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Comparative Perspectives on Rice Field Protection Policies in Solok City and Alor Setar

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ABSTRACT

Rice fields are a vital natural resource, especially in major rice-producing countries such as Indonesia and Malaysia. However, the existence of paddy fields is increasingly threatened by high land conversion due to development pressure and population growth. This research aims to compare the rice field protection policies in Solok City, Indonesia, and Alor Setar, Malaysia, and analyze their effectiveness in preventing land conversion and maintaining the sustainability of rice production. This research uses a normative method with a comparative approach, by analyzing relevant laws, regulations, and literature. The results show that the two cities have differences in the policy approach to protecting paddy fields. Solok City has comprehensive local regulations as it uses the principle of regional autonomy, while Alor Setar relies more on national laws and the role of government agencies such as MADA. However, both cities face challenges in policy implementation, especially in terms of socialization, law enforcement, and effective monitoring. This study provides policy recommendations for the improvement of sawah protection in both cities, including increased socialization, strengthened institutional capacity, increased economic incentives for farmers, and improved data and information systems. This research is expected to contribute to efforts to protect rice fields and maintain food security in Indonesia and Malaysia.

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PRELIMINARY

Rice fields are a vital natural resource, playing a crucial role in maintaining food security, especially in countries like Indonesia and Malaysia. Rice fields not only contribute to the fulfillment of people's food needs, but also have a significant impact on the national economy. The existence of large and productive rice fields supports the stability of rice prices, helps control inflation, and ensures adequate food availability for all levels of society.

The existence of paddy fields is currently facing serious challenges due to massive land conversion into non-agricultural areas. Rapid population growth, widespread urbanization, and fast-growing industrialization have encouraged the conversion of paddy

fields into non-agricultural land.[1] This phenomenon shows that the demand for land is not only driven by population growth, but also by people's desire to improve their quality of life through various development activities.[2]

Agricultural land conversion poses a serious threat to the achievement of food security and sovereignty, as it has a direct impact on food production, the physical environment and farmers' welfare. This land conversion is generally influenced by three main factors. First, external factors such as demographic changes, urban growth and rapid economic development. Second, internal factors related to the economic conditions of landowners, where economic pressures often force farmers to sell or convert their land. Third, policy factors that include legislation and its implementation. Lack of supervision and policy misalignment often accelerate the process of land conversion. [3]

The impact of land conversion not only reduces the area of agricultural land owned by farmers, but also reduces food production that is essential for national food security. This decrease in food production can lead to price instability and inflation, which in turn affects the welfare of the wider community. In addition, poorly planned land conversion can disrupt ecosystem balance, increase the risk of natural disasters such as floods and landslides, and reduce biodiversity. Therefore, a holistic approach and integrated policies are needed to address these issues, involving all stakeholders, from farmers to policymakers, to ensure the sustainability of agriculture and the overall welfare of society.

Rice fields, as the main source of rice production, play a vital role in maintaining food security and economic stability in Indonesia and Malaysia. However, the existence of rice fields is increasingly threatened by the high rate of land conversion due to development pressure and population growth. This phenomenon triggers concerns about declining rice production, disruptions in the food supply chain, and potential food insecurity in the future.[4]

The protection and management of agricultural land is an important aspect of creating a sustainable food production system. It is not only concerned with maintaining the existence of agricultural land itself, but also involves efforts to ensure the fair and equitable distribution of this resource.[5] In this context, agricultural land becomes a very valuable and strategic resource, the use of which needs to be wisely regulated to meet growing needs without neglecting aspects of sustainability and shared prosperity.

When we talk about the priority of protecting agricultural land, it is important to realize that it is not just about seeking economic benefits. Indeed, the economy plays an important role, but the strength of the country and its ability to manage and sustain farmland must also be taken into account. This is because agricultural land is not only the source of food production, but also the foundation of a country's food sovereignty. Therefore, agricultural land protection policies must integrate these aspects as a whole, not just consider economic value alone.

