

Effectiveness of Implementing Electronic-Based Complete Systematic Land Registration (PTSL)

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Abstract. *This study aims to analyze: 1) Implementation of electronic-based complete systematic land registration (PTSL) in Majalengka Regency. 2) Obstacles and solutions in the implementation of electronic-based complete systematic land registration (PTSL) in Majalengka Regency. This type of research is empirical legal research. The approach method in this research is a sociological juridical approach. The types of data in this research are primary and secondary data sourced from primary, secondary and tertiary legal materials. The data collection method uses interview techniques and library techniques (document study). The analysis in this research is descriptive. The results of the study concluded: 1) The effectiveness of the implementation of electronic-based Complete Systematic Land Registration (PTSL) in Majalengka Regency has basically been running and can be considered quite effective because it has been supported by the legal basis for land registration and the use of electronic systems in managing physical and legal data. Reviewed based on Soerjono Soekanto's Theory of Legal Effectiveness, legal factors have provided an adequate foundation for the implementation of electronic-based PTSL. Law enforcement factors, facilities or infrastructure, society, and legal culture still need strengthening. Limited internet network in certain areas, high workload of officers, uneven distribution of human resource capabilities in operating electronic systems, as well as public understanding and acceptance of changes in digital-based land services have caused the implementation of electronic-based PTSL to not achieve optimal effectiveness. 2) Obstacles and solutions in the Implementation of Electronic-based Complete Systematic Land Registration (PTSL) in Majalengka Regency include technical and resource obstacles, community obstacles in adapting to digital systems, and obstacles in land data and administration, such as inconsistencies between physical and legal data, overlapping land plots, floating plots, and differences between old data and measurement or mapping results. Efforts to resolve this are carried out through strengthening facilities and infrastructure, increasing the competence of apparatus, socialization*

and assistance to the community, as well as verification, validation, re-plotting, and synchronization of land data.

Keywords: Effectiveness; Electronics; Legal.

1. Introduction

All land must be registered, as stipulated in the Basic Agrarian Law (UUPA) and Government Regulation No. 24 of 1997 concerning Land Registration, to provide legal certainty and protection to land rights holders. With certainty of land rights, land disputes can at least be prevented. The government has continuously strived to implement land registration throughout the country to ensure legal certainty. However, to date, the implementation of land registration has not produced satisfactory results. Land registration coverage has not yet reached 100%. If not immediately improved, various conflicts and land disputes will arise.¹

Land registration is a prerequisite for organizing and regulating the allocation, control, ownership, and use of land, including addressing various land issues. Land registration aims to provide certainty of rights and legal protection for land rights holders, through the provision of land certificates, as an instrument for organizing land control and ownership, and as a control instrument for land use and utilization. Land rights registration serves as a guarantee from the State and is an important instrument for protecting landowners.²

A certificate is the final result of land registration and is authentic evidence. As stated in Article 32 paragraph (1) of Government Regulation Number 24 of 1997 concerning land registration, that:

"A certificate is a valid proof of title which serves as a strong means of proof regarding the physical and legal data contained therein, as long as the physical and legal data are in accordance with the data contained in the measurement letter and the land title book in question."

The issuance of land title certificates issued by the Land Office in the form of land title certificates involves the applicant, the owners of adjacent land, village officials and related agencies to obtain an explanation regarding the documents as the basis for rights related to the certificate application, so that the

¹Maulida Soraya Ulfah, Denny Suwondo, Implementation of Complete Systematic Land Registration (PTSL) in Demak Regency, Proceedings: Unissula Student Scientific Conference (KIMU) 2, Unissula Semarang, October 18, 2019, p. 2

²Anis Ayu Rahmawati, Achmad Sulchan, Policy to Streamline Filing for the Complete Systematic Land Registration Program (PTSL) at the Blora Regency Land Office, Jurnal Akta, Volume 5 Number 4, December 2018, p. 885

explanation from the related parties has the potential to give rise to a legally defective certificate.³

The power of a certificate guarantees legal certainty for the certificate holder as perfect evidence as long as no opposing party proves otherwise. A person or legal entity will easily prove themselves as the rights holder to a plot of land and the condition of the land, for example, the area, boundaries, existing buildings, the type of rights and the burdens that exist on the land rights, and so on.⁴

