

Legal certainty of land rights through electronic registration and electronic certificates in Sialang Buah Village, Serdang Bedagai Regency

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ABSTRACT

This study examines the legal certainty of land rights through the implementation of electronic land registration and digital land certificates in Sialang Buah Village, Serdang Bedagai Regency. The digital transformation mandated by the Regulation of the Minister of Agrarian Affairs/National Land Agency No. 3 of 2023 marks a shift from conventional physical documents to integrated electronic land administration. Using a normative-empirical legal method supported by statute and conceptual approaches, this study analyzes the validity and legal certainty of electronic certificates and evaluates the readiness, acceptance, and socio-legal implications for rural communities. Data were collected through legal document analysis, field observations, and interviews with landowners, village officials, and the Land Office. The findings reveal that electronic certificates enhance authenticity, transparency, and administrative efficiency while strengthening public trust in the governance of land. However, challenges remain concerning digital literacy, infrastructure limitations, and the inclusion of vulnerable groups, which may trigger new forms of legal uncertainty in the future. This study concludes that electronic land registration effectively promotes legal certainty when accompanied by adequate public education, secure digital systems and inclusive implementation strategies. The results contribute to agrarian law development and provide policy insights for strengthening the equitable digital transformation of land governance.

Keywords: Digital Land Registration, Electronic Certificate, Land Rights, Legal Certainty, Rural Legal Inclusion.

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1. INTRODUCTION

Land is vital in the social, economic, and legal life of Indonesia. Legal certainty over land rights not only guarantees the protection of individual property but also supports social stability and encourages national economic development. From the perspective of agrarian law, legal certainty is the main pillar, as affirmed in Article 19 of Law Number 5 of 1960 concerning the Basic Regulation on Agrarian Principles (UUPA), which mandates the implementation of land registration to ensure legal certainty for rights holders.

The existence of proof of land ownership, such as the Certificate of Ownership (SHM), is a tangible form of legal protection from the state to the people (Supriadi, 2022). SHM guarantees legal certainty that can be relied upon both juridically and socially. Harsono emphasized that land certificates have perfect evidentiary power because they are issued by an official institution, namely the National Land Agency (BPN).

Modernisasi sistem pertanahan menjadi kebutuhan mendesak seiring perkembangan information technology. The government then initiated digital transformation through the implementation of electronic land registration and the issuance of electronic certificates, as stipulated in Minister of ATR/BPN Regulation No. 3 of 2023. This regulation marks a paradigm shift in land administration from a manual system based on physical documents to an electronic system oriented towards speed, accuracy, and transparency.

Land digitization is believed to reduce potential disputes due to data duplication, certificate forgery, and loss of physical documents. In addition, electronic systems facilitate real-time authentication, data integration on national networks, and strengthen the principles of public traceability and bureaucratic accountability in the health sector. This is in line with the concept of good governance in the agrarian sector, especially in terms of transparency, efficiency, and improvement of public services. Digital certificates also strengthen the legal legitimacy of ownership because every electronic document has a valid digital signature and is recognized by laws and regulations. The concept of efficiency and ease of access through the "Touch My Land" application is clear evidence that land digitalization is directed to bring public services closer to the community. However, the implementation of this system requires the readiness of technological infrastructure and competent human resources in their respective fields (Harsono, 2021).

However, the implementation of this program is not without challenges. Rural communities, such as Sialang Buah Village, face obstacles in the form of limited digital access, technological literacy, and understanding of land rights based on electronic systems. An inclusive digital transformation has the potential to create a digital justice gap and new forms of legal uncertainty, especially for vulnerable groups.

This research focuses on the analysis of the legal certainty of land rights through the implementation of electronic land registration and electronic certificates in Sialang Buah Village, Serdang Bedagai Regency. This study was conducted to determine the extent to which policy implementation is in line with the juridical basis and principle of legal certainty regulated in national agrarian regulations (Indianto, 2024). This study also examines the level of social readiness of village communities and the effectiveness of electronic systems in increasing public legal trust in land administration. The study results are expected to contribute to strengthening technology-based land policies at the local and national levels. The success of land digitalization is not only measured from the technical aspect, but also from the extent to which people feel that their rights are protected through the new system. This study also provides an overview of the potential for strengthening legal and digital literacy of the community in supporting the development of agrarian law in order to be able to realize justice and sustainability.

2. METHOD

This study employs a normative empirical method to examine positive legal norms related to electronic land registration while observing their implementation in rural communities. The normative approach is used through the Statute Approach to examine relevant regulations, including the 1960 Basic

Agrarian Law (UUPA), Government Regulation No. 24/1997, Government Regulation No. 18/2021, the Electronic Information and Transactions Law (ITE Law), the PDP Law, and ATR/BPN Regulation No. 3/2023, as well as the Conceptual Approach, which refers to the legal doctrine of legal certainty (Hans Kelsen, Gustav PDP, as well as Permen ATR/BPN No. 3 of 2023 and a Conceptual Approach (Conceptual Approach), referring to legal doctrines regarding legal certainty (Hans Kelsen, Gustav Radbruch, Utrecht) and the principles of electronic-based public services. PP. No. 18/2021, ITE Law, PDP Law, and Permen ATR/BPN No. 3 of 2023, as well as the conceptual approach, referring to the legal doctrine of legal certainty (Hans Kelsen, Gustav Radbruch, Utrecht) and the principles of electronic-based public services.

This legal research acts as a forum to develop legal science in line with the advancement of information technology in the legal field (Setiawan, 2024). This study aims to bridge the gap between legal theory and practice that takes place in society so that the two run in harmony and support each other. Through this research, it is hoped that the law will not only become a normative concept, but also be present as a tool that is able to provide welfare and realize justice for all levels of society.

An empirical approach is carried out to understand how these norms are applied at the village level. Data collection techniques included interviews with the community, village officials, and officials of the Serdang Bedagai Land Office; observation of program implementation; documentation of socialization activities; and field information collection.

Data analysis is carried out qualitatively through doctrinal analysis of legal provisions, as well as field triangulation to assess the consistency of implementation with the principles of legal certainty, justice, and utility. Data validity is strengthened through source triangulation between normative data, interviews, and administrative documents. The research was conducted in Sialang Buah Village, Serdang Bedagai Regency, with field implementation on September 20, 2025.

3. RESULT AND DISCUSSION

Land rights certificates are the strongest and most comprehensive type of land rights recognized by Indonesian agrarian law. Every holder of a Certificate of Ownership (hereinafter referred to as SHM) has full rights to the use, management, and transfer of land rights. SHM functions as a juridically and publicly recognized means of proof; its presence facilitates transactions, rights protection, and law enforcement. Registration publicity is important so that third parties can find out the status of the land and the risk of overlapping rights can be reduced (Sembiring, 2016).

This theory asserts that formal documents that can be publicly verified are the foundation of certainty in agrarian law. 4 The UUPA emphasizes that the use of land cannot be separated from the use of other elements attached to it, whether on, below, or above the surface. Thus, land rights not only give the right holder the authority to use a certain part of the earth's surface, but also include the use of the earth's body underneath, water, and air space on it, as long as it is still directly related to the use of the land.

The subject of law in the enforcement of legal certainty plays a very important role and cannot be separated from the basic concept of law. The existence of legal subjects is the core of the meaning and application of law in social life. Legal certainty is a consequence of the existence of rules that govern every legal action and event, including the recognition, fulfillment, or loss of a right. Thus, the law functions as a guarantee for every subject of law to obtain and maintain their rights fairly in accordance with the provisions that have been set.

Legal certainty in the issuance of land rights certificates is regulated in Article 19 of the UUPA, namely: (a) to ensure legal certainty by the government, land registration is held throughout the territory of the Republic of Indonesia in accordance with the provisions regulated by Government Regulations; (b) the registration in paragraph 1 of this article includes measurement of land mapping and bookkeeping, registration of land rights and transfer of such rights, and provision of Proof of Rights Certificates, which are valid as strong evidence; (c) land registration is held taking into account the state of the state and the community, the needs of socio-economic traffic and the possibility of its implementation, according to

the consideration of the Minister of Agrarian Affairs; and (d) In the Government Regulation, the fees related to registration referred to in paragraph 1 above, with the provision that people who are unable to afford it are exempt from paying these fees.

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Land rights certificates have economic value and play a very important role in the process of proving land rights ownership (Sadi, 2024). Because the certificate guarantees legal certainty, both legal certainty of the location of the land, land boundaries, and the area for the field⁸. The guarantee of legal certainty is not only aimed at the person whose name is listed in the certificate, but also is a government policy in the form of creating an orderly land administration that places an obligation on the government to carry out the registration process of lands located throughout Indonesia.

Technological developments have brought the discourse of electronic registration and certificates. The transformation from physical to electronic documents is not just a matter of format but also of data reliability, authentication, and accessibility. Electronic certificates offer advantages such as fast verification, cryptographic security, and centralized storage, which reduce the risk of physical loss, and also have benefits in the property and investment sectors¹⁰. This technical implementation must be balanced with personal data protection and audit mechanisms so that electronic evidence receives the same strong recognition as physical evidence. In the electronic system, all registration data are stored in a centralized server, digitally verified, and connected to the national database of BPN, making it difficult to manipulate.

Digital certificates can also overcome the risk of loss, damage, or counterfeiting that often occurs in conventional certificates (Ernawati, 2025). Another advantage lies in the ease of public access through official applications, such as Touch My Land, which allows landowners to directly monitor the status of their rights. The transformation towards a digitalization system of land aspects is challenging and requires social readiness and community literacy. In this context, the socialization program is an important part of the implementation of electronic land registration. Through counseling and mentoring activities, the community gained an understanding of digital data security, the function of electronic certificates, and how to access land services online.

The results of field research conducted in Sialang Buah Village, Serdang Bedagai Regency, on September 20, 2025, show that the implementation of electronic land registration and electronic certificates has begun to receive a positive response from the community. However, some residents did not receive detailed information about the government program. Residents feel that the process is faster and more practical because they no longer have to carry a large number of physical files. Data obtained from interviews with representatives of the Serdang Bedagai Regency Land Office (Kantah) explained that the implementation of this system has been gradually running since early 2024. The goal is to make it easier for the public to obtain land certificates using a digital system that is integrated directly into the BPN data center.

The research activity was also attended by elements of the Sialang Buah Village government, who actively provided support for this program. The Village Head said that previously, many residents complained about the length of time for processing certificates, but since the existence of the electronic system, they found it easier to understand the flow because there was direct assistance from the BPN. In the attached documentation of the research activities, there is an atmosphere of dialogue between BPN representatives, village officials, and residents. Some people even showed their happiness because the certificate can now be accessed through the official application "*Touch My Land*," an application owned by BPN that can be downloaded on people's phones.

The results of observations in the field show that there has been an increase in public trust in the government after this electronic certificate program was implemented. Residents consider digital certificates to be much safer because they are stored in the system and have an official verification code from the BPN. No more fear of losing documents due to fire, floods, or damage due to age. The registration process also becomes more transparent because every step can be monitored through the user's personal account in the application. According to the perwakilan BPN who attended, this step is also part of the government's efforts to strengthen the legal certainty of land rights at the village level through an efficient and accountable system. See Figure 1-3



Figure 1. Sialang Buah Village Government



Figure 2. Resource persons from BPN Sergai Regency



Figure 3. Group photo with Residents

The responses of the people of Sialang Buah Village during the interviews showed a positive spirit towards digital transformation in the land sector. They consider electronic land registration a sign that

public services are increasingly on the side of community convenience. There is no longer any concern regarding illegal collection practices or overlapping data because all processes are recorded digitally. The village government is also committed to continuing to help residents who are not accustomed to using digital devices so that they are not left behind in this national program of digitalization.

The electronic certificate program implemented in Sialang Buah Village proves that land digitalization is not only a discourse but a real step towards a modern and fair agrarian system. The data from this research activity show the synergy between BPN, village governments, and the community in realizing simple, fast, and safe services. This system is part of the implementation of the principle of legal certainty, which states that every citizen has the right to obtain definite legal protection for the land they own.

4. CONCLUSION

This study shows that the implementation of electronic land registration and certificates in Sialang Buah Village, Serdang Bedagai Regency, substantially contributed to increasing the legal certainty of community land rights. The digitization of land administration, as stipulated in UUPA 1960, PP 24/1997 jo. PP 18/2021, as well as the Minister of ATR/BPN No. 3 of 2023, have been proven to strengthen data legality, reduce the risk of loss and falsification of documents, and increase the transparency and efficiency of public services through digital authentication and a national network-based verification system.

Empirically, the public shows a positive level of acceptance of electronic certificates, especially regarding the ease of procedures, speed of service, and data security guarantees. The majority of respondents considered that this new system increased their sense of trust in the state in guaranteeing land ownership rights. In addition, the active participation of the Serdang Bedagai Regency Land Office and village officials is a key factor in the successful adoption of the digital system.

However, land digitalization still faces challenges, especially regarding the limited digital literacy of rural communities, access to network infrastructure, and the need for intensive assistance for vulnerable groups, including the elderly and residents with technological limitations. This potential digital divide shows that legal innovation cannot be separated from the social context, and the implementation of digital policies must be inclusive to avoid creating new forms of legal uncertainty.

Thus, it can be concluded that the electronic land registration system has the potential to be an effective instrument in realizing agrarian law certainty, as long as it is balanced with an adequate public education strategy, strengthening village digital infrastructure, strict personal data protection, and applying the principle of fair distribution of access to services. This transformation is not only an administrative modernization but also a manifestation of the state's commitment to guaranteeing the constitutional right of the community to legal certainty in the possession and use of land.

Ethical Approval

Ethical approval was not required for this study.

Informed Consent Statement

This study did not involve human participants; therefore, informed consent was not required for this study.

Authors' Contributions

JZFS contributed to the conceptualization of the study, development of the research design, legal analysis, and drafting of the manuscript. He also served as the corresponding author and coordinated communication during the research and publication process. RS contributed to the legal framework formulation, data verification, and refinement of the analysis related to electronic land administration. RB participated in field data collection, including interviews and document analysis, and supported the interpretation of socio-legal findings. JS assisted in literature review, development of arguments, and preparation of supporting legal references. JPD contributed to drafting specific sections of the manuscript,

especially those related to regulatory implications and implementation challenges. M.A contributed to data organization, technical preparation of research materials, and final proofreading of the manuscript to ensure coherence and clarity.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Data Availability Statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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