The government's authority in natural resource management is constitutionally based on Article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia (UUD 1945), which states that "*the earth, water and natural resources contained therein shall be*

[1] Sopyan Resmana Adiarsa dan Abdillah Mawardi Nur, "Kunci Sukses Proses Penyusunan Kebijakan Perlindungan Lahan Pertanian Pangan Berkelanjutan di Kabupaten Karawang," *Jurnal Politikom Indonesiana* 5, no. 1 (30 Juni 2020): 134, https://doi.org/10.35706/jpi.v5i1.3738.

[2] Rossi Prabowo and Aziz Nur Bambang, "PERTUMBUHAN PENDUDUK DAN ALIH FUNGSI LAHAN PERTANIAN POPULATION GROWTH AND AGRICULTURAL LAND CONVERSION," n.d.

[3] Gunawan Wibisono and Yeni Widowaty, "Urgensi Perlindungan Lahan Pertanian Pangan Terhadap Alih Fungsi Lahan di Daerah Istimewa Yogyakarta," *KRTHA BHAYANGKARA* 17, no. 1 (April 4, 2023): 96, https://doi.org/10.31599/krtha.v17i1.1962.

[4] Nurliani dan Ida Rosada, "Rice-Field Conversion and Its Impact on Food Availability," *Agriculture and Agricultural Science Procedia* 9 (2016): 41, https://doi.org/10.1016/j.aaspro.2016.02.121.

[5] Arditya Wicaksono dan Romi Nugroho, "Problems with Indonesia's Rice Field Management Policy Dichotomy of Central - Regional Authorities:," dalam *Proceedings of the 6th International Conference on Social and Political Sciences (ICOSAPS 2020)* (6th International Conference on Social and Political Sciences (ICOSAPS 2020), Surakarta, Jawa Tengah, Indonesia: Atlantis Press, 2020): 403 https://doi.org/10.2991/assehr.k.201219.061.

under the control of the state and shall be used for the greatest prosperity of the people". This provision provides the basis for the state to control natural resources, acting as a manager, not an owner. As a manager, the state is responsible for organizing and managing natural resources for the welfare of the people.[6]

Recognizing the urgency of this issue, the governments of both countries have sought to protect rice fields through various legal instruments. Rice field protection policies are key in preventing uncontrolled land conversion and maintaining the sustainability of rice production.[7] Although there have been legal instruments that regulate the protection of paddy fields, the effectiveness of their implementation is still in question. Various challenges such as weak law enforcement, lack of coordination between institutions, and lack of community participation often hamper efforts to protect paddy fields. Therefore, an in-depth study is needed to evaluate the effectiveness of paddy field protection policies in both countries, identify factors that influence its success, and formulate relevant recommendations for improvement.

This research focuses on the comparison of paddy field protection policies in Solok City, West Suumatera Province, Indonesia, and Alor Setar, Kedah State, Malaysia. These two cities were chosen because they have different geographical, social and economic characteristics, but both face challenges in protecting paddy fields from land conversion. Through this comparative study, it is hoped that valuable lessons can be learned about best practices in paddy field protection, as well as policy recommendations that can be applied to improve the effectiveness of paddy field protection in both countries.

Comparative research on paddy field protection policies in Solok City, Indonesia, and Alor Setar, Malaysia, is important to understand how two regions in different countries with different social, economic and cultural characteristics face similar challenges in protecting paddy fields. This study is expected to provide valuable insights into the effectiveness of various policy instruments, identify factors that influence the success of paddy field protection, and provide relevant policy recommendations to maintain the sustainability of paddy fields and food security in both countries. Thus, this study can contribute to global efforts to preserve paddy fields as a key component in a sustainable food security system.

Departing from this background, several problem formulations arise that need to be studied more deeply. First, how is the comparison between paddy field protection policies in Solok City, Indonesia, and Alor Setar, Malaysia. Second, how effective is the implementation of paddy field protection policies in each region in preventing land conversion and maintaining the sustainability of rice production. This study aims to answer these questions through a comparative analysis of paddy field protection policies in Kota Solok and Alor Setar. By understanding the differences, effectiveness, and influencing factors of the policies in both regions, it is expected that valuable lessons and relevant policy recommendations can be found to strengthen paddy field protection and maintain food security in Indonesia and Malaysia.

