

The Role of Land Registration in Spatial Planning: A Comparative Study of Indonesia and USA

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Article	Abstract
<p>How to cite: Brian Mochamad Fahmi & Handar Subhandi Bakhtiar, 'The Role of Land Registration in Spatial Planning: A Comparative Study of Indonesia and USA' ((2025) Vol. 6 No. 3 Rechtenstudent Journal Sharia Faculty of KH Achmad Siddiq Jember State Islamic University.</p> <p>DOI: 10.35719/rch.v6i3.390</p> <p>Article History: Submitted: 13/11/2025 Reviewed: 24/11/2025 Revised: 29/11/2025 Accepted: 04/12/2025</p> <p>ISSN: 2723-0406 (printed) E-ISSN: 2775-5304 (online)</p>	<p>The government holds the obligation to ensure legal certainty over land ownership, control, and utilization through a structured land registration system. The state bears the interest in regulating the relationship between land rights and spatial planning as the foundation for sustainable land use control. This research examines the relationship between the land registration system and spatial planning policies in the practice of land administration in Indonesia and the United States. This study also analyzes the effectiveness of the land registration system as an instrument to support the implementation of spatial planning. The method used in this research is normative juridical, based on legal literature, statutory regulations, and comparative law approaches. The results show that the land registration system in Indonesia remains declarative and has not been substantially integrated with the spatial planning system. The Indonesian government has not yet established a technical mechanism to functionally align land data with spatial plans. The United States government has developed institutional integration between land registration and zoning regulations. The legal system in the United States demonstrates a higher degree of effectiveness in using land registration as a tool to control land use. The Indonesian government needs to strengthen its legal and institutional framework to enable land registration to function as a legal instrument for efficient and sustainable spatial planning.</p> <p>Keywords: <i>Land, Land Registration, Spatial Planning.</i></p> <p>Abstrak Pemerintah memiliki kewajiban untuk mewujudkan kepastian hukum atas penguasaan, pemilikan, dan pemanfaatan tanah secara tertib melalui sistem pendaftaran tanah. Negara berkepentingan untuk mengatur hubungan antara hak atas tanah dan rencana tata ruang sebagai dasar pengendalian pemanfaatan ruang yang berkelanjutan. Penelitian ini membahas hubungan antara sistem pendaftaran tanah dan kebijakan penataan ruang dalam praktik penyelenggaraan administrasi pertanahan di Indonesia dan Amerika Serikat. Penelitian ini juga menelaah efektivitas sistem pendaftaran tanah sebagai instrumen yang mendukung implementasi penataan ruang. Penelitian ini menggunakan metode yuridis normatif yang didasarkan pada studi kepustakaan, peraturan perundang-undangan, dan pendekatan perbandingan hukum. Hasil pembahasan menunjukkan bahwa sistem pendaftaran tanah di Indonesia masih bersifat deklaratif dan belum terintegrasi secara substansial dengan sistem penataan ruang. Pemerintah Indonesia belum membentuk mekanisme teknis yang menyatukan data pertanahan dan rencana tata ruang secara fungsional. Pemerintah Amerika Serikat telah mengembangkan integrasi antara pendaftaran tanah dan zoning regulations secara kelembagaan. Sistem hukum di Amerika Serikat menunjukkan efektivitas yang lebih tinggi dalam menjadikan pendaftaran tanah sebagai alat kendali pemanfaatan ruang. Pemerintah Indonesia perlu memperkuat sistem hukum dan kelembagaan agar pendaftaran tanah mampu</p>

berperan sebagai instrumen hukum dalam penataan ruang secara efisien dan berkelanjutan.

Kata Kunci: Tanah, Pendaftaran Tanah, Tata Ruang.