PTSL is a government effort to expedite the land registration process, as the program requires various roles from the government, including the Land Office as the committee and village officials, along with support from the community. Electronic land services are very much needed in this era of development. Current information technology. This is driven by the increasing need of other agencies for dynamic land data and services, particularly to support development planning. Internally, the high certification target by 2026 requires anticipation of improvements in post-certification derivative services and land archive management. On the other hand, public perception of land services remains unsatisfactory. Similar conditions are also experienced by other ministries in the process of modernizing public services towards online.⁵

Majalengka Regency implemented the PTSL program in 2026, allocating approximately 20,000 plots of land and targeting a total of 30,000 plots, covering approximately 60 villages in 18 sub-districts. This program is crucial because many people still lack land certificates and rely solely on SPPT (Land Title Certificate) as proof of ownership. PTSL facilitates the acquisition of land certificates, although implementation is still hampered by incomplete documentation, land boundary issues, and disputes that prevent some plots from being completed on target.

Based on PTSL Technical Instructions Number 3/Juknis-HK.02/III/2023, PTSL implementation is also directed at improving the quality of land data and establishing Electronic Ready Data as part of the digital transformation. Implementing an electronic system requires prepared human resources and technological facilities to ensure effective management of physical and legal data. Therefore, the effectiveness of electronic-based PTSL implementation in Majalengka Regency needs to be assessed to support the achievement of legal certainty regarding land rights for the community.

³Ali Achmad Chomzah, 2003, Land Law Series III - Settlement of Land Rights Disputes and Land Law Series IV - Land Acquisition by Government Agencies, Prestasi Pustaka, Jakarta, p. 18.

⁴Adrian Sutedi, 2011, Land Rights Certificate, Sinar Grafika, Jakarta, p. 1.

⁵Fitrianingsih, Rakmat Riyadi, Suharno, Evaluation of the Digitalization of Land Archives and Integrated Land Plot Maps Towards Online Services, Tunas Agraria Journal, Volume 4 Number 1, p. 64

2. Research Methods

This research is an empirical legal research. The approach used is a sociological-juridical approach. The data used are primary and secondary data sourced from primary, secondary, and tertiary legal materials. Data collection methods include interviews and literature review (document study). The analysis used is descriptive.

3. Results and Discussion

3.1 Effectiveness of the Implementation of Electronic-Based Complete Systematic Land Registration (PTSL) in Majalengka Regency

Complete Systematic Land Registration (PTSL) is a land registration process carried out simultaneously for all land registration objects within a village or sub-district. Its implementation is aimed at accelerating orderly land administration and providing legal certainty regarding community land rights. Further developments in land services have encouraged the use of electronic systems for collecting, processing, storing, and presenting land data, so that PTSL implementation is no longer solely focused on issuing physical certificates but also on providing integrated electronic land data.⁶

The 2026 PTSL implementation in Majalengka Regency has a broad scope, with an initial allocation of approximately 20,000 plots of land and a target of reaching approximately 30,000 plots spread across approximately 60 villages in 18 sub-districts. This program is crucial because there are still unregistered plots of land. The success of PTSL is measured not only by the number of certificates issued, but also by the completeness and quality of physical and legal data. The implementation process includes planning, location determination, preparation, formation of an Adjudication Committee, outreach, data collection and research, announcements, ratification, determination of rights, bookkeeping, and certificate issuance. The development of digitalization does not change the substantive stages of PTSL, but it does change the way physical and legal data are collected, processed, validated, stored, and integrated into electronic systems. Based on PTSL Technical Instructions Number 3/Juknis-HK.02/III/2023, activity results are directed at meeting the need for Electronic Ready Data, so that data accuracy and consistency are crucial in ensuring the quality of land information and the smooth running of the land registration process.