METHOD

This study adopts a normative method with a comparative approach. The normative method involves analyzing laws and policies related to the protection of agricultural land in Solok City and Alor Setar by identifying, interpreting, and evaluating the legal norms that regulate agricultural land protection in these regions. The comparative approach involves comparing the agricultural land protection policies of Solok City and Alor Setar. This comparison examines the substance of the policies, their implementation, and their effectiveness in preventing the conversion of agricultural land. The research relies on data gathered from a review of literature including laws, regulations, policy documents, scientific

[6] Muhammad Akib, *Hukum Lingkungan, Perspektif Global Dan Nasional*, Cetakan ke-5 (Depok: Rajagrafindo Persada, 2021).

[7] Ivan Fauzani Raharja et al., "The Legal Protection of Sustainable Agricultural Land: Why Is It Urgent?," *Jambe Law Journal* 4, no. 2 (November 30, 2021): 154, https://doi.org/10.22437/jlj.4.2.151-170.

journals, research reports, and other relevant sources. Additionally, secondary data such as land conversion statistics and demographic information will be analyzed to provide a comprehensive overview of the agricultural land situation in both areas.

RESULTS AND DISCUSSION

Characteristics of Solok City and Alor Setar Region

Geographically, Solok City is located at coordinates 0°44'28 "N - 0°49'12 'N and 100°32'42 'E - 100°41'12 "E, with an area of approximately 5,764 hectares. This area is equivalent to 0.14 percent of the total area of West Sumatra Province.[8] Based on data from the Solok City Statistics Agency (BPS) in 2023, Solok City is inhabited by more than 77,842 people. The area is dominated by fertile lowlands, making it ideal for agriculture, especially rice fields.

Solok City is one of the leading rice-producing areas in West Sumatra Province. The city is nicknamed the Rice City because its rice produces high quality rice. In addition, Solok City is also known as the main supplier of rice whose distribution reaches several provinces on the island of Sumatra and even to Java.

The slogan "City of Rice, Serambi Madinah" is proudly carried by the Solok City government, reflecting the identity and excellence of this area in rice production. Since long ago, the quality of Solok rice has been recognized as one of the best. The main advantage of Solok rice lies in its durability, which makes it non-perishable thanks to its high quality. These factors make Solok rice a superior product that is not only able to fulfill local food needs, but also has great potential to compete in a wider market. Official recognition of the quality of Solok rice is further strengthened by the granting of a Geographical Indication certificate by the central government.[9] This certificate signifies that Solok rice has a distinctive quality that is recognized nationally, strengthening its reputation as one of the leading commodities from Solok City.

Alor Setar, the capital of the Malaysian state of Kedah, is known as Malaysia's "Rice Bowl" due to its important role in the country's rice production. The coordinates of Alor Setar are 6° 7' 29.2800'' N and 100° 22' 4.1556'' E with an area of approximately 42300 hectares.[10] The city has a population of over 400,000 people, making it a bustling metropolis, yet it retains its traditional charm.[11] Known for its rich cultural heritage, Alor Setar is also a significant urban center in Malaysia with a rich history, diverse geography, and strong agricultural sector.

Alor Setar is located in the Kedah-Perlis Plain, a vast flat region with very fertile alluvial soil, making it ideal for rice cultivation. This soil fertility is one of the main factors supporting high rice productivity in the region. In addition, the Kedah River and its extensive irrigation network ensure a consistent water supply for the paddy fields, allowing harvesting to take place twice a year. Alor Setar's landscape is dominated by vast expanses of rice paddies, creating breathtaking views, especially evident during the planting season.[12]

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[8] Pemerintah Kota Solok, "Tentang Kota Solok," *SOLOKKOTA.GO.ID*, https://solokkota.go.id/tampilan/tentang. Accessed at Monday, June 3, 2024 Time 12.15 WIB

