

LEGAL ANALYSIS OF THE IMPLEMENTATION OF ELECTRONIC CERTIFICATES IN LAND ADMINISTRATION TO SUPPORT SMART LAND GOVERNANCE (RESEARCH STUDY AT THE TANJUNGPINANG CITY LAND OFFICE)

Sella Natasha^{1*}, Laily Washliati², Maniah³

Master of Notary, Batam University, Batam, Indonesia^{1,2,3}

E-mail: 64123004@univbatam.ac.id

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Abstract

The digitization of land administration through the implementation of electronic certificates is part of the government's efforts to realize smart land governance in Indonesia. The city of Tanjungpinang was chosen as the location for this study because it is one of the regions that has implemented the electronic certificate program in accordance with Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities. However, implementation in the field still faces a number of obstacles, both in terms of regulations, technicalities, and the readiness of human resources and service users. This study aims to analyze: (1) legal regulations regarding electronic certificates in land administration in Tanjungpinang City, (2) the implementation of electronic certificates in land administration practices, and (3) the contribution of the application of electronic certificates to increasing transparency, efficiency, and accountability of land governance based on smart land governance. The research method used is a descriptive qualitative approach with data collection techniques through literature study, in-depth interviews, observation, and documentation. The research subjects include officials and employees of the Tanjungpinang City Land Office, notary staff, and users of electronic land services. The analysis was conducted by comparing the regulatory framework with the reality of implementation in the field. The results show that although the legal basis for the implementation of electronic certificates is clear, its implementation still faces significant challenges, including limited technological infrastructure, low digital literacy among the public, lack of inter-agency integration, and dualism between manual and electronic procedures. Nevertheless, electronic certificates are considered to have great potential in improving the transparency, efficiency, and accountability of land governance. In order to achieve the goal of smart land governance, it is necessary to strengthen operational regulations, increase human resource capacity, develop equitable digital infrastructure, and conduct intensive public outreach.

Keywords: *Electronic certificates, Land administration, Smart land governance*

INTRODUCTION

Land administration plays a strategic role in national development, particularly in supporting economic growth, ensuring legal certainty, and managing land resources sustainably. In this context, effective and efficient land governance is key. However, the challenges faced by the land sector in Indonesia are very complex, including overlapping land ownership, agrarian conflicts, convoluted bureaucratic processes, and a lack of transparency in the management of land data and information. To overcome these various issues, a transformation of the land administration system is needed through the use of more innovative information and communication technology (ICT). In line with advances in digital technology, the Indonesian government has initiated various programs to digitize public services, including in the land sector. One of the strategic steps taken is the implementation of electronic certificates to replace analog or physical certificates. The implementation of electronic certificates aims to improve efficiency, security, and transparency in land administration, as well as support smart land governance (Agil, 2023). The city of Tanjungpinang was chosen as the location for the study because it is one of the areas that has implemented the nationally launched electronic certificate program. Although it is a small island city in the Riau Islands Province, Tanjungpinang is still undergoing digital transformation in the field of land administration as part of its efforts to achieve smart land governance. In general, the implementation of electronic certificates at the Tanjungpinang Land Office is not much different from other land offices in Indonesia. However, this system is still

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relatively new and not yet fully known to the public, so it has the potential to cause various obstacles, especially if there are technical disruptions to the system that is directly connected to the central server. This situation could have an impact on the service process and agrarian legal certainty in this region. Therefore, this study aims to identify the advantages, disadvantages, and potential risks of implementing electronic certificates in Tanjungpinang, particularly in relation to infrastructure readiness, public understanding, and stakeholder responses to this digital transformation, which have not been widely discussed in previous studies. The concept of Smart Land Governance (SLG) is the main conceptual framework for understanding the meaning and orientation of land certificate digitization policies. SLG promotes the principles of adaptive, transparent, participatory, and real-time data-based land governance. Through the application of information and communication technology (ICT), the government is expected to manage land resources more effectively and efficiently (Zulkarnain, 2023). However, strengthening these principles requires more than just digitizing documents; it also requires reforming institutional structures, decision-making processes, and community involvement. Therefore, it is important to review the extent to which the implementation of electronic certificates in Tanjungpinang has contributed to the creation of smart land governance. Is this system merely a substitute for physical documents, or has it become a managerial tool that facilitates more sustainable spatial planning and supervision? By using SLG as a perspective, this study attempts to gain a deeper understanding of the dynamics and local realities faced by the Tanjungpinang City Land Office.

