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Guarantee of Protection of Electronic Land Certificates as Proof of Ownership of Land Rights

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Guarantee of Protection of Electronic Land Certificates as Proof of Ownership of Land Rights

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Abstract

Changes in information technology have an impact on the public service system, especially in the land sector which is experiencing a transition from Analog Certificates to Electronic Certificates which raises several challenges, one of which is in the field of law, in practice the power of law because electronic information and transactions cannot be used as evidence, but must meet certain requirements. The purpose of this research is to find out and analyze the legal force of Electronic Land Certificates and to find out the efforts made by the government to protect the Electronic Land Certificate system. The research method used is the Normative Juridical Approach. The results of this study are the legal protection of electronic certificates in proving that they have a position as legal electronic evidence have been recognized in the procedural law system in Indonesia, and have strong legal force. Electronic Land Certificates require a legal umbrella governing the use of Blockchain technology contained in the ITE Law to be delegated to an implementing regulation. This study concludes that Electronic Certificates have the same legal force as Analog Certificates. As an effort to support the use of Electronic Certificates, the government's role is needed in formulating laws that regulate the substance of the use of technology in electronic certificate database storage systems.

Keywords: Electronic Land Certificate; Legal Certainty; Land Rights; Blockchain.

Abstract

Perubahan teknologi informasi berdampak pada sistem pelayanan publik khususnya di sektor pertanahan yang sedang mengalami transisi dari Sertifikat Analog ke Sertifikat Elektronik yang dalam praktiknya tidak dapat dijadikan bukti kecuali harus memenuhi persyaratan tertentu. Tujuan dari penelitian ini adalah untuk mengetahui dan menganalisis kekuatan hukum Sertifikat Tanah Elektronik dan untuk mengetahui upaya yang dilakukan oleh pemerintah untuk melindungi sistem Sertifikat Tanah Elektronik. Metode penelitian yang digunakan adalah Pendekatan Yuridis Normatif. Hasil penelitian ini adalah perlindungan hukum sertifikat elektronik dalam membuktikan bahwa sertifikat elektronik memiliki kedudukan sebagai alat bukti elektronik yang sah, telah diakui dalam sistem hukum acara di Indonesia, dan memiliki kekuatan hukum yang kuat. Sertifikat Tanah Elektronik memerlukan payung hukum yang mengatur penggunaan teknologi Blockchain yang terdapat dalam UU ITE untuk didelegasikan kepada peraturan pelaksana. Penelitian ini menyimpulkan bahwa Sertifikat Elektronik memiliki kekuatan hukum yang sama dengan Sertifikat konvensional. Untuk upaya mendukung penggunaan Sertifikat Elektronik, diperlukan peran pemerintah dalam merumuskan undang-undang yang mengatur substansi penggunaan teknologi dalam sistem penyimpanan basis data sertifikat elektronik.

Kata kunci: Sertifikat Tanah Elektronik; Kepastian Hukum; Hak Tanah; Blockchain.

A. INTRODUCTION

The development of information today is also referred to as the era of digitalization¹. This development began in the 20th century, namely the industrial revolution based on information technology. Advances and developments in information technology have changed lifestyles and habits in daily life making it an important necessity for people around the world. The development of information technology has also changed the traditional transaction system to electronic transactions, this change makes everything easier and allows Cashless.

In Indonesia, the use of information and communication technology continues to experience progressive changes in market transactions and public services that were originally analog-based to electronic-based, such as *E-Commerce (Trade)*, *E-Government (Government System)*, and *E-Court (Judiciary)*. Electronic-based public services in the land sector were initially implemented in a program called *Land Office Computerization (LOC)* in 1997, after which it changed its name to *Computerized Land Activities (KKP)*, then transformed into *Geo-KKP* and finally became the *KKP Website*. Public services in the land sector were improved and developed into an app called *Touch My Land*. *Touch My Land* itself is an app created to answer various land problems in the community and become a place to carry out all activities related to the land sector.²

Improvement programs in public services in the land sector and adjustments related to technology that encourage the emergence of alternatives to law enforcement with the issuance of *ATR/BPN Ministerial Regulation No. 1 of 2021 concerning Electronic Certificates* to follow up on the implementing regulations of *Law No. 11 of 2020 concerning Job Creation* in the chapter related to land clusters which regulate the transition to electronic systems including land certificates. According to former Minister of ATR / BPN Sofyan Djalil (2021), who explained the need for a transition from analog certificates to electronic certificates aimed at increasing efficiency and transparency related to land registration and ensuring legal certainty, and reducing land dispute cases in the court realm.³ The replacement of analog to electronic certificates has been explained in *Article 15 of the Regulation of the Minister of ATR / BPN No. 1 of 2021 concerning Electronic Certificates*. The use of electronic certificates aims to facilitate access to land rights holders related to their land information, and proof of land ownership, and minimize forgery. However, the existence of land certificates requires support from the land office in the implementation of modern and efficient public services in the land sector.