Introduction

Land registration plays a crucial role in the land law system, as it ensures legal certainty regarding land ownership and use. The state is responsible for implementing an efficient land administration system that is accessible to all levels of society.¹ The existence of a sound land registration system will influence the effectiveness of spatial planning, as land data is the primary foundation of regional spatial planning. Spatial planning based on valid land data can prevent agrarian conflicts, support sustainable development, and maintain ecological balance. The Republic of Indonesia has regulated the land registration system through Law Number 5 of 1960 concerning Basic Agrarian Regulations and its derivative regulations. The government, through the National Land Agency, is tasked with organizing national land registration, which aims to provide legal certainty and protection to land rights holders. This system is declarative, meaning registration does not create new rights but rather records existing rights based on proof of ownership. Since the 1980s, Indonesia has implemented a systematic land registration program focused on large cities and priority development areas. Meanwhile, the United States adopts a land registration system that varies from state to state. Some states use the Torrens system, while others maintain the general registration system. The Torrens system provides greater legal certainty because the certificates issued are conclusive and cannot be challenged, and are integrated with the zoning regulation system which strictly regulates land use.

Indonesia faces significant challenges in integrating land data and spatial planning. The land information system is not yet fully connected to the spatial planning information system managed by different institutions. As a result, discrepancies arise between land parcel data and spatial planning maps, leading to land use conflicts. The land registration process, which is not yet fully digital, further complicates real-time information updates.² This lack of synchronization often results in permitting decisions clashing with spatial plans, resulting in many development projects being delayed or even canceled. Furthermore, many local governments lack the technical capacity and budget to remap areas that have changed functionally. States in the United States have developed integrated geographic information systems to support the effective implementation of zoning regulations. Land data is compiled in a detailed digital cadastre, and any changes in land use must be approved by local zoning authorities. This system provides certainty and transparency in spatial planning. However, the United States also faces challenges stemming from rapid socioeconomic dynamics, such as urbanization, gentrification, and changing land demand patterns. These changes cannot always be readily accommodated by a rigid zoning system. As a result, revisions to zoning regulations often require lengthy legislative processes and spark debate among communities and local governments.³

¹ Amoury Adi Sudiro, Ananda Prawira Putra, "Kepastian Hukum Terhadap Hak Atas Pendaftaran Tanah Dan Hak Kepemilikan Atas Tanah Yang Telah Didaftarkan", *Jurnal Magister Hukum*, Vol. V, No. 1, (2020): 37.

² Retno Sulistyaningsih, "Reforma Agraria Di Indonesia", *Jurnal Perpektif*, Vol. 26, No. 1, (2021): 58-59.

³ Muhammad Aziz Zaelani, Wahyu Beny Mukti Setiyawan, Fery Dona, "Mewujudkan Pendaftaran Tanah Yang Responsif Pada Era Disrupsi Sebagai Penunjang Kesejahteraan Rakyat", *Jurnal USM Law Review*, Vol. 5, No. 1, (2022): 348.

The main problem emerging in Indonesia is the weak integration between sectors in the management of land and spatial planning information. Many strategic national development projects are delayed because land status is not yet certified or does not align with spatial plans. This indicates that land registration is not yet functioning optimally as a spatial planning instrument. The central government often experiences difficulties in directing regional development due to weak spatial data. Currently, communities suffer losses due to overlapping land claims, which give rise to legal uncertainty and agrarian conflicts. This situation is exacerbated by low public participation in the spatial planning process, resulting in community interests not being fully accommodated. The United States, for example, notes the main challenge lies in the delay in updating zoning regulations, which has rendered some areas out of touch with actual conditions. The government struggles to adapt spatial planning policies to rapidly changing development needs. The zoning revision process often leads to disputes between the government, developers, and residents, as changes in land use impact economic and social interests. States that are inflexible in changing zoning regulations face declining investment and stagnant regional growth. The impact of the problems in both countries is quite significant for long-term development. The low effectiveness of land registration systems and inconsistencies with spatial planning result in high economic, political, and social costs in Indonesia. Investors tend to withdraw from large projects due to the lack of legal security over land status. The government must allocate additional budgets to resolve land conflicts and re-engineer regional planning. Meanwhile, in the United States, inconsistencies in zoning and socioeconomic dynamics have led to development disparities between regions and increased litigation costs related to land use. Local governments face pressure to balance conservation, economic development, and spatial equity.⁴