[9] Kanwil Sumbar, "Bareh Solok Dan Songket Silungkang Jadi Indikasi Geografis Andalan Sumatera Barat, Potensi Apa Selanjutnya?," *Kantor Wilayah Sumatera Barat Kementerian Hukum Dan HAM Republik Indonesia* (blog), April 15, 2022, https://sumbar.kemenkumham.go.id/berita-kanwil/berita-utama/4515-bareh-solok-dan-songket-silungkang-jadi-indikasi-geografis-andalan-sumatera-barat-potensi-apa-selanjutnya. Accessed at Wenedsday, June 5, 2024 Time 11.11 WIB

[10] "Dataset Negri Kedah," *Laman Web Rasmi Pejabat Undangan Negeri Majelis Mesyuarat Kerajaan Negeri Kedah* (blog), n.d., https://mmk.kedah.gov.my/kenali-kedah/daerah#parlimen-alor-setar. Accessed at Friday, June 7, 2024 Time 20.11 WIB

[11] Berrie Beauchamp, "48 Facts About Alor Setar," *Ensiklopedia Dunia* , 1 Juni 2024, https://facts.net/world/cities/48-facts-about-alor-setar/.

[12] The Editors of Encyclopaedia Britannica, "Alor Setar," *Britannica* , 28 Mei 2024, https://www.britannica.com/place/Alor-Setar.

Kedah, with Alor Setar as its center, is the largest rice producer in Malaysia, contributing about 40% of the total national production. Rice production in Alor Setar is crucial to Malaysia's food security, ensuring a steady supply of rice for its population.[13] The city not only acts as a granary, but also as a center for agricultural research and development. Agricultural research institutes in Alor Setar continue to develop new rice varieties that are more resistant to pests and diseases, and produce higher yields. These efforts are crucial to increasing agricultural productivity and ensuring the sustainability of rice production in the future. With a favorable geographical background and a vital role in rice production, Alor Setar has not only maintained its position as a major rice producer in Malaysia but also contributed significantly to national food security.[14] The support of irrigation infrastructure and continuous research has made Alor Setar a model of success in the agricultural sector in Malaysia.

Rice fields play a vital role in the economic and cultural aspects of Alor Setar and Solok, both in terms of livelihoods, local income and cultural identity. Economically, rice fields are the main source of livelihood for the majority of the population in both cities, whether as farmers, farm laborers, traders, or workers in the rice processing industry. Rice production also makes an important contribution to regional income through taxes and levies. Culturally, rice fields are not only an integral part of local cultural identity, but also the focus of various traditional ceremonies and religious ritualentif s, which include pre-planting, harvesting and thanksgiving ceremonies. In addition, the presence of rice fields also influences local cuisine, where rice is a key ingredient in many traditional dishes, creating a sense of pride for communities with local rice varieties such as Pandan Wangi in Solok and Kedah rice in Alor Setar.

However, pressure on paddy fields is increasing in both cities. Rapid population growth increases the demand for land for housing and infrastructure, which often results in the conversion of paddy fields. In addition, economic development and industrialization are also the main drivers behind the conversion of paddy fields into industrial, commercial or residential areas. Rapid urbanization also plays a role in reducing the number of workers in the agricultural sector, leading to the abandonment of paddy fields. Rising land prices also encourage land speculation, which accelerates the process of land conversion. Therefore, the protection and wise management of paddy fields is crucial to maintain the sustainability of the local economy and culture, as well as food security and environmental sustainability.

Rice Field Protection Policy in Solok City

Indonesia implements the principle of regional autonomy based on Law No. 32/2004 on Regional Government. In its implementation, local governments have the authority to regulate and manage their own household affairs, but must still comply with applicable laws and regulations. Regional autonomy has the potential to stabilize political, economic and social conditions in Indonesia. Local regulations that regulate land use change are based on the principle of regional autonomy.[15] Regional autonomy gives local governments the power to manage their internal affairs according to local needs and potential. However, in the context of land conversion, it is important for local governments to regulate land use wisely to ensure environmental sustainability, agricultural land availability, and socioeconomic stability.