Land certificates are obtained after registration of land owned by the land office of ATR/BPN, the issuance of land certificates by the ATR / BPN is strong evidence of legal land ownership. As explained in *Article 19 Paragraph (2) Letter (c) of the UUPA*. The implication in Indonesia is that land certificates can still be changed if there is a legal and/or administrative

¹ Akhmad Afridho Wira P, Fitria Esfandiari, and Wasis Wasis, "Juridical Analysis of Legal Protection of Personal Data in Terms of Legal Certainty," *Indonesia Law Reform Journal* 3, no. 1 (2023): 96–108, <https://doi.org/10.22219/ilrej.v3i1.23840>.

² Betty Rubiati Faris Faza Ghaniyyu, Yani Pujiwati, "Jaminan Kepastian Hukum Konversi Sertifikat Menjadi Elektronik Serta Perlindungannya Sebagai Alat Pembuktian Legal Certainty Conversion Of Land Certificate Form To Electronic And Proof Of Rights Holders Berbentuk Fisik Sebagaimana Disebutkan Dalam UUPA Da," *Jurnal USM Law Review* 5 1 (2022): 172–87, <https://doi.org/http://dx.doi.org/10.26623/julr.v5i1.4553>.

³ Faris Faza Ghaniyyu, Yani Pujiwati.

defect in their issuance. This option was taken to provide legal protection to communities who have or will acquire land in good faith as explained in Article 32 Paragraph (1) of PP No. 24 of 1997.^{4,5}

The issuance of this regulation certainly makes the community highlight the disadvantages and advantages of using electronic land certificates.⁶ The spotlight of the community certainly cannot be separated from adequate readiness to the uneven internet limitations throughout Indonesia, making electronic land certificates only function effectively in a few big cities.

In addition to the limitations of the internet network in Indonesia, on the other hand, there are vulnerabilities in the system needed to archive electronic land certificate data. Due to vulnerabilities in the filing system, the government, especially in the realm of ATR / BPN ministries, can use *Blockchain* technology as it has been used in the realm of digital finance (*Cryptocurrency*). The use of *Blockchain technology* itself provides several advantages to the security of the filing system so that there are no cases of data leakage^{7,8}, as has happened to Kominfo, Telkomsel, PLN, and most recently in the case of BSI.

In addition to concerns about the uneven distribution of the internet in Indonesia and data security in the field of archiving. The community is also concerned about its legal protection, so that electronic land certificates can be used as legally valid evidence and minimize cases of land disputes. And as an effort by the government to provide protection and strength of electronic land certificates as evidence against land rights owners. And as an effort to provide convenience in the digital era like today.

The protection and legal certainty of land or building has been described in Article 28D Paragraph (1) of the 1945 Constitution and Article 4 Paragraph (1) Jo. Article 3 Letter (a) of Government Regulation Number 24 of 1997 concerning Land Registration. Article 28D Paragraph (1). Electronic proof has been stipulated in the previous Act. Electronic evidence and documents have been regulated for the first time in Law No. 11 of 2008 concerning Electronic Information and Transactions, the ITE Law is the first Law in the field of Technology and Information as a much-needed legislation product and has become a pioneer that lays the foundation of regulation in the field of information technology utilization and electronic transactions. In the Constitutional Court decision 20/PUU-XIV/2016 further strengthens Article Paragraph (2) and Article 6 of the ITE Law concerning the validity of evidence, where in

⁴ Damianus Krismantoro, "The Urgency of Electronic Land Certificates in the Land Registration Legal System in Indonesia," *Journal of Law and Sustainable Development* 11, no. 10 (October 26, 2023): e1808, <https://doi.org/10.55908/sdgs.v11i10.1808>.

⁵ Trias Aditya et al., "Title Validation and Collaborative Mapping to Accelerate Quality Assurance of Land Registration," *Land Use Policy* 109 (October 1, 2021): 105689, <https://doi.org/10.1016/J.LANDUSEPOL.2021.105689>.

⁶ Iwan Permadi and Herlindah, "Electronic Title Certificate as Legal Evidence: The Land Registration System and the Quest for Legal Certainty in Indonesia," *Digital Evidence and Electronic Signature Law Review* 20 (2023): 47–61, <https://doi.org/https://doi.org/10.14296/deeslr.v20i.5636>.

⁷ Karisma Karisma and Pardis Moslemzadeh Tehrani, "Data Protection Governance Framework: A Silver Bullet for Blockchain-Enabled Applications," *Procedia Computer Science* 218 (January 1, 2023): 2480–93, <https://doi.org/10.1016/J.PROCS.2023.01.223>.

⁸ Mark Foy et al., "Blockchain-Based Governance Models for COVID-19 Digital Health Certificates: A Legal, Technical, Ethical and Security Requirements Analysis," *Procedia Computer Science* 198 (January 1, 2022): 662–69, <https://doi.org/10.1016/J.PROCS.2021.12.303>.

principle the evidence can be guaranteed authenticity in describing a case. Then Law No. 11 of 2008 concerning Electronic Information and Transactions underwent changes to several articles in it so that it became Law No. 19 of 2016 concerning Amendments to Law No. 11 of 2008 concerning Electronic Information and Transactions⁹.

This reinforces that the electronic document in it is an electronic certificate recognized as valid legal evidence in Indonesia. Based on Legislation No. 11 of 2008 Jo Year Law No. 19 of 2016 concerning Electronic Information and Transactions. Based on the contents of Article 5 Paragraphs (1), (2), and (3) of Law Number 11 of 2008 concerning Electronic Information and Transactions. This was then strengthened again by Article 147 of Law of the Republic of Indonesia Number 11 of 2020 concerning Job Creation, then strengthened again by Article 175 Number (3) of Law of the Republic of Indonesia Number 11 of 2020 concerning Job Creation. Based on the content of the Article, Proof of Rights, Certificates, and Ministerial Decrees including a Deed of PPAT (Land Deed Making Officer) can be made in the form of electronic documents¹⁰.

Meanwhile, the legal security guarantee for Electronic Land Certificates is regulated by Article 5 Paragraph (1) of Ministerial Regulation Number 1 of 2021 concerning Electronic Certificates. When viewed from the contents of the Articles mentioned above, it can be seen that Indonesia has begun to move towards a registration system with a digital or electronic system¹¹.

B. METHOD

This study used normative methods^{12,13}. The approach used in this study is legal rules, legal principles, and legal doctrine, with an emphasis on the legal understanding of the legal strength of electronic land certificates and the efforts made by the government in protecting electronic land certificate data.

C. DISCUSSION

1. Legal Power of Electronic Land Certificates as Proof of Land Rights Control

Article 1 Number 1 of ATR/BPN Ministerial Regulation No. 1 of 2021 concerning Electronic Certificates defines electronic certificates, namely "Certificates issued through Electronic Systems in the form of Electronic Documents" so a series of electronic land registrations results in electronic certificates in the form of electronic documents¹⁴.

⁹ PA-Kota Bumi, "Keabsahan Pembuktian Elektronik Dalam Persidangan Perdata Di Pengadilan Agama," 2023.

¹⁰ Fitria Esfandiari, "Ethical Draft Preparation of Boarding House Res," *Dedikasi Hukum* 1, no. 1 (2021): 73–86, <https://doi.org/https://doi.org/10.2229/jdh.v1i1.16332>.

¹¹ Anna Yulianti, "Urgensi Digitalisasi Sistem Pendaftaran Tanah Guna Memberikan Perlindungan Hukum Dan Tercapai Kepastian Hukum Dalam Kepemilikan Hak Atas Tanah" (Universitas Katotik Parahyangan, 2021).

¹² Sanne Taekema, *Methodologies of Rule of Law Research: Why Legal Philosophy Needs Empirical and Doctrinal Scholarship, Law and Philosophy*, vol. 40 (Springer Netherlands, 2021), <https://doi.org/10.1007/s10982-020-09388-1>.

¹³ Taekema.

¹⁴ Damianus Krismantoro, "Application of Electronic Certificates as a Form of Legal Protection & Land Tenure Hak," *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* 5, no. 3 (September 22, 2022): 28657–65, <https://doi.org/10.33258/BIRCI.V5I3.6975>.

According to the Minister of ATR / BPN (2021) Sofyan Djalil, the issuance of electronic land certificates or simply replacing analog certificates with electronic certificates includes replacing land books, measuring letters (SU) and even drawings of apartment unit plans into electronic documents as explained in Article 16 Paragraph (1) of ATR / BPN Ministerial Regulation No. 1 Year 2021 About Electronic Certificates¹⁵.

As for the rules that can provide legal protection for land certificates as regulated and explained in the provisions of Article 19 Paragraph (1) and Paragraph (2) of UUPA. It is also regulated in Government Regulation No. 24 of 1997 concerning Land Registration, which explains related to the purpose of land registration as explained in Article 3 of PP No. 24 of 1997, and also regulated in Article 32 Paragraph (1) and Paragraph (2) of Government Regulation No. 24 of 1997. In addition to the rules, fundamentally there are also additional rules that explain the certainty of the implementation of the rules themselves. Regulation of the Minister of ATR/BPN Number 1 of 2021 has explained how the legal power possessed by electronic-based land certificates is as follows:

- a. The implementation of land registration can be carried out electronically for land registration for the first time and the maintenance of land registration data.
- b. The results of the implementation of the land registration will be in the form of data, information, and/or electronic documents which are valid and maintained authentication data of rights holders, physical data, and juridical data of land plots
- c. All data, information, and/or electronics are stored in electronic system databases

In order to further guarantee the strength related to faith and legal certainty of electronic land certificates, it has been explained in Articles 4 and 5 of the Regulation of the Minister of ATR / BPN Number 1 of 2021 concerning Electronic Certificates.¹⁶

In electronic certificates there is also an Electronic Signature or what is called TTE, where the analog certificate of document signers needs physical presence, but through TTE which has been certified without the need for its presence at the ATR / BPN office again. Then related to the issue of protection and validity of TTE, the Ministry of Communication and Information Technology (Ministry of Communication and Information) already has rules governing the use of TEP as stated in Law of the Republic of Indonesia No. 19 of 2016 concerning Amendments to Law No. 11 of 2008 concerning Electronic Information and Transactions. Where the use of TEP will be considered valid if it is issued by the Indonesian Electronic Certification Operator (PSE) and gets recognition from the Ministry of Communication and Information. As explained in Article 1 Number 12 Number 19 of 2016 concerning Amendments to Law No. 11 of 2008 concerning Information and Electronic Transactions.¹⁷

¹⁵ Permadi and Herlindah, "Electronic Title Certificate as Legal Evidence: The Land Registration System and the Quest for Legal Certainty in Indonesia."

¹⁶ Herwastoeti Fitria Esfandiari, Alfath Anggara, "Harmonization of Legal Decision Number 18/PUU-XVII/2019 by the Constitutional Court Concerning Fiduciary Guarantee," *Proceedings of the 2nd International Conference on Law Reform (INCLAR 2021)*, 2021, <https://doi.org/https://doi.org/https://dx.doi.org/10.2991/assehr.k.211102.177>.

¹⁷ Dimas Fandikha Satria, Catur Wido Haruni, and Fitria Esfandiari, "Kepastian Hukum Terhadap Iuran Peserta BPJS Pasca Putusan Mahkamah Agung Nomor 7P/HUM/2020," *Indonesia Law Reform Journal* 1, no. 2 (2021): 153–64, <https://doi.org/https://doi.org/10.22219/ilrej.v1i2.16934>.

This Electronic Signature has been certified and has legal force equivalent to wet signatures and validity and authenticity that can be accounted for. Electronic Signatures (TTE) that have been certified must be able to meet the criteria set by the government as stipulated and explained in Government Regulation Article 60 Paragraph (3) No. 71 of 2019 concerning the Implementation of Electronic Systems and Transactions.¹⁸

Based on the explanation of the regulations above, the results of the electronic certificate along with its print or *Print Out* are valid evidence and can be used for the benefit of any legal action in accordance with the applicable Procedural Law in Indonesia. The Ministry of ATR / BPN as the person in charge must be responsible for the data available during the data validation and verification process, so that each individual ownership of land rights has been tested for correctness and has legal force that can be proven.

2. Government Efforts in Protecting Electronic Land Certificate Data

The use of electronic certificates provides a difference in information, in addition to the electronic certificate in the form of information about *Restrictions* and *responsibilities* included in the certificate. The method of securing electronic land certificates already consists of 5 points, namely:

- a. The Ministry of ATR / BPN has implemented ISO / IEC 27001: 2013 Standard ISO / IEC 27001: 2013 is a security management standard that determines security management best practices and comprehensive security control following ISO: IEC 27002 best practice guidelines¹⁹. The use of this ensures that all processes carried out can be based on risk analysis and mitigation based on *International Best Practices*
- b. Using the Encrypt QR (*Quick Response*) method.
- c. Using Electronic Signatures with BSi logos
- d. Electronic Certificate that has used the 2FA (*2 Factor Authentication*) system
- e. Regularly stored digital data storage within *Data Centers* and DRCs, *Data Center* is a place that is made specifically with the aim of storing data on an entity, data stored in the data center can be in the form of information or ip computer server²⁰. *Disaster Recovery Data* (DRC) is a series of actions taken to be able to restore business operations after a significant disaster or disruption, intending to reduce negative impacts and ensure effective continuity of system operations²¹.

The use of security methods used by ATR / BPN is an added value that can provide benefits for the community as holders of electronic land certificates which are useful in minimizing counterfeiting to illegal transactions in land parcels carried out by land mafias.

However, there are still several points that must be pursued by the government to better guarantee faith, especially in the system used in collecting data that has been inputted by land

¹⁸ Syamil Abdurrahim Fitria Esfandiari, Duflitama Astesa, Sidiq Pramono Ganisha, Lavia Ridha Tivania Rachmaudina, Nurhafidz Maskat Maulana, "New Normal as an Opening Door to State Financial Stability through the Post-PSBB Tourism Sector," *SALAM: Jurnal Sosial Dan Budaya Syar-I* 8, no. 5 (2021): 1513–26, <https://doi.org/https://doi.org/10.15408/sjsbs.v8i5.22487>.

¹⁹ Amazon AWS, "ISO/IEC 27001:2013," 2023.

²⁰ Cloudmatika, "Data Center, Solusi Mudah Untuk Amankan Data Anda!," 2023.

²¹ Elitery, "Mengenal Disaster Recovery Center (DRC) Secara Lengkap Bersama Elitery," 2023.

rights owners to protect electronic land title data for parties holding land rights, among these points.

In terms of security in electronic land title data, the use of technology can be a solution to potential problems that will arise in the future.²² *Blockchain* technology is a technology used in distributed databases, through distributed data, will be recorded and stored on every member who has been connected to a network. In carrying out its functions, data that has been entered or recorded will be verified by the consensus of the majority of participants who have joined the system.²³ *Blockchain* is a decentralized encryption system so that faith and transparency of data from electronic land certificates can be guaranteed. In this case, it makes it difficult to manipulate or falsify data and information that has been entered into the network at the time of the system.

Positive law in Indonesia does not contain the substance of *Blockchain*, so it cannot be used as a basis for law to consider the potential for *Blockchain* implementation in Indonesia. This is because POJK 37/2018 is not domiciled as a Basic Legislation following Article 7 Paragraph (1) of Law No. 12 of 2011 concerning the Establishment of Laws and Regulations, which makes it difficult to form and implement regulations related to the potential use of *Blockchain technology* in Indonesia.²⁴

Blockchain as a security system for electronic land titles has its own urgency in terms of legal protection. Thus, the draft blueprint for *Blockchain regulation can be contained in Law No. 19 of 2016 concerning Amendments to Law No. 11 of 2008 concerning Electronic Information and Transactions (ITE Law) as a Blockchain legal umbrella* in cybersecurity systems, which can then be further regulated in an implementing regulation. This is done to delegate authority to the State Cyber and Encryption Agency (BSSN) as an institution that has an orientation in the field of state cybersecurity and encryption.

D. CONCLUSION

Legal protection of electronic certificates in evidence has a position as electronic evidence which is valid evidence as an expansion of evidence and is recognized in the procedural law system in Indonesia and has legal force as a strong evidence tool regardless of how the strength of the physical certificate is considered true as long as it is not proven otherwise. The way to prove it according to Article 5 of the Minister of ATR / BPN Electronic Certificate is by showing an electronic certificate that is still in the form of an electronic document directly by accessing it through an electronic system and/or using printouts from electronic certificates. A legal umbrella is needed that regulates the use of *Blockchain* technology, which is contained in the UU ITE to be delegated to an implementing regulation. In addition, related to the regulation of electronic land certificates, therefore the application of *Blockchain* technology as a security

²² Itai Agur et al., "Lessons from Crypto Assets for the Design of Energy Efficient Digital Currencies," *Ecological Economics* 212 (October 1, 2023): 107888, <https://doi.org/10.1016/J.ECOLECON.2023.107888>.

²³ Wang Ye et al., "Crypto Currency and Green Investment Impact on Global Environment: A Time Series Analysis," *International Review of Economics & Finance* 86 (July 1, 2023): 155–69, <https://doi.org/10.1016/J.IREF.2023.01.030>.

²⁴ Sholahuddin Al-Fatih and Fitria Esfandiari, "Halal Food in South East Asia: Are We Looking Forward? BT - Proceedings of the International Conference on Law Reform (INCLAR 2019)" (Atlantis Press, 2020), 166–69, <https://doi.org/https://doi.org/10.2991/aebmr.k.200226.034>.

system for electronic land certificates can be regulated in an implementing regulation, namely Government Regulation (PP) by containing regulatory substances related to procedures for implementing the use of *Blockchain* technology as a security system with an overview through stages such as the input of owner data into the Blockchain system, Blockchain receives the data, which then becomes in the stage of making electronic land certificates.

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Guarantee of Protection of Electronic Land Certificates as Proof of Ownership of Land Rights

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Abstract

Changes in information technology have an impact on the public service system, especially in the land sector which is experiencing a transition from Analog Certificates to Electronic Certificates which raises several challenges, one of which is in the field of law, in practice the power of law because electronic information and transactions cannot be used as evidence, but must meet certain requirements. The purpose of this research is to find out and analyze the legal force of Electronic Land Certificates and to find out the efforts made by the government to protect the Electronic Land Certificate system. The research method used is the Normative Juridical Approach. The results of this study are the legal protection of electronic certificates in proving that they have a position as legal electronic evidence have been recognized in the procedural law system in Indonesia, and have strong legal force. Electronic Land Certificates require a legal umbrella governing the use of Blockchain technology contained in the ITE Law to be delegated to an implementing regulation. This study concludes that Electronic Certificates have the same legal force as Analog Certificates. As an effort to support the use of Electronic Certificates, the government's role is needed in formulating laws that regulate the substance of the use of technology in electronic certificate database storage systems.

Keywords: Electronic Land Certificate; Legal Certainty; Land Rights; Blockchain.

Abstract

Perubahan teknologi informasi berdampak pada sistem pelayanan publik khususnya di sektor pertanahan yang sedang mengalami transisi dari Sertifikat Analog ke Sertifikat Elektronik yang dalam praktiknya tidak dapat dijadikan bukti kecuali harus memenuhi persyaratan tertentu. Tujuan dari penelitian ini adalah untuk mengetahui dan menganalisis kekuatan hukum Sertifikat Tanah Elektronik dan untuk mengetahui upaya yang dilakukan oleh pemerintah untuk melindungi sistem Sertifikat Tanah Elektronik. Metode penelitian yang digunakan adalah Pendekatan Yuridis Normatif. Hasil penelitian ini adalah perlindungan hukum sertifikat elektronik dalam membuktikan bahwa sertifikat elektronik memiliki kedudukan sebagai alat bukti elektronik yang sah, telah diakui dalam sistem hukum acara di Indonesia, dan memiliki kekuatan hukum yang kuat. Sertifikat Tanah Elektronik memerlukan payung hukum yang mengatur penggunaan teknologi Blockchain yang terdapat dalam UU ITE untuk didelegasikan kepada peraturan pelaksana. Penelitian ini menyimpulkan bahwa Sertifikat Elektronik memiliki kekuatan hukum yang sama dengan Sertifikat konvensional. Untuk upaya mendukung penggunaan Sertifikat Elektronik, diperlukan peran pemerintah dalam menumuskan undang-undang yang mengatur substansi penggunaan teknologi dalam sistem penyimpanan basis data sertifikat elektronik.

Kata kunci: Sertifikat Tanah Elektronik; Kepastian Hukum; Hak Tanah; Blockchain.

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