Both countries have valuable insights that can be exchanged for improving land registration and spatial planning systems. Indonesia can adopt positive aspects of the United States' zoning regulation system, which is based on integrated spatial data, while the United States can consider a participatory approach to spatial planning, as is being developed in several regions in Indonesia. Harmonizing the agrarian legal system and the spatial planning system will be key to creating sustainable and equitable development. Reform of the land registration system must go hand in hand with improvements to spatial planning to comprehensively and integrately address future development needs. Land registration, conducted in an integrated manner and in harmony with spatial planning, will provide legal certainty regarding land use in accordance with the spatial designation planned by the government. A land registration system that accurately reflects spatial and legal data will strengthen the legal basis for zoning implementation and control of spatial use. Integration of land registration information and spatial planning will minimize overlapping land rights, prevent land use conflicts, and support effective permitting in development. Alignment between these two instruments will create an efficient, transparent, and accountable land administration system, thereby providing certainty for communities, investors, and the state in realizing sustainable development.⁵ Based on the explanation above, it is interesting to be researched in the form of a journal with the title "Comparison of Land Registration Systems in Indonesia and the United States in the Framework of Spatial Planning Implementation". The objectives to be achieved in this journal are first to

⁴ Yusuf Saepul Zamila, et al, "Konsep Asuransi Pendaftaran Tanah Di Indonesia Dan Perbandingannya Dengan Negara Lain", *Jurnal Bina Mulia Hukum*, Vol. 6, No. 2, (2022): 298.

⁵ Rahmat Ramadhani, "Pendaftaran Tanah Sebagai Langkah Untuk Mendapatkan Kepastian Hukum Terhadap Hak Atas Tanah", *Jurnal Sosial dan Ekonomi*, Vol. 2, Issue 1, (2021): 33.

find the relationship between the land registration system and spatial planning policies in the practice of land administration in Indonesia and the United States, second to find the effectiveness of the land registration system as an instrument that supports the implementation of spatial planning.

Research Method

This research uses a normative juridical method that focuses on the study of written legal norms as a basis for analysis of the land registration and spatial planning systems in Indonesia and the United States.⁶ The approach used in this study includes a legislative approach, namely by reviewing various laws and regulations governing land registration and spatial planning, as well as a conceptual approach that aims to understand the basic concept of land registration as a legal instrument in spatial management. The legal materials used consist of primary legal materials in the form of laws, government regulations, and other relevant regulations, as well as secondary legal materials in the form of legal literature, scientific articles, and expert opinions.⁷ This study uses Jean Michel Otto's theory of legal certainty as a theoretical basis to assess the extent to which the legal system provides clarity, order, and predictability for legal subjects in land registration and spatial planning. The legal material collection technique is carried out through a literature study by exploring legal documents, academic literature, and official legal sources. The legal material analysis technique is carried out qualitatively by interpreting legal provisions and examining the relevance between legal norms and the practice of land administration and spatial planning in both countries.⁸

Results and Discussion

The Relationship Between Land Registration Systems and Spatial Planning Policies in Land Administration Practices in Indonesia and USA

The land registration system and spatial planning policy are closely linked within the framework of modern land administration. The state is obliged to guarantee legal certainty over land rights and the certainty of spatial functions so that all development activities proceed according to established spatial plans. Land administration requires valid land registration data to compile basic spatial maps. The government must ensure that legal and spatial information on a land plot is accessible and reliable to all stakeholders. Any spatial planning decision that is not based on valid land data has the potential to give rise to legal disputes and violations of community rights. Land registration is regulated in Article 19 paragraph (1) of Law Number 5 of 1960 on Basic Agrarian Regulations, which stipulates that the government is obliged to organize land registration throughout the territory of the Republic of Indonesia to ensure legal certainty.⁹ This provision emphasizes that land registration is a state instrument for providing

⁶ Ahmad Rosidi, M. Zainuddin, Ismi Arifiana, "Metode Dalam Penelitian Hukum Normatif Dan Sosiologis (Field Research)", *Jurnal Law and Government*, Vol. 2, No. 1, (2024): 49.