The implementation of electronic-based PTSL (Land Use System) in Majalengka Regency has implemented an electronic system for land data management. An interview with Mr. A revealed that legal data entry, spatial mapping integration, and electronic document issuance are all connected through the Ministry of Maritime Affairs and Fisheries (KKP) application. This implementation is based on

⁶Urip Santoso, 2010, Registration and Transfer of Land Rights, Kencana, Jakarta, p.3.

regulations regarding electronic certificates and PTSL technical instructions, which serve as guidelines for implementation. Mr. A explained: "Regulatory-wise, the implementation of the Electronic PTSL is based on Regulation of the Minister of ATR/BPN No. 1 of 2021 concerning Electronic Certificates in conjunction with the PTSL Technical Instructions. Legal data entry, spatial mapping integration, and e-Certificate document issuance are all connected through the KKP application."

The use of this system indicates that PTSL implementation in Majalengka Regency has moved towards electronic land data management. However, the implementation of the electronic system continues to run concurrently with field activities such as measurement, mapping, document review, and data research. The electronic system serves to support the management and integration of the results of these activities, so that the quality of data obtained from the field remains the basis for subsequent processes. Implementation on a scale of tens of thousands of land plots also requires adequate organizational readiness. Mr. A's statement indicates that the use of the electronic system is already in place, but in practice there are still conditions that need to be considered, particularly related to the characteristics of the Majalengka Regency region and the number of land plots to be completed. The stability of the internet network in some areas and the large technical workload are part of the implementation conditions that affect the smoothness of activities. Implementing electronically-based PTSL (Complete Land Registration) after data is collected and entered into the system requires human resources capable of sustainably executing the entire process. The use of technology in land registration is not only about the ability to operate the application but also requires precision in checking, validating, and synchronizing physical, legal, and spatial data. Accuracy in data management is crucial because the information entered into the system will be used as part of the land database and subsequent land services.

The readiness of human resources and infrastructure is a crucial factor in the implementation of electronic-based PTSL (Complete Land Acquisition) in Majalengka Regency. The PTSL target of tens of thousands of land parcels results in a significant workload for officers, who must simultaneously carry out measurements, legal data research, mapping, input, and data verification. In addition to limited personnel and capabilities in operating electronic systems, internet network stability is also a challenge, particularly in mountainous areas such as Argapura District and its surroundings. Implementing electronic-based PTSL also requires a reliable, secure system supported by coordination between the Land Office, local government, and village governments. Village governments play a crucial role in disseminating information, collecting and preparing community documents, and assisting PTSL participants. Therefore, the readiness of human resources, infrastructure, and inter-agency coordination are crucial in supporting the smooth management of electronic land data. An interview with

Mr. K, Head of the PTSL Village Task Force, revealed that village officials' readiness to handle electronic systems is not yet fully unequal. Initial input of community legal data still requires assistance, especially since technological skills vary across all parties involved.⁷ This condition shows that the success of digitalization is not only determined by the availability of the system, but also by the ability of the parties carrying out the administrative process at the implementation level.

The involvement of the community and village government in PTSL activities is also related to the nature of PTSL as a systematic land registration process within a region. The completeness of the data provided by the community will determine the smoothness of the legal data research, while the village government can assist with communication and initial verification of conditions developing in their area. This collaboration is necessary to ensure the administrative process is not hampered by a lack of documents or information regarding the registered land plots.⁸

The implementation of electronic-based PTSL (Complete Land Registration) brings immediate changes to the public, particularly in the form of documents and the way they access information regarding land data. Some people are still accustomed to understanding certificates as physical, book-like documents, so the transition to electronic documents requires a process of adjustment. This change is not only a technical issue but also relates to the level of public trust in the new land registration system. Mr. K's statement indicates that some residents, particularly older ones, were initially skeptical about documents issued electronically. Documents containing QR codes were not readily understood as valid evidence for land rights. This hesitation arose because the public still identified security and certainty of rights with the existence of a physical certificate.⁹ This situation demonstrates that the implementation of electronic systems requires the provision of information that is easily understood by the public. The recognition of electronic documents in the legal system has not always been accompanied by public understanding of how to use and verify them. Public awareness and support are crucial to ensure the public not only receives documents but also understands how to verify their authenticity and their relationship to data stored in the land system.