Regional Regulation of Solok City Number 13 of 2012 concerning the Regional Spatial Plan of Solok City Year 2012-2031 aims to regulate and develop the regional spatial plan of

[13] Muhammad Uzair Azizan and Khadijah Hussin, "Multiple Driving Forces Of Paddy Land Conversion: A Lesson From Malaysia's Rice Bowl State," *Jurnal Teknologi* 78, no. 1 (December 22, 2015) : 40, https://doi.org/10.11113/jt.v78.4345.

[14] R. De Koninck, "Alor Setar, the Capital of Kedah : A City to Govern Agriculture," *Archipel* 36, no. 1 (1988): 150, https://doi.org/10.3406/arch.1988.2449.

[15] Bintang Ulya Kharisma et al., "Agrarian Land Policy On Land In Indonesia Post Regional Autonomy," *Media Keadilan: Jurnal Ilmu Hukum* 11, no. 2 (October 31, 2020): 132, https://doi.org/10.31764/jmk.v11i2.3258.

Solok City within the period 2012-2031. This plan covers various aspects such as regional and infrastructure development, environmental and natural resource management, and economic and social development. In the context of land conversion, this regulation has an important role in regulating land use in a planned and sustainable manner, so as to reduce the risk of uncontrolled land conversion.

Meanwhile, Regional Regulation of Solok City No. 1 Year 2022 on Food Security aims to regulate and develop the food security system in Solok City. Food security includes various aspects such as the development of a sustainable food production system, food stock management and distribution, as well as the development of agricultural and livestock infrastructure. With this regulation, Solok City is expected to ensure balanced and sustainable food availability for its people.

These two regulations, although having different focuses, have a complementary role in maintaining the sustainability of Solok City. A well-planned spatial plan can ensure that agricultural lands are maintained and not subjected to unwanted conversions. Meanwhile, guaranteed food security can guarantee the people of Solok City sufficient and sustainable food availability. Thus, these two regulations become an important foundation in efforts to maintain the sustainability and resilience of Solok City, including protecting land from uncontrolled conversion.

In addition to local regulations, there are also several national legal instruments that regulate the protection of paddy fields at the provincial and district/city levels. The national instrument that regulates this is Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land (PLP2B Law). This law serves as the main legal umbrella in maintaining the sustainability of paddy fields in Indonesia. Some important points in this law include the establishment of Sustainable Food Agricultural Land (LP2B), where local governments are required to designate certain areas as LP2B to ensure the availability of food agricultural land. In addition, the law strictly regulates the control of land conversion, especially paddy fields which are often converted for non-agricultural purposes. Protection of Protected Paddy Fields is also regulated in this law, where paddy fields that have high strategic value must be protected from conversion. The government provides incentives for farmers who maintain their paddy fields and disincentives for those who convert them.[16]

Government Regulation No. 12/2012 on Incentives for the Protection of Sustainable Food Agricultural Land is a derivative regulation of the PL2PB law. This regulation regulates in more detail the incentives given to farmers who maintain their paddy fields. These incentives aim to encourage farmers not to convert their paddy fields for other purposes. Furthermore, Minister of Agriculture Regulation No. 15/2013 on the Determination of Sustainable Food Agricultural Land regulates the procedures for the determination of LP2B by local governments. This MOA provides guidelines for local governments in determining LP2B, so that food agricultural land can be managed sustainably.

Finally, Regulation of the Minister of Agrarian and Spatial Planning/Head of the National Land Agency No. 15/2015 on the Control of Spatial Utilization of Sustainable Food Agriculture Areas regulates the control of spatial utilization of sustainable food agriculture areas, including paddy fields. This regulation provides a framework to ensure that the utilization of agricultural land, especially paddy fields, is carried out in a sustainable manner and does not harm the interests of national food agriculture. With these various legal instruments, the government is trying to ensure that paddy fields in Indonesia are protected and managed sustainably, given their importance in maintaining national food security.

The principle of state responsibility for controlling land conversion shows that the government has an obligation to protect natural resources and the environment by considering the needs of the community. Although this principle is contained in article 2 of

[16] Indra Dwijayana and Sucihatiningsih Dian Wisika Prajanti, "Farmer's Perception of Rice Farming Insurance Program," *Efficient: Indonesian Journal of Development Economics* 4, no. 3 (December 15, 2021): 1351, https://doi.org/10.15294/efficient.v4i3.46702.

