IP) program, have been partially successful in increasing productivity, with an IP of 100-200. However, the unique environmental conditions of the region—specifically, the sub-sea-level elevation make it difficult to achieve a higher planting frequency, as the planting season is limited to approximately six months.

The involvement of the Banjarmasin City Food Security Agency in drafting regional regulations, such as Banjarmasin City Regional Regulation No. 6 of 2021 concerning Spatial Planning and Regional Regulation No. 23 of 2010 on Neighborhood and Community Institutions, shows a commitment to protecting agricultural land and local farmers' rights. However, the ongoing land acquisition in various sub-districts, as seen in North Banjarmasin, suggests that existing regulations are not yet fully effective in preventing land conversion. Banjarmasin city government must strengthen and strictly enforce existing regulations, such as Regional Regulation No. 6 of 2021, to prevent further conversion of agricultural land. A clear and transparent system for land acquisition approval is needed, with a strong focus on protecting designated agricultural areas from being reclassified. The government should also establish disincentives or penalties for illegal land conversion to ensure compliance.

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