⁷ Sinta Alfi Rosyida & Basuki Kurniawan, "Comparative Study of the General Election Commission (KPU) in the United States and South Korea" *Rechtstudent Journal*, Vol. 4 No. 3 (2023): 265.

⁸ Kornelius Benuf, Muhamad Azhar, "Metodologi Penelitian Hukum sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer", *Jurnal Gema Keadilan*, Vol. 7, edisi 1, (2020): 22.

⁹ Muhammad Fajar, "Implementasi Reforma Agraria di Desa Sumberdanti Kecamatan Sukowono Kabupaten Jember Perspektif Hukum Pertanahan Indonesia" *Rechtstudent Journal*, Vol. 2 No. 2 (2023): 339.

legal protection for land rights and serves as the basis for formulating national land policies.¹⁰ The registration process involves collecting physical and legal data regarding land parcels, including measurement, mapping, recording rights, and issuing certificates as evidence. The purpose of this registration is to create orderly land administration that can guarantee clarity of ownership status and support sustainable control of spatial use. The government, through land agencies, is responsible for ensuring that every land registration process is carried out transparently, accurately, and legally accountable. The government administers land through the National Land Agency, which has the authority to record, measure, and issue evidence of land rights. The land registration system in Indonesia is declarative and serves as a means of proving ownership, not as a means of establishing rights. This process is separate from spatial planning carried out by local governments through Regional Spatial Plan documents. This condition results in a mismatch between the legal status of land and its spatial designation.¹¹

The land registration system in the United States is not federally regulated, but rather based on state regulations that implement two main models: the Torrens system and the document recording system. The Torrens system, as stipulated in Minnesota Statutes Chapter 508 or the California Torrens Act, stipulates that a state-issued certificate of ownership is the sole and inviolable proof of land rights, except in exceptional circumstances such as fraud or administrative error. It is based on the principles of mirror, curtain, and indemnity to ensure legal certainty and owner protection. In contrast, the document recording system, regulated by various recording acts such as California Civil Code §§1213–1214 or Florida Statutes Chapter 695.01, requires the registration of legal instruments such as deeds of sale and mortgages with the county recorder's office to provide protection against third parties, with a priority system differentiated into race, notice, or race-notice, depending on the jurisdiction of each state. Both systems demonstrate that land registration in the United States serves not only as an administrative tool but also as a legal mechanism to ensure the certainty and efficient protection of land rights. The Torrens system provides high legal certainty because it makes certificates the sole proof of inviolable rights. Governments in several states coordinate land registration and spatial planning through zoning regulations. Land registration data is processed and used as the basis for establishing binding zone plans. This system reflects the integration of land information and spatial planning policies. Local governments in the United States use geographic information systems that support the synchronization of spatial and legal data.¹²

Integrated land administration requires alignment between institutions that manage land data and those that formulate spatial planning policies. The Indonesian government faces challenges in integrating these two sets of data due to the lack of a centralized information system. Many cases arise from overlapping land use between residential areas and protected areas. Mismatches between parcel maps and spatial plans result in legal losses for communities and reduce the quality of development. Central and regional governments require a legal framework that ensures integration between land registration and spatial planning as the basis

¹⁰ Diana R. W. Napitupulu, *Pendaftar Tanah (Pensertipikatan Hak Atas Tanah Dan Peralihannya)*, (Jakarta: UKI press, 2022), 13.

¹¹ Risti Dwi Ramasari, Shella Aniscasary, "Tinjauan Yuridis Kekuatan Hukum Sertifikat Tanah Elektronik Berdasarkan Peraturan Menteri Agraria Dan Tata Ruang Nomor 1 Tahun 2021", *Jurnal Hukum dan etika Kesehatan*, Vol. 2, No. 1, (2022): 8.

¹² Park, Jung-Ho · Lim, Hyung-Taek · Kim, Sang-Min, "A Comparative Analysis of Oversea Land Registration Systems - UK, Australia, USA, the Netherlands, France, Sweden –", *Journal of Cadastre & Land InformatiX*, Vol. 52, No. 2, (2022): 83.

for issuing permits. The United States government has been a pioneer in establishing synergy between land administration and spatial planning through zoning ordinances. Every landowner is required to comply with zoning regulations before applying for land use changes. Local governments regulate land use in detail, from commercial, residential, industrial, to conservation zones. This certainty of spatial function ensures clarity in the implementation of land rights. Investors and the public receive clear information regarding the legal limitations and obligations inherent in property rights. This prevents disputes and improves the efficiency of public services.¹³ Land registration and spatial planning, viewed from the perspective of Jean Michel Otto's theory of legal certainty, are legal instruments that serve to create order, predictability, and protection for the rights of legal subjects to the land and space they own. Jean Michel Otto emphasizes that legal certainty must ensure that the law can be understood, applied consistently, and provide a sense of security to the public regarding binding legal status. Systematic and accurate land registration will provide authentic evidence of ownership rights, while spatial planning designed through legislation will determine the function and legal use of land. Both must operate in an integrated manner so that land ownership and use do not conflict with spatial plans, thus creating legal certainty both substantively and procedurally. Without integration between land registration and spatial planning policies, legal subjects will be unable to predict the legal consequences of land use actions, ultimately reducing the principle of legal certainty as intended by Jean Michel Otto's theory.¹⁴

The limitations of Indonesia's land registration system are evident in the slow data updates and low registration coverage. Much community land remains unregistered and lacks definitive legal status. This situation complicates spatial planning adjustments because the government lacks accurate data on land ownership and use. The spatial planning process becomes ineffective because it does not reflect the actual conditions. The government needs legal and technological reforms to encourage the digitization of land data and strengthen inter-agency coordination. The system in the United States teaches us that integration between land registration and spatial planning can only be achieved with legal certainty guaranteed by state institutions and supported by reliable information technology. Local governments play a crucial role in developing zoning plans based on validated land data. Every development permit application must comply with the zoning plan and registered land ownership data. Any discrepancies will result in permit rejection and require applicants to align their development plans with spatial planning regulations. The United States demonstrates that a robust land registration system can be a key instrument for sustainable spatial planning. The Indonesian government needs to encourage institutional reforms so that land data is viewed not only as a means of proving ownership but also as a foundation for spatial policy. The use of technology, such as geographic information systems, must be expanded to the village and sub-district levels to provide transparent access to land and spatial data. Information transparency will enhance public participation and prevent conflicts of interest in land use.

¹³ Sri Novianti, Irma Maulida, "Implementasi Pembuatan Sertifikat Tanah Wakaf Berdasarkan Peraturan Menteri Agraria Dan Tata Ruang/Kepala Badan Pertanahan Nasional Republik Indonesia Nomor 2 Tahun 2017 Tentang Tata Cara Pendaftaran Tanah Wakaf", *Jurnal Hukum Repomsif*, Vol. 11, No. 1, (2020), 51.

¹⁴ Mishbahul Munir, Musataklima, "Sertifikat Elektronik sebagai Bukti Hak Kepemilikan atas Tanah Ditinjau dari Teori Kepastian Hukum dan Maqasid Asy-Syari'ah", *Journal of Islamic Business Law*, Vol. 7, Issue, (2023): 6.

Integration of land registration and spatial planning policy requires a strong legal framework, a coordinated institutional system, and information technology support.¹⁵ The Indonesian government can adopt the principles of zoning regulations similar to those in the United States by adapting them to the national legal system. Any changes in land use must be based on an evaluation of land data and not solely on short-term needs. The central government must act as a policy director, encouraging synergy between land administration and spatial planning. Misalignment between land data and spatial plans has the potential to lead to legal violations that have broad impacts on social and economic stability. Development projects can be delayed due to claims of dual ownership or objections from communities who feel disadvantaged by spatial planning decisions. Land disputes often stem from a lack of integrated information between land rights and spatial allocations. The state must be present through a land administration system that ensures data integration and transparency at every stage of decision-making.

Legal certainty in land ownership and use can only be achieved if the land registration and spatial planning systems are integrated from the outset of planning. The government must establish uniform data standards and build a national database accessible to all stakeholders. Collaboration between ministries, institutions, and local governments is key to aligning land and spatial policies. Reforming the land registration system will positively impact administrative efficiency, increase investor confidence, and achieve social justice in the utilization of agrarian resources. Each country faces unique challenges in managing the relationship between land registration and spatial planning. Indonesia faces structural barriers in the form of weak institutional coordination and limited technical resources. The United States faces challenges in the dynamics of socioeconomic change that require rapid zoning reform. Despite differences in legal systems and government structures, both countries share the same goal of creating legal certainty, spatial justice, and environmental sustainability through a reliable land system.

Harmonizing the land registration system and spatial planning policies is a strategic step to promote inclusive and sustainable national development. The government must ensure that every policy implemented takes into account valid land data and respects the principles of agrarian law. Good land administration must encompass aspects of ownership, utilization, and protection of space. The land registration system cannot be separated from spatial planning, as both are complementary legal instruments in realizing a just and orderly spatial order. The relationship between the land registration system and spatial planning policies in land administration practices is a crucial foundation for achieving legal certainty and spatial justice. The government must develop a system capable of bridging legal and spatial data within a single, integrated legal platform. The use of digital technology, community participation, and regulatory reform must be directed toward achieving transparent, accountable, and public-interest-oriented land administration. Harmonizing land registration and spatial planning will strengthen the state's legitimacy in regulating and overseeing land use for the common good.¹⁶

¹⁵ Aldani Alam, Joko Sriwidodo, Anriz Nazaruddin Halim, "Kepastian Hukum Pendaftaran Tanah Melalui Pejabat Ppat Secara Online Penggunaan Aplikasi Kementrian Agraria Dan Tata Ruang/ Badan Pertanahan Nasional (BPN)", *Jurnal Sentri*, Vol. 2, No. 9, (2023), 3579.

¹⁶ Sigit Sapto Nugroho, *Hukum Agraria Indonesia*, (Solo: Iltizam, 2017), 123.

The Effectiveness of the Land Registration System as an Instrument Supporting the Implementation of Spatial Planning in Indonesia and USA

Indonesia has increased the effectiveness of land registration through the Complete Systematic Land Registration Program (PTSL), which aims to expand registration coverage and improve the accuracy of land data nationally. The government is issuing land certificates en masse and systematically to meet the target of registering all land parcels by 2025, thus providing a solid basis for spatial planning and permit issuance. This program encourages the acceleration of the digitization of plot maps or cadastres and their integration with spatial data, allowing regional medium-term development plans (RPJMD) and detailed spatial plans (RDTR) to use legally and technically validated data as reference. The effectiveness of PTSL is evident in the increased public trust in National Land Agency data and the reduction in land disputes due to the high certainty of ownership status and clarity of land rights boundaries. Regional governments find it easier to determine land use zones in the RDTR when registration data is neatly organized and integrated. The availability of land registration data accelerates the site verification process for issuing Building Permits and permits for low-income communities, making the process more efficient, accountable, and transparent. The government believes this effectiveness not only reflects administrative results but also improves regulatory fairness, as every landowner is registered and receives formal legal protection. Each element of the systematic registration process will positively impact the clarity of spatial functions and control of land use.¹⁷

The United States demonstrates the effectiveness of its land registration system in supporting spatial planning through the integration of title deeds and zoning regulations. Local governments in many states utilize geographic information systems and digital cadastral maps to ensure that any changes in land use comply with applicable zoning plans. The property development permitting process must comply with legally and spatially defined land functions, creating a legally binding land use control structure and reducing the risk of deviations from the designated uses outlined in the spatial plan. The concept of zoning regulations in the United States also demonstrates adaptive flexibility through a form-based code approach that accommodates social, environmental, and population density changes.¹⁸ Adjusting zoning regulations based on spatial and demographic data enables the land registration system to support spatial planning that is responsive to new needs, such as the provision of affordable housing and planned increases in urban density. Local governments use registration data as the primary reference in evaluating land use change applications, ensuring that every decision is legally and technically accountable. This enhances the effectiveness of the land registration system, which acts not only as an administrative tool but also as a spatial policy instrument that adapts to societal dynamics.

The effectiveness of the land registration system in supporting spatial planning implementation requires institutional support and information technology. The Indonesian government, through the Ministry of Agrarian Affairs and Spatial Planning and the National Land Agency, needs to build strong synergy with regional planning agencies so that any changes in spatial function or permit applications can be validated based on valid ownership

¹⁷ Langgeng Rachmatullah Putra, et al, "Efektivitas PTSL (Pendaftaran Tanah Sistematis Lengkap) Dalam Pelayanan Administrasi Pertanahan Di Kota Batu", *Jurnal PAP*, Vol. 4, No. 1, (2022), 43.

¹⁸ Jan Gościński, Artur D. Kubacki, "Land Registration Concepts in Translation", *International Journal for the Semiotics of Law*, Vol. 34, No. 1, (2021), 1459.

data. Local governments in the United States have demonstrated that this effectiveness can be achieved when land registration and planning agencies have a shared database that is regularly updated and publicly accessible. Spatial data interoperability is a critical factor in spatial planning transparency and accountability, ensuring that any changes in regulations or ownership certifications are immediately reflected in legally enforceable zoning maps. Indonesia needs a single national map system that integrates all land and spatial planning data accurately and verifiably. The government must establish metadata standards, coordinate systems, and technical validation to ensure that every plot of land can be accurately mapped and avoid overlapping uses. National strategic projects, industrial estate development, and infrastructure development will proceed smoothly if land registration is comprehensive and supported by spatial policies based on spatial data. The government can use the land registration system as a tool to strengthen the legitimacy of spatial planning and encourage more inclusive and accountable agrarian governance.¹⁹

The United States provides an example of how a deed-based land registration system can function effectively when accompanied by a strict and transparent zoning mechanism. Local governments actively use digital maps and spatial data to designate residential, industrial, commercial, and protected areas. Every landowner is obliged to comply with these designations before applying for a building permit, thereby maintaining orderly spatial use and minimizing land-use conflicts. The government stipulates that violations of zoning regulations can result in permit revocation or legal sanctions, ensuring that the land registration system is not merely administrative but also has real regulatory power. The PTSL program in Indonesia must be directed towards achieving integration between land data and spatial planning. The government needs to ensure that every land certificate issued includes geospatial coordinates and zoning information in accordance with the RDTR (Regional Spatial Planning). The use of drone technology, satellite imagery, and digital-based land information systems can expedite the validation and distribution of information to the public. The public will have greater confidence in permit policies if the legal status of each plot of land can be tracked and its function within the applicable spatial plan is known.

The central and regional governments must establish inter-agency coordination mechanisms to ensure that land and spatial planning policies are implemented in a unified manner. The issuance of location permits, environmental permits, and building permits must be based on a single system that references land registration data. The government must integrate the Online Single Submission (OSS) system with the National Land Agency (BPN) and Regional Land Agency (RDTR) databases to ensure a single-door licensing process based on valid data.²⁰ This system will improve administrative efficiency and reduce the potential for abuse of authority or disregard for legally established spatial plans. The effectiveness of the land registration system is also closely linked to the protection of the rights of indigenous peoples, small farmers, and vulnerable groups. The government must ensure that the land registration process not only benefits investors or large capital owners, but also recognizes and protects long-standing communal rights and traditional tenure. An inclusive land registration system will support socially just spatial planning and prevent agrarian conflicts resulting from the

¹⁹ Wily Yana, Adji Suradji Muhammad, Edison, "Efektivitas Reformasi Agraria Melalui Program Pendaftaran Tanah Sistematis Lengkap di Kabupaten Bintan", *Jurnal Ilmu Administrasi Negara*, Vol. 8, No. 2, (2020), 138.

²⁰ Dintasia Mustika Ayu Dinata, Ana Silviana, "Implementasi Kebijakan (OSS-RBA) Dalam Rangka Pelayanan Izin Perubahan Penggunaan Tanah Pertanian Ke Non-Pertanian", *Jurnal Studi Hukum Modern*, Vol. 6, No. 2 (2024), 111.

marginalization of local communities. The government can utilize land redistribution and agrarian reform as part of a strategy to align land ownership and spatial policies.

Indonesia and the United States both demonstrate that the effectiveness of the land registration system as a spatial planning instrument depends heavily on institutional capacity, regulatory support, and public participation. The government must encourage community and stakeholder involvement in data validation, zoning determination, and evaluation of spatial use. An open and participatory information system will strengthen public trust and encourage compliance with established spatial regulations. An effective land registration system must serve as the backbone of all spatial planning, implementation, and oversight processes. The government must instill the principle that every spatial policy can only be implemented if there is legal certainty over the land subject to the policy. The government needs to review all sectoral policies to ensure they align with applicable land and spatial zoning data. Periodic evaluation of the effectiveness of the land registration system is essential to ensure its relevance to social, economic, and technological developments. The effectiveness of the land registration system as a supporting instrument for spatial planning in Indonesia and the United States is measured not only by its administrative aspects, but also by its ability to prevent disputes, strengthen legal protection, and support sustainable development. The government must ensure that every registered plot of land has legal certainty, certainty of designation, and certainty of use so that spatial planning policies truly become a tool for regulating equitable, efficient, and environmentally friendly development.

Conclusion

The relationship between land registration systems and spatial planning policies in land administration practices in Indonesia and the United States demonstrates the importance of integrating legal and spatial data. The government is obligated to ensure legal certainty over land rights and the security of spatial functions to support orderly and sustainable development. Effective land administration must be based on accurate land registration data that is accessible to all stakeholders. The Indonesian government needs to promote integration between the National Land Agency and regional spatial planning institutions to ensure decision-making is based on valid data. The United States provides an example of integration through the implementation of zoning regulations based on land ownership data and geographic information. This integration provides legal certainty to the public and investors and prevents conflicts of interest in land use. Integration between land registration and spatial planning is the primary foundation for creating spatial justice and land governance that is oriented towards the interests of the wider community.

The effectiveness of the land registration system as an instrument supporting spatial planning implementation in Indonesia and the United States is proven through the integration of land data and spatial planning policies based on law and technology. This system strengthens legal certainty regarding land ownership and spatial allocation, thereby preventing agrarian conflicts and land misuse. The PTSL program in Indonesia has accelerated national land registration and served as the foundation for the development of RDTR (Regional Spatial Plan) and the spatially-based permitting process. In the United States, the effectiveness of the registration system is supported by strict, transparent, and socially adaptive zoning regulations. The key to success in both countries lies in institutional synergy, spatial data interoperability, and public involvement in the planning and oversight process. The Indonesian government needs to strengthen the integration between the land information system and the integrated

permitting system to create efficient and accountable spatial governance. The land registration system must include protection of the rights of vulnerable communities so that spatial planning is inclusive and equitable.

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