The main objective of this study is to gain an in-depth understanding of the process of implementing electronic certificates in land administration at the Tanjungpinang City Land Office and how this supports the realization of Smart Land Governance. This study also aims to reveal the experiences of employees, structural officials, and the community in interacting with the new system. Through this study, it is hoped that a more contextual understanding of the challenges, strategies, and opportunities that arise during the digitization process will emerge. The focus of the research is not only on the system's output but also on the accompanying social and institutional dynamics. The results of this study are expected to provide field data-based recommendations that can be used in policy formulation and improvement of land digitization implementation, particularly in Tanjungpinang and other regions that will follow similar programs. The implementation of electronic certificates is in line with the concept of smart land governance, which integrates digital technology to improve transparency, accountability, and efficiency in land management. Through this approach, the land administration system can be managed in a more integrated manner, from land registration and geospatial mapping to the resolution of agrarian disputes. Smart land governance not only focuses on data management, but also involves active community participation and cross-sector collaboration to create an inclusive and sustainable land ecosystem. In practice, the successful implementation of electronic certificates also depends heavily on the availability of adequate infrastructure. This infrastructure includes the availability of technological devices, a stable internet network, and software support that can integrate data efficiently. In addition, an inclusive approach is needed to ensure that all parties, including indigenous peoples and marginalized communities, can access these services without barriers. Furthermore, smart land governance with the support of electronic certificates must also be able to respond to global challenges related to climate change and rapid urbanization.

The digitization of land data can support better spatial planning, promote environmental sustainability, and reduce conflicts related to land use. Therefore, collaboration between the government, academics, the private sector, and international organizations is crucial to achieving these goals. Despite its limitations, the electronic certificate program is a forward-looking policy that is expected to improve Indonesia's registered property index in the World Bank's Ease of Doing Business ranking. The program also aims to reduce the administrative burden on the public, with the potential to cut physical visits to land offices by up to 80%. As the country continues to experience frequent natural disasters such as floods, landslides, and earthquakes, the digitization of land records is increasingly seen as a strategic necessity for disaster resilience and modern land governance (Mujiburohman, 2021).

LITERATURE REVIEW

Basic Concepts of Land Administration

Land administration is the responsibility of the government in implementing land policies, which are usually carried out by designated agencies such as the National Land Agency (BPN). The legal basis for land administration in Indonesia is rooted in the 1945 Constitution, specifically Chapter XIV on Social Welfare, Article 33 paragraph (3), which states: "The land, waters and natural resources contained therein shall be controlled by the state and used for the greatest prosperity of the people." The explanation of Article 33 paragraph (3) further emphasizes that: "The land, water, and natural resources contained therein are sources of prosperity for the people, therefore they are controlled by the state and used for the greatest prosperity of the people." This constitutional mandate places land

management not only as a technical and legal process, but also as an instrument to achieve social welfare and equity in land ownership and utilization.

Basic Concepts of the Functions and Objectives of Land Administration in the Context of Public Services

In the context of public services, land administration plays an important role in ensuring legal certainty, efficiency, and equitable access in the land management process. Land administration functions as an instrument of the state to guarantee legal status and protection of land rights through a systematic registration and certification system. By providing clear proof of ownership and secure land tenure, land administration minimizes the potential for land disputes and supports the rule of law (Ardani et al., 2022). In addition, land administration aims to improve public access to land services, ensuring that all members of society, regardless of economic or social background, can benefit from fair and transparent procedures in land registration and transactions. Beyond its technical functions, land administration also plays a strategic role in supporting sustainable development and good governance. With secure land tenure and reliable land records, land administration facilitates responsible land use, environmental management, and infrastructure planning.

Basic Concept of the Role of BPN (National Land Agency)

The National Land Agency (BPN) is a state institution with strategic duties and responsibilities in the administration of government affairs in the field of land. Based on Presidential Regulation of the Republic of Indonesia Number 10 of 2006, specifically in Article 3 letter d, BPN is mandated to carry out guidance and general administrative services in the field of land. This function is fundamental in creating effective and efficient land administration order and ensuring legal certainty of land rights. Land administration order is a key prerequisite for realizing legal certainty over land as mandated by the Basic Agrarian Law (UUPA) (Boedi, 2018). As the technical implementer of the UUPA, the BPN has the responsibility to ensure that every plot of land in Indonesia is properly registered, has an accurate map, and is equipped with a certificate as proof of rights. From an agrarian law perspective, emphasis is placed on the importance of legal certainty of land rights, which can be achieved through a modern, transparent, and information technology-based land registration system (Irawan, 2022). The use of computerized systems, as implemented by the East Lombok BPN, reflects the implementation of these principles, whereby all land parcel data can be quickly verified through a central server and accessed again if necessary. In addition to its technical role, the BPN also has an educational function for the community. Chomzah (2002) explains that public awareness of the procedural aspects of land registration is key to preventing agrarian conflicts, such as double certificates.