UUPPLH-2009[17] and the basis for environmental protection, its implementation is often inconsistent. The emphasis on development without considering sustainable environmental impacts shows the government's lack of commitment to protecting natural resources.

All land conversion activities that occurred in Solok City actually never had a permit. However, despite this clear violation, sanctions were never applied to those who carried out the land conversion. The absence of strict law enforcement from the government causes land conversion to continue unhindered, because the perpetrators do not feel afraid or deterred.

This shows that existing regulations are only text on paper without real implementation in the field. The inability or unwillingness of the government to execute the regulations that have been set makes paddy fields in Solok City constantly threatened by conversion to other uses. As a result, the area of paddy fields is decreasing significantly, which in turn could threaten the region's food security.Therefore, effective implementation of existing regulations is urgently needed. The government must show a strong commitment to enforce the law by applying strict sanctions against violators, so that regulations do not only become written rules, but are also actually implemented properly in the field. With firm and consistent law enforcement, it is expected that paddy fields in Solok City can be protected from harmful land conversion. Good implementation of regulations will create a deterrent effect for violators, so that the preservation of paddy fields can be maintained for future generations.

Guidelines for the preparation of spatial plans in the city area and control of space utilization, as well as zoning regulations and incentives/sanctions in land administration, are important steps that must be implemented by the government to control land conversion. By applying the principle of state responsibility, it is expected that the management of natural resources and the environment can be carried out properly and sustainably.

The laws and regulations governing the protection of rice fields in Solok City, although comprehensively drafted, still face various problems in its implementation. One of the main problems is the lack of socialization and understanding among the community, especially farmers, regarding the importance of protecting paddy fields and the negative impacts of land conversion. This lack of understanding hampers community participation in paddy field protection efforts and increases the risk of violations of existing regulations.

In addition, limited human resources and budget are constraints in monitoring and law enforcement. The absence of supervisory officers and the lack of budget for monitoring and evaluation activities make it difficult for the government to ensure compliance with regulations. The situation is exacerbated by development pressures due to population growth and rapid development of the non-agricultural sector, which creates high demand for land for housing, industry and infrastructure. As a result, the importance of protecting paddy fields is often marginalized and encourages illegal land conversion.

On the other hand, farmers who try to maintain their paddy fields often do not receive adequate economic incentives, which reduces their motivation to maintain their paddy fields. This results in many farmers being tempted to convert their land into non-agricultural sectors that are considered more profitable. This problem is also complicated by the overlapping authority between the central and local governments in the management of paddy fields, which causes uncertainty in policy implementation and hampers coordination between relevant institutions.

The availability of data and information on paddy fields, such as area, productivity, and land conversion rates, is still very limited. This limitation makes it difficult for the government to conduct effective monitoring, evaluation, and planning of paddy field protection policies. To overcome these problems and improve the effectiveness of paddy field protection policies in Solok City, strategic efforts are needed.

Some steps that can be taken include increasing socialization and education to the community about the importance of protecting paddy fields by involving the role of

[17] See Article 2 Law of the Republic of Indonesia Number 32 of 2009 Concerning Environmental Protection and Managemen.

community leaders, especially traditional and religious leaders (Ninikmamak, Bundo Kanduang, and Alim Ulama, agricultural extension workers), strengthening institutional capacity through increasing the number and quality of supervisory officers and adequate budget allocations, increasing coordination between institutions, especially traditional institutions (KAN, LKAM and Bundo Kanduang)[18], provide decent economic incentives for farmers who maintain paddy fields, and improve data and information systems on paddy fields to support better monitoring, evaluation, and policy planning.[19] As the party mandated to control land in accordance with the provisions in the 1945 Constitution Article 33 Paragraph (3), the government must play an active role in preventing the conversion of paddy fields by implementing strict regulations and prioritizing prohibitions over appeals.[20]

Rice Field Protection Policy in Alor Setar

Malaysia adheres to a federal system of government, which prioritizes the role of the central government in policy setting. Therefore, only regulations from the federal and state governments apply. A city like Alor Setar does not have specific local regulations governing land use change control, like Solok City.

The main regulations governing this are the National Land Code 1965, the Town and Country Planning Act 1976 (Act 172), and the Local Government Act 1976 (Act 171). The Act 171 and Act 172 authorize local governments as the sole planning authority in their areas. They are authorized to plan development and control land use and buildings. Although there are no specific regulations governing paddy fields, within the framework of national regulations, local governments have the authority to control and protect paddy fields from conversion in Alor Setar.

The National Land Code 1965 categorizes agricultural land, including paddy fields, and sets out certain regulations and restrictions to protect the integrity of agricultural land. The Town and Country Planning Act 1976 (Act 172) provides guidelines and restrictions for land development, including the conversion of agricultural land to other uses, with the aim of balancing the needs of economic development with the protection of agricultural land and the environment. The Local Government Act 1976 (Act 171) stipulates that local governments have full authority in planning and controlling land use in their areas. Thus, although there is no specific local regulation as in Solok, Alor Setar remains under strong legal protection through national legislation and local authority to control and protect paddy fields from unwanted conversion.

The National Land Code in detail regulates various aspects related to the protection of paddy fields, including land use categories, land ownership and rights, implied conditions, guidelines and restrictions on land development, powers of state authorities, and handling of abandoned land. The law classifies land into three main categories, with paddy fields falling under the agricultural category, which is subject to specific regulations and restrictions. Secondly, in terms of land ownership and rights, the National Land Code describes different types of land titles, including property rights and lease rights, which are usually granted for a certain period of time to ensure the continued use of land for agricultural purposes. Thirdly, the National Land Code also contains an implied provision prohibiting the construction of buildings on agricultural land, except those strictly necessary for agricultural purposes, with the aim of maintaining the integrity of the land.

The National Land Code provides directions and restrictions regarding land development, including the conversion of agricultural land to other uses, with the intention of achieving a balance between economic development and the preservation of agricultural

[18] *Ibid*.

[19] Lucius Andik Rahmanto, Dedy Muharman, and Novellita Sicillia Anggraini, "Pengendalian Alih Fungsi Lahan Pertanian Menjadi Lahan Non Pertanian Berdasarkan Undang-Undang Nomor 41 Tahun 2009," *AL-MANHAJ: Jurnal Hukum dan Pranata Sosial Islam* 4, no. 2 (December 14, 2022): 548, https://doi.org/10.37680/almanhaj.v4i2.1908.

[20] *Ibid*.

land and the environment. State authorities, such as the Ministry of Agriculture and Farming Industries, are responsible for the supervision and development of agricultural land, including paddy fields, to ensure that land utilization is fit for purpose and sustainable. Finally, the Natioanal Land Code regulates the issue of abandoned land, including paddy fields that are no longer utilized for agriculture, by providing a framework for the government to take over and transfer such land to more productive uses. As such, Malaysia's National Land Act of 1965 provides a comprehensive framework for the protection and management of paddy fields, which are a crucial agricultural resource for the country's well-being and food security, as well as for generations to come.

The Town and Country Planning Act 1976 (Act 172) and the Local Government Act 1976 (Act 171)) are two complementary pieces of legislation, aimed at regulating land use and development in Malaysia. Both laws are highly relevant in the context of protecting the conversion of paddy fields in Alor Setar.

Act 172 emphasizes the importance of comprehensive land use planning to ensure efficient and effective land use. Local governments are required to prepare and implement land use plans that cover various uses such as agriculture, residential, commercial, and industrial. In addition, the law provides special protection for agricultural land by prohibiting the conversion of such land to non-agricultural uses without approval from the authorities. This is particularly important for the rice fields in Alor Setar which are the backbone of food security and the local economy. The Act is also mindful of the environmental impacts of development, requiring assessment and mitigation of such impacts to safeguard sensitive ecosystems such as paddy fields.

Act 171 gives local governments the authority to regulate land use and development within their jurisdiction. This includes the right to approve or reject land conversion proposals, including rice fields in Alor Setar. Local governments are also authorized to designate certain areas through zoning regulations, which can help protect paddy fields by restricting non-agricultural activities in those areas. In addition, the law encourages public participation in planning and decision-making processes through public hearings and consultations, so that the needs and concerns of local communities can be taken into account.

Lembaga Kemajuan Pertanian Muda (MADA), is a Malaysian government agency established in 1970 with the main objective to design and implement agricultural development programs as well as livelihood improvement programs for 63,000 farming families in Kawasan Muda.[21] One of MADA's important roles is to protect paddy fields from conversion into non-agricultural land, such as housing or industrial development. This protection is crucial to ensure the country's food security and stable rice supply. MADA does this through land use planning in collaboration with local governments to prioritize the preservation of agricultural land. It also implements zoning regulations that restrict the conversion of agricultural land for other purposes and provides incentives for farmers who retain their land for rice cultivation, such as subsidies and technical assistance. Conversely, disincentives such as higher taxes or penalties are imposed on those who convert their land. MADA also monitors land use change and enforces laws against illegal conversion of farmland. With these various measures, MADA plays a vital role in maintaining Malaysia's food security and ensuring the sustainability of rice production in the country, while improving farmers' welfare and sustainable development in the Muda region.

In Malaysia, technology has been an important factor in changing the face of the agriculture sector, especially in addressing the challenges of land conversion. In 2019, the country reached a milestone with the development of e-PADI, an IoT-based system that aims to monitor rice productivity. Using microcontrollers and sensor nodes, the system can effectively track the development of rice plants. Located in Kedah, a state known for its

[21] "Lembaga Kemajuan Pertanian Muda," *Lembaga Kemajuan Pertanian Muda Kementerian Pertanian Dan Keterjaminan Makanan* (blog), n.d., https://www.mada.gov.my/?q=2D00. Accessed at Monday, June 10, 2024 Time 11.41 WIB

agricultural industry, where rice cultivation is a significant contributor to the local economy. With the adoption of modern technology such as 5G, rice farming in Malaysia has great potential to be revolutionized. These technologies can not only increase rice production, but also improve resource management and decision-making in the agricultural sector. Thus, technologies such as e-PADI are not only relevant in improving production efficiency, but can also help in protecting agricultural land from conversion, ensuring the continuity of the agricultural industry that is vital to Malaysia's economy. [22]

Alor Setar faces major challenges in protecting rice fields from land conversion despite the existence of various regulations. The main problem lies in the lack of effective monitoring and enforcement mechanisms to ensure compliance with the regulations. MCA Kedah Lead, Tan Chee Hiong, emphasized the importance of strict monitoring and enforcement to manage issues related to rice production, especially at the production level. To address these challenges, it is crucial to establish effective monitoring and enforcement mechanisms. This includes strict supervision of land use activities and strict enforcement actions against regulatory violations.[23] In addition, involving the public in the decision-making process is also very important. Public participation can ensure that the interests and concerns of the community are taken into account, resulting in policies that better suit local needs.

Land use planning and zoning regulations also need to be reviewed and updated regularly. This will help to better protect paddy fields and ensure sustainable agricultural practices. These updates should take into account environmental changes and socio-economic dynamics to maintain policy relevance and effectiveness.

CLOSING

This research provides a comprehensive understanding of paddy field protection policies in Solok City, Indonesia, and Alor Setar, Malaysia. The study reveals that the two cities have similarities in facing the challenge of paddy field conversion, but the policy approach and implementation are different. In Kota Solok, comprehensive local regulations and community participation are strengths, while in Alor Setar, national laws and government agencies such as MADA play an important role. However, both cities face challenges in law enforcement and effective monitoring.

Based on these findings, several policy recommendations were put forward, including improved community socialization and education, strengthened institutional capacity, increased economic incentives for farmers, and improved data and information systems on paddy fields. This study not only provides valuable insights for the protection of paddy fields in Solok City and Alor Setar, but also contributes to the broader development of natural resource protection policies in Indonesia and Malaysia. The study also highlights the importance of a comparative approach in understanding policy effectiveness and formulating recommendations that are relevant to the local context.

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