The shift to electronic certificates is primarily aimed at improving service efficiency and strengthening land data management. However, public acceptance of these changes requires attention, as land registration ultimately relates directly to the interests and sense of security of land rights holders. The success of electronic certificate implementation also depends on the public's

⁷Results of an interview with Mr. K, as Head of the PTSL Village Task Force, dated August 3, 2026

⁸Supriadi, 2015, *Agrarian Law*, Sinar Grafika, Jakarta, p. 163

⁹Results of an interview with Mr. K, as Head of the PTSL Village Task Force, dated August 3, 2026

ability to understand the new service and the availability of user-friendly verification mechanisms.¹⁰

Soerjono Soekanto's theory of effectiveness explains that the effectiveness of a law is not solely determined by the existence of a regulation, but is influenced by five factors: legal factors, law enforcement, facilities, society, and culture. These five factors are interrelated, so weaknesses in any one factor can impact the achievement of the law's overall objectives.¹¹Based on Soerjono Soekanto's Theory of Legal Effectiveness, the implementation of electronic-based PTSL in Majalengka Regency has been supported by legal factors through regulations regarding land registration and the implementation of electronic systems. Its implementation is also supported by law enforcement, particularly the Land Office and village governments. However, the high target for land parcels results in a significant workload for officers, and their ability to operate electronic systems still needs to be improved. Facilities and infrastructure factors also influence implementation, particularly because the use of electronic systems requires devices and a stable internet network, while in some areas there are still limited connections. In addition, societal factors and legal culture are evident in the unequal understanding, digital literacy, and public acceptance of the use of electronic land documents. Thus, the effectiveness of electronic-based PTSL in Majalengka Regency can be considered quite effective, but not optimal because it still requires strengthening human resources, supporting facilities, implementation coordination, and community readiness to adapt to a digital-based land system. The implementation of electronic-based Complete Systematic Land Registration in Majalengka Regency is essentially part of the implementation of land registration as mandated in Article 19 of Law Number 5 of 1960 concerning Basic Agrarian Principles. This provision positions land registration as an instrument to guarantee legal certainty over land rights. This mandate is further elaborated in Article 3 of Government Regulation Number 24 of 1997 concerning Land Registration, which stipulates that land registration aims to provide legal certainty and legal protection to land rights holders, provide information to interested parties, and maintain orderly land administration. The implementation of electronic-based PTSL in Majalengka Regency must be understood within the framework of achieving these objectives, so that the use of technology is not merely a change in administrative work methods, but part of an effort to improve the implementation of land registration. The implementation of electronic-based PTSL in Majalengka Regency has a strong legal basis through the UUPA, Government Regulation Number 24 of 1997, Government Regulation Number 18 of 2021, Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land

¹⁰Esther Masri and Hirwansyah, 2023, Electronic Certificate Issuance Policy in the Land Registration System in Indonesia to Achieve Legal Certainty, KRTA Bhayangkara, Vol. 17, No. 1, p. 157

¹¹Soerjono Soekanto, 2014, Factors Influencing Law Enforcement, Rajawali Pers, Jakarta, p. 8.

Agency Number 3 of 2023, Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency Number 6 of 2018, and Technical Instructions for PTSL Number 3/Juknis-HK.02/III/2023 which directs the management of land data electronically and the formation of Electronic Ready Data. Its implementation has generally been quite effective in supporting more orderly, up-to-date, and integrated data management, but is not yet fully optimal because its effectiveness still depends on the capabilities of implementers, the availability of facilities and networks, data quality, and community readiness to accept changes towards digital-based land services.

3.2 Obstacles and Solutions in the Implementation of Electronic-Based Complete Systematic Land Registration (PTSL) in Majalengka Regency

The implementation of the electronic-based Complete Systematic Land Registration (PTSL) in Majalengka Regency is not without various obstacles that arise during the implementation phase in the field. These obstacles are not only related to the use of technology, but also concern the readiness of human resources, public acceptance of changes to the service system, and the condition and quality of land data to be entered into the electronic system. Based on the results of interviews with the Majalengka Regency Land Office, village governments, Land Deed Officials (PPAT), and the community as PTSL applicants, these obstacles can be grouped into technical and resource barriers, community and digital adaptation barriers, and land data and administration barriers.