METHOD

In this study, the author uses a descriptive qualitative approach, as it is relevant in social research, especially in understanding the context, experiences, and perceptions of the research subjects (Sugiyono, 2021). The descriptive nature is used to describe the actual conditions regarding the implementation of electronic certificates in land administration, as well as to assess the extent to which this policy supports smart land governance at the Tanjungpinang City Land Office. The approach used in this study employs various perspectives to gain a comprehensive understanding of the implementation of electronic certificates in land administration. This approach was chosen so that the analysis is not limited to normative aspects alone, but also covers conceptual, historical, comparative, case, and data source aspects. Thus, this study can provide a comprehensive overview of the issues under investigation while offering applicable recommendations.

RESULTS AND DISCUSSION

Legal Arrangements for the Implementation of Electronic Certificates in Land Administration to Support Smart Land Governance

In the modernization of land administration, the implementation of electronic certificates is a strategic step in line with the national digital transformation agenda. This policy is not only intended to replace the role of physical certificates that have been used to prove land rights, but also to strengthen legal certainty through the use of reliable, secure, and integrated information technology. As a new legal instrument in public services, electronic certificates require a regulatory framework that is clear, comprehensive, and in line with applicable laws and regulations. Understanding this legal basis is important so that the implementation of electronic certificates not only fulfills technical aspects but also has strong legal legitimacy in every stage of its implementation. The implementation of electronic certificates in land administration in Indonesia is part of the digital transformation that is being promoted

by the government in order to realize modern, efficient, and transparent governance. In the context of land administration, electronic certificates are a form of legal and technological innovation that aims to replace physical documents, which are prone to forgery, damage, or loss. To achieve this, a strong and integrated legal basis is needed to guarantee the legality and provide legal certainty for all processes and outputs of this digital system. Furthermore, the strengthening of the legality of electronic certificates is also supported by Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE Law), as amended by Law Number 19 of 2016. This regulation emphasizes that electronic documents and electronic signatures have legal force and legal effect, as long as they comply with the provisions of the legislation. In this case, land certificates in electronic form can be considered valid as legal evidence if they are signed electronically and executed in a system that meets the principles of security, confidentiality, and data integrity. This means that this regulation provides a legal umbrella for the digitization of land documents and ensures that administrative processes carried out digitally still have the same evidentiary value as conventional processes. The technical challenges faced in implementing electronic certificates in Tanjungpinang City can be outlined in several points below based on the results of interviews with respondents. These issues cover various aspects, ranging from the readiness of technological infrastructure to human resource capacity, as well as crucial data security issues in supporting the successful digitization of land services.

One of the main challenges in implementing electronic certificates in Tanjungpinang City lies in the aspect of public understanding and legal literacy. The shift from physical documents to electronic documents is not merely a technical transformation, but a paradigm shift in the land administration system. Therefore, the success of this transformation is largely determined by the extent to which the community understands, accepts, and is able to access this new system independently and with legal awareness. In this case, legal and digital literacy are two fundamental prerequisites that cannot be ignored. This gap in understanding can be exacerbated if legal socialization and education are not carried out comprehensively. This indicates that the digital transition process needs to be accompanied by active and continuous legal and digital education, not only from the government but also from key actors such as notaries and PPATs. To bridge this gap, a more effective public communication strategy needs to be implemented. Socialization should not be limited to a one-way approach, such as banners, brochures, or informative social media posts. Instead, a participatory approach should be developed, such as group discussions, hands-on training, simulations of electronic service use, and assistance for citizens in the certificate digitization process. The land office also needs to collaborate with civil society organizations, academics, and traditional leaders.

Implementation of Electronic Certificates in Land Administration to Support Smart Land Governance

Evaluating the implementation of electronic certificates in the field is a crucial step in assessing the extent to which policies formulated within the regulatory framework can be realized in practice. Although Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities provides a clear and structured legal basis, its implementation often faces technical, administrative, and social obstacles that result in a gap between the written rules and practices in the field. This analysis is important not only to identify these discrepancies, but also to understand the factors that cause them, whether they stem from institutional aspects, infrastructure, or human resource readiness. Thus, the discussion in this section will comprehensively describe the differences between the ideal objectives of the electronic certificate policy and the actual conditions of its implementation, while also providing an overview of the challenges that need to be overcome in order for the digital-based land administration system to run effectively and sustainably.