1) Technical and Resource Barriers

The implementation of electronic-based PTSL still faces obstacles such as internet network stability in some areas, high staff workloads, and an imbalance between the number and capabilities of human resources and the target land parcels to be completed. These conditions can impact the smooth input, processing, and verification of land data. Limited facilities and human resources can impact the achievement of these goals by causing delays in data processing or increasing the risk of inaccuracies in administrative processes. Land digitization can indeed increase efficiency, but its success is still influenced by organizational readiness and the ability of human resources to operate the system.¹²

2) Community Barriers and Digital Adaptation

Some residents, particularly the elderly, are still unfamiliar with the use of electronic land documents and prefer physical certificates. Furthermore, the capacity of village officials to assist with data input and preparation is not yet

¹²Fitrianingsih, Rakhmat Riyadi, and Suharno, 2021, Evaluation of the Digitalization of Land Archives and Integrated Land Plot Maps Towards Online Services, Tunas Agraria Journal, Vol. 4, No. 1, p. 54

fully unequal, necessitating outreach and assistance. This experience demonstrates that digital adaptation issues do not always stem from a rejection of technology, but can also arise from a lack of understanding of how electronic systems operate and ensure their security. Assistance and the provision of easily understood information are crucial to ensure that changes in service delivery do not raise doubts about the certainty of land rights.¹³

3) Land Data and Administration Barriers

There are still discrepancies between physical and legal data, overlapping land parcels, floating plots, and discrepancies between old data and measurement or mapping results. These conditions require careful verification and validation to ensure that the data entered into the electronic system reflects the actual situation and ensures legal certainty. The implementation of electronic-based Complete Systematic Land Registration in Majalengka Regency faces several obstacles related to technical aspects and resources, community and digital adaptation, and land data and administration. These obstacles need to be addressed in a targeted manner according to the characteristics of each problem. This is important because the implementation of land registration is essentially aimed at providing legal certainty and protection to land rights holders, providing land information, and realizing orderly land administration as stipulated in Article 3 of Government Regulation Number 24 of 1997 concerning Land Registration. The use of an electronic system does not change these basic objectives, but requires the readiness of facilities, human resources, the community, and data quality so that digital transformation can run optimally.

The challenges facing the implementation of electronic-based PTSL (Complete Land Acquisition) in Majalengka Regency were addressed through strengthening facilities and infrastructure, regulating data collection and input mechanisms based on network availability, and increasing staff capacity through training and technical assistance. Obstacles to community digital adaptation were addressed through outreach, education, and assistance regarding the use and verification of electronic documents, involving village governments and the PTSL Task Force. Meanwhile, land data and administration challenges were addressed through verification, validation, replotting, and synchronization of physical data with legal data to ensure that data entered into the electronic system is accurate, up-to-date, and provides legal certainty. The function of a certificate as a means of proving land rights requires that the registration and data recording process be carried out carefully so that it can provide certainty regarding the object and subject of the rights.¹⁴The implementation of electronic-based PTSL makes the

¹³Fairus Augustina Rachmawati, Shafa Amalia Choirinnisa, and Latif Latif, 2021, Integrated Land Registration System: Between Legal Certainty and Challenges (Case of Semarang City), Indonesian Journal of Advocacy and Legal Services, Vol. 3, No. 2, p. 217

¹⁴Adrian Sutedi, 2012, Land Rights Certificate, Sinar Grafika, Jakarta, pp. 56–58.

process of verification, validation, re-plotting, and data synchronization an important step to reduce the risk of administrative errors and prevent the entry of inappropriate data into the land system.

Based on the description, solutions to the obstacles in land data and administration in Majalengka Regency need to be directed at strengthening the verification and validation process, implementing re-plotting of land plots that do not have the correct position on the map, synchronizing physical data and legal data, and updating data before being designated as part of the electronic system.

Based on Gustav Radbruch's Theory of Legal Certainty, resolving obstacles to electronic-based PTSL in Majalengka Regency must fulfill four elements of legal certainty, namely the existence of a clear positive legal basis, data conformity with actual facts or circumstances, procedures that are formulated clearly and easily understood, and stability of regulations in their implementation. Therefore, strengthening infrastructure and apparatus competence, data verification and validation through re-plotting and synchronization, increasing socialization and community assistance, and sustainable management of electronic systems are needed so that land data remains accurate, secure, easily verified, and able to provide certainty and legal protection for community land rights. Based on the four elements of legal certainty according to Gustav Radbruch, the implementation of electronic-based PTSL in Majalengka Regency has a positive legal basis as the basis for its implementation. However, legal certainty in its implementation is still influenced by the readiness of infrastructure and human resources, the conformity of data with facts on the ground, the level of public understanding of electronic procedures, and the need for stability and continuity of regulations. These obstacles need to be addressed by strengthening the facilities and competence of apparatus, increasing community outreach and assistance, and careful verification and synchronization of land data. The implementation of these solutions is necessary so that the implementation of electronic-based PTSL not only results in changes in the form of land administration, but also is able to provide certainty regarding the status, subjects, and objects of land rights for the community.