Normatively, Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities has provided a clear legal framework regarding the definition, procedures, and legal force of electronic certificates. This policy affirms that electronic documents have the same legal force as physical documents, with the support of security technologies such as digital signatures and data encryption. Thus, the main objective of this regulation is to eliminate conventional bureaucratic barriers, prevent land mafia practices, and support the development of smart land governance nationwide. However, implementation at the Tanjungpinang City Land Office shows that not all provisions in the policy can be optimally implemented. Interviews with respondent AN, a notary staff member, indicate that the digitization process has not been fully integrated into the institution's work system. Electronic land rights applications have indeed begun, but the process is still mixed with manual procedures. This indicates a dualistic system that hinders service efficiency. The lack of integration between the notary, PPAT, and BPN systems causes delays in data confirmation and document validation. One important component in the successful implementation of public policy is adequate socialization. In the context of electronic certificates, community involvement and understanding are key to ensuring that this policy is accepted and utilized optimally. However, research shows that efforts to socialize and

expand the reach of electronic certificate services in Tanjungpinang City are still not running optimally. In addition, low digital literacy and limited socialization mean that some members of the community do not yet understand the concept, benefits, and legality of electronic certificates. The limited service coverage and uneven access to information technology exacerbate this condition, so that the implementation of digital systems risks becoming merely a symbol without any real impact. Therefore, successful implementation requires not only comprehensive regulations, but also adequate infrastructure support, intensive training for officials, effective public communication strategies, and gradual and equitable service expansion. With synergy between policy, institutional readiness, and community participation, electronic certificates can be realized as an efficient, fair, and sustainable instrument of land modernization.

Obstacles and Solutions to the Implementation of Electronic Certificates in Land Administration to Support Smart Land Governance

Barriers to the Implementation of Electronic Certificates, the implementation of electronic certificates as an instrument of land administration modernization is essentially aimed at creating a more transparent, efficient, and accountable land management system. However, based on interviews with informants, it is clear that this effort faces various obstacles, both technical and institutional, as well as resistance from the community. These obstacles are major challenges that must be addressed in order for the transformation to smart land governance to proceed optimally. Solutions to Overcome Obstacles, the obstacles that arise in the implementation of electronic certificates are essentially a logical consequence of the digital transformation process in public bureaucracy. The shift from a manual system to an electronic system requires adjustments in various aspects, both technical and non-technical. Therefore, the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency and the Land Office at the regional level have adopted a number of comprehensive strategies to overcome these obstacles. These solutions are designed not only to address short-term obstacles but also to ensure the sustainability of the electronic certificate program in the long term. Implementation of Electronic Certificates in Supporting Smart Land Governance, The application of electronic certificates is expected to improve transparency, efficiency, and accountability in land management. However, in practice, various challenges arise, both in terms of regulations, infrastructure readiness, and human resources. Therefore, it is important to discuss the obstacles and solutions to the implementation of electronic certificates in order to provide a clear picture of the steps that must be taken to support more modern and sustainable land governance.

CONCLUSION

Legal regulations regarding electronic certificates in land administration in Tanjungpinang City have a strong normative basis, namely through Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities. This regulation provides a clear legal basis for the implementation of digital land registration. However, in practice, there are still challenges in the form of a lack of understanding among technical implementers, uneven technological infrastructure readiness, and low public literacy regarding electronic systems. Therefore, the success of the regulation is highly dependent on improvements to the support system, increased technical training, and ongoing public outreach. The implementation of electronic certificates in Tanjungpinang City is still in a transitional phase, with incomplete adoption and a mixture of digital and manual processes. Technical obstacles such as system disruptions, limited cross-agency integration, and a lack of public understanding are the main hindering factors. In addition, the high preference shows that administrative cultural change has not been fully achieved. Efforts to increase human resource capacity, improve technological systems, and promote inter-agency collaboration are key to optimizing the implementation of this system.

The implementation of electronic certificates in land administration to support smart land governance still faces a number of obstacles, both in terms of regulations, technological infrastructure, and the readiness of human resources and the public. These obstacles have implications for the limited effectiveness of the program in realizing transparency, efficiency, and accountability in land management. However, various strategic solutions have been attempted, such as strengthening regulations, improving the quality of digital infrastructure, and conducting more massive socialization and training for officials and the community. With these efforts, it is hoped that the implementation of electronic certificates can run more optimally so that it can support modern, transparent, and competitive land governance.

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