The implementation of electronic-based Complete Systematic Land Registration in Majalengka Regency demonstrates that land digitization is not only related to changes in document storage and management methods, but also requires assurance that all processes continue to provide certainty regarding land rights. The use of electronic systems must be able to maintain the relationship between data obtained during registration activities and the actual legal and physical conditions of the land plots. Digitizing land registration can essentially increase the efficiency and integration of data management, but legal certainty remains dependent on the accuracy of the physical and legal data that form the basis of

registration.¹⁵ Legal certainty in the implementation of electronic-based PTSL ultimately depends on the quality of the land registration process. While electronic systems can expedite the management and presentation of land information, the use of technology cannot replace the importance of accuracy in determining the subject of rights, the object of rights, the location, boundaries, area, and legal status of land parcels. Electronic systems can only provide certainty if the data they manage has a clear and accountable basis.¹⁶

This is related to the objectives of land registration as stipulated in Article 19 of the UUPA and Article 3 of Government Regulation Number 24 of 1997. Legal certainty resulting from land registration is determined not only by the issuance of electronic certificates or documents, but also by the accuracy of the data that serves as the basis for their issuance. The use of electronic documents remains within the framework of land registration, which aims to provide legal certainty and protection for land rights holders. The problem of inconsistencies in physical and legal data in the digital transformation process also demonstrates that digitalization needs to be accompanied by improvements in the quality and order of land administration.¹⁷ Based on Gustav Radbruch's Theory of Legal Certainty, the implementation of electronic-based PTSL (Complete Land Acquisition) must be based on positive law that provides a clear basis and guidelines. The existence of regulations regarding land registration, PTSL implementation, and the issuance of electronic documents provides a legal basis for the implementation of land digitization. Legal certainty, in Radbruch's view, relates not only to the existence of regulations but also to the need for laws to have a clear form and be applied reliably in society.¹⁸

4. Conclusion

The effectiveness of electronic-based PTSL in Majalengka Regency has been quite effective due to its legal basis and the use of electronic systems in managing physical and legal data. However, based on Soerjono Soekanto's Theory of Legal Effectiveness, law enforcement, infrastructure, community, and legal culture factors still need to be strengthened for optimal implementation. Obstacles to electronic-based PTSL include technical and resource aspects, community adaptation to digital systems, and land data and administration issues, such as overlapping, floating plots, and data discrepancies. Solutions are implemented through strengthening infrastructure and apparatus competency, community

¹⁵Fikahati Prasetya and Muh. Afif Mahfud, 2023, First-Time Electronic Land Registration in National Land Law, Unissula Law Journal, Vol.39 No.1, p.85

¹⁶Boedi Harsono, 2008, Indonesian Agrarian Law: History of the Formation of the Basic Agrarian Law, Its Contents and Implementation, Djambatan, Jakarta, p. 474

¹⁷Arwendy Syafriansyah, 2026, Legal Protection for Electronically Certified Land Rights Holders Based on the Land Registration System in Indonesia, Jurnal Fatwa Hukum., vol.9 no.1, p.1

¹⁸E. Fernando M. Manullang, Misinterpretation of Gustav Radbruch's Ideas on the Philosophical Doctrine of Validity in the Formation of Laws, Undang: Jurnal Hukum, Vol. 5, No. 2, 2022, p. 453

outreach and assistance, as well as verification, validation, re-plotting, and data synchronization to achieve legal certainty based on Gustav Radb's Theory.

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Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency Number 1 of 2021 concerning Electronic Certificates. This regulation explicitly directs the results of land registration activities to be submitted electronically as part of electronic-based land services.

Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency Number 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities.