

# Comparative Study of Land Registration Systems in Indonesia and Sweden: Review of Legal, Institutional, Procedural, and Technological Aspects

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ARTICLE INFO	ABSTRACT
<p><b>Keywords:</b>                      Land administration, land law, title registration, integration, digitalization</p> <p><b>Date logs:</b>                      Received: April 28, 2025                      Reviewed: May 4, 2025                      Accepted: May 21, 2025                      Published: May 22, 2025</p> <p><b>How To Cite:</b>                      Syah, I., Abeng, A.T., Maruf, M., Sholichin, N., Parunggi, U.D., Manurung, P., Mahanani, A.N., Puri, W.H., Dharma, A.D.S., &amp; Amrin, R.N. Comparative Study of Land Registration Systems in Indonesia and Sweden: Review of Legal, Institutional, Procedural, and Technological Aspects. <i>Marcapada: Jurnal Kebijakan Pertanahan</i>, 4(2), 152–172. <a href="https://doi.org/10.31292/mj.v4i2.154">https://doi.org/10.31292/mj.v4i2.154</a></p>	<p>This study examines the differences in land registration systems in Indonesia and Sweden in terms of governance and legal systems, institutions, procedures, and information systems (technology). Sweden is known to have an efficient and integrated land registration system. This study also aims to provide recommendations for the development of a land registration system in Indonesia to improve land administration services. A qualitative approach with literature studies and comparative analysis was used in this study. The results of the study show that Sweden and Indonesia implement civil law and a rights registration system. The publication system in Indonesia uses a negative system with a positive tendency, while Sweden is included in the German/Swiss Group. Land registration is carried out electronically through the Lantmäteriet page or by post with a period of 3 (three) months after acquisition. Sweden is more advanced in terms of digitalisation and blockchain development, while Indonesia still faces challenges in transparency and efficiency. This study recommends strengthening digital infrastructure and regulations, as well as implementing modern technology to improve the land registration system in Indonesia.</p>

## A. Introduction

Land registration activities are carried out to provide legal certainty for land rights (Osingmahi, 2015). The state is obliged to provide a transparent, accurate, and efficient system of legal protection to avoid disputes and unclear land statuses (Silviana & Ardani, 2018). Although each country has the same goal, the implementation of the land registration system can vary (Gultom et al., 2024; Park et al., 2022). Therefore, it is important to understand the various land registration systems as a basis for evaluation in implementing land policies.

According to Dale & McLaughlin (1999), land registration is the process of formally regulating ownership and transfer of property (land), both with documentation of rights, area, land use, taxation, and the names of individuals involved in resolving land ownership conflicts. Fiscal interests have historically closely correlated with land registration activities. Larsson (1991) identified land for the purpose of paying taxes or other fees and publishing land acquisitions. This is also emphasised by Parlindungan (1999), that land registration activities have an initial purpose for tax collection as a supporting tool for state revenue.

In practice, there are 2 (two) main land registration systems that are internationally recognised, namely the deed registration system (registration of deeds) and the rights registration system (registration of titles). Boedi Harsono (2008) explains that in the rights registration system, every legal act that gives rise to changes in rights or new rights must be proven by a deed. It is not the deed that is registered but the rights that are created and the changes that occur later. In this case, the deed is the source of the data. In contrast to the deed registration system, the deed is registered as a document used to prove the creation of rights and the carrying out of legal acts regarding those rights (U. Santoso, 2019). The differences between these two systems can have an impact on legal aspects, especially regarding proof of ownership and administrative procedures. Therefore, understanding these differences is important in conducting comparative studies related to land registration systems in various countries.

Indonesia and Sweden, both of which adopt a land registration system, have different policies and implementations regarding that system (Åstrand, 2011; Nasoetion, 2003). The land registration system in Sweden is one of the most advanced and efficient in the world (Williamson et al., 2009). In addition, Sweden is also committed to providing development assistance in land administration, especially in the formation and reform of land administration and cadastral systems in developing countries (Lantmäteriet, 2025c). Sweden has implemented a more advanced land registration system by relying on highly efficient information technology (Ooi et al., 2022; Stefanovic et al., 2022). Unlike Indonesia, there are still many challenges to implementing land registration activities there. From a technical and technological perspective, although efforts have been made to transform the land registration system towards digitalisation, challenges such as limited technological infrastructure, suboptimal electronic service regulations, and protection and security of land data are still major obstacles (Sapardiyono & Pinuji, 2022; Wulan et al., 2022). Also, creating a complete and organised land database and improving the skills of people managing electronic systems are important issues that need to be fixed quickly to help with electronic land services. Meanwhile, in terms of administrative aspects, the recording process is still done manually and has not been fully digitised, which has an impact on data inaccuracy and file completion times that do not meet service standards (Lubis et al., 2023; Marhel, 2018; Mattewakkang, 2024). Socially, the low interest and participation of the community in registering their land is a major obstacle, especially in the Complete Systematic Land Registration program known as PTSL (Ardani, 2019; Mambrasar et al., 2020).

Numerous studies have explored the variations in land policies across different countries. Rajabifard et al. (2007) compared the cadastral systems in various countries, including Sweden and Indonesia, in the context of the country, institutional framework, cadastral system, cadastral mapping, and reform issues. Park et al. (2022) examined the comparison of the land registration system in Sweden with five other countries, namely, Australia, America, England, the Netherlands, and France, in terms of systems, policies, land registers, and objects. Quan (2011) studied land registration in Sweden and its comparison with countries on the Asian continent, focussing on land law in Sweden and Vietnam. Indonesia has not been part of a comparative study with Sweden in land registration. Meanwhile, the study of land registration in Indonesia has been studied with India, which focuses on the protection of agricultural land (Aina, 2025), and Ethiopia, which focuses on the registration of customary land (Tama & Manik, 2024). Although some studies have compared land registration in Indonesia and Sweden with other countries, no study has specifically compared these two countries together in a single analysis.

Considering the differences in governance and legal systems, institutions, land registration systems, procedures, and information systems in Indonesia and Sweden, it is important to conduct a comparative study to understand the advantages and disadvantages of each. This study aims to identify these differences, as well as provide recommendations for improving the land registration system in Indonesia, to create better legal certainty for the community and reduce disputes that often occur due to unclear land status. By understanding the system implemented in Sweden, it is hoped that lessons can be learnt that can be adopted and adapted to the Indonesian context. This study is also expected to provide academic contributions, such as an in-depth understanding of land registration policies in various countries, the identification of best practices from which lessons can be learnt, and an analysis of impacts and policy development models.

## **B. Research methods**

This study uses a descriptive qualitative method with a comparative approach to compare land registration policies between Indonesia and Sweden. This approach was chosen because it allows for an in-depth analysis of land registration policies in both countries in terms of governance and legal systems, institutions, procedures, and technology. Comparative study data analysis is used to compare the study variables (Park et al., 2022; Rajabifard et al., 2007). The selection of these two countries is based on Indonesia's position as a developing country that still faces various challenges in implementing land administration. Meanwhile, Sweden was chosen because it is known to have an advanced, efficient, and digitally integrated land registration system, so it can be a best practice for system development in Indonesia. We collected data through observation and documentation studies. We obtained data from academic literature, reports, laws and regulations, and public institutions related to land registration.

### C. Government and Legal System

Sweden is a peninsular country in northern Europe (Scandinavia) led by a king. The country divides itself into 21 administrative levels, known as counties, and further subdivides these into 290 municipalities (Official Statistics of Sweden, 2025). The form of this state is a constitutional monarchy with a government system in the form of parliamentary democracy. Although there is a king as head of state, the main political power is held by parliament. In other words, the monarchy in Sweden is ceremonial; the king does not have political power (Wenander, 2020). In contrast to Indonesia, where the president is both head of state and head of government. The president has the authority to appoint ministers to manage the implementation of his government. Citizens directly elect the Indonesian president and his deputy.

Judging from the legal system, in general Indonesia and Sweden adhere to civil law (Wahyuni, 2014). Civil law has the characteristic that legal records (codification) are the basis for judges to act and enforce the recorded legal system (Iqbal, 2022). In its development, civil law in Indonesia has integrated with Islamic law, which emphasises religious values, and the influence of customary law has emerged (L. Santoso, 2016). Regulations in Indonesia, such as inheritance, reflect this interaction. This model shows the harmony of various legal systems according to the character of Indonesia (Aditya, 2019; Sagala, 2022).

Sweden also exhibits civil law characteristics that are typical of Nordic countries, which are collectively referred to as Nordic Civil Law (Jonsson, 2023). This legal system developed in the Nordic countries, which are rooted in the codification of classical Roman-German law (Nordia Law, 2021; Smits, 2010). Some of the special characteristics of the Swedish legal system are the reliance on case law (not just written regulations), flexibility in contract law, and the use of *nämndemän* (use of juries), which are appointed through a political process, not selected randomly or from professional circles (Anwar et al., 2019; Jonsson, 2023). Sweden has a *sveriges grundlagar* (basic constitution) to regulate the political system, consisting of 4 (four) constitutions (Sveriges Riksdag, 2024), namely, *Regeringsformen* or The Instrument of Government; *Tryckfrihetsförordningen* or The Freedom of the Press Act; *Yttrandefrihetsgrundlagen* or The Fundamental Law on Freedom of Expression; and *Successionsordningen* or The Act of Succession.

The differences in approach in civil law between the two countries can have an impact on the land registration process. The written law in Indonesia is the main basis so that every administrative procedure is bound by normative norms in laws and regulations. This makes the existing system less responsive to the dynamics of each case. On the other hand, in Sweden, the flexibility of the legal system allows it to act more adaptively in handling land cases, including referring to previous decisions (precedent), and the existence of *nämndemän* also shows legal aspects that are not found in the Indonesian system. This enhances the efficiency and legal certainty aspects of land administration. Although the time required for a first-instance decision in dispute resolution in Sweden takes longer, which is one to two years, legal certainty in Sweden is higher because it has a clearer legal system. If a dispute arises due to a registration error by *Lantmäteriet*, the state can provide compensation

(World Bank Group, 2022b). Meanwhile, dispute resolution in Indonesia is relatively shorter, even less than a year (World Bank Group, 2022a). This is because the BPN can mediate disputes either simply or through complaints regarding issues such as errors in land boundaries, or alternatively escalate them to court if they are deemed non-trivial. Thus, the differences in civil law patterns in Indonesia and Sweden are not only normative but also have an impact on institutions, procedural flexibility, and approaches to conflict resolution in the land registration system.

Furthermore, in terms of its land registration system, Sweden uses a rights registration system similar to that in Indonesia, where the issued certificate serves as strong evidence of ownership (Arrieta-Sevilla, 2012; Åstrand, 2011; Nasoetion, 2003). The land registration system in Indonesia is regulated by the Basic Agrarian Law (UUPA) and is organised by the Ministry of ATR/BPN. Land registration in Indonesia aims to provide legal certainty for land rights recorded in land books and land certificates. The implementation of land registration in Indonesia is not about the deeds that are registered but the rights that are created and their subsequent changes. The deed is only a source of data. The rights registration system is seen in the existence of a land book as a document containing legal data and physical data that are collected and presented, as well as the issuance of a certificate as proof of rights to the registered land (U. Santoso, 2019). Therefore, a land title certificate is strong evidence, not absolute (Safitri et al., 2020).

The publication system used in Indonesia is negative with a positive tendency, which means that land certificates function as strong but not absolute evidence (Heryani & Grant, 2004). This system aims to protect the rightful owner from incorrect registration. This approach means that the possibility of changing or correcting data can be made if an error is found (Fahrani et al., 2023). However, this system still has weaknesses in legal certainty and protection for rights holders and third parties. Therefore, there is an opinion that a positive publication system is more ideal to be implemented to strengthen legal certainty in land registration in Indonesia (Hadisiswati, 2014; Widarbo & Kusmiarto, 2023; Wulansari et al., 2021). Henssen (1995) divides countries that implement the rights registration system into 3 (three) groups based on the legal aspects of their defence and technical aspects in the way of depicting land areas, namely: the British group uses large-scale topographic maps; the German/Swiss group uses cadastral maps based on land areas; and the Torrens group, where each property registration will have an individual survey document without always having to be linked to a general map of the entire region. The land registration system in Sweden uses the principle of rights registration, supported by detailed cadastral maps like the German/Swiss Group. Although this system does not provide guarantees like the Torrens system, land ownership remains protected through the principle of public faith, where rights registered in the land register are considered valid but can still be challenged within a certain period if there is stronger evidence. In addition, this system involves many parties in the registration process, such as land court judges and land surveyors (Zevenbergen, 2002). The Land Code, also known as Jordabalk (1970:994), regulates property in Sweden.

*“Fast egendom är jord. Denna är indelad i fastigheter. En fastighet avgränsas antingen horisontellt eller både horisontellt och vertikalt. Om fastighetsbildning finns särskilda bestämmelser.”*—Real property is land. This is divided into real estate units. This is divided into property units. A property unit is delimited either horizontally or both horizontally and vertically. Special provisions apply concerning property formation.

Land Code is the basic rule of land ownership and rights as well as land use and management. In Indonesia, this regulation is similar to Law Number 5 of 1960 concerning Basic Agrarian Regulations. In addition to the Land Code, land registration in Sweden is regulated by several supporting regulations, such as: *Fastighetsbildningslag* (1970:988) or the Real Property Formation Act regulates land registration procedures, land boundary determination, and transfer of land rights; *Lag* (1971:1037) *om äganderättsutredning och legalisering* or the Adjudication and Legalisation Act regulates the determination of land rights whose ownership has not been registered or the settlement of unclear land ownership; *Lag* (2000:224) *om fastighetsregister* or The Real Property Register Act regulates privacy and accessibility of information; *Förordning* (2000:308) *om fastighetsregister* or The Real Property Register Ordinance provides technical instructions on handling computerized registers; and *Inskrivningsförförordning* (2000:309) or The Land Register Ordinance as additional detailed arrangements of the Land Code.

Meanwhile, several regulations governing land registration procedures in Indonesia, namely, Government Regulation Number 24 of 1997 concerning Land Registration; Government Regulation Number 18 of 2021 concerning Management Rights, Land Rights, Apartment Units, and Land Registration; Regulation of the Minister of State for Agrarian Affairs/Head of BPN Number 3 of 1997 concerning Implementing Provisions of Government Regulation Number 24 of 1997 concerning Land Registration; Regulation of the Minister of ATR/Head of BPN Number 18 of 2021 concerning Procedures for Determining Management Rights and Land Rights; and other related regulations.

Other land regulations regulated in Sweden include *Lag* (2006:378) *om lägenhetsregister*, or Apartments Register Act, and *Förordning* (2007:108) *om lägenhetsregister*, or Apartments Register Ordinance, the administration and management of apartment registers, as in Indonesia through Law Number 20 of 2011 concerning Flats and its derivatives. The *Sametingslag* (1992:1433), or the Sami Parliament Act, oversees the Sámi Parliament, which looks after the interests of the Sámi community, and the *Rennäringslag* (1971:437), or the Reindeer Husbandry Act, manages reindeer herding and pasture use for the Sámi people's livelihoods. One of the regulations is related to the right to manage land in the use of water and land for reindeer breeding (Tarras-Wahlberg & Southalan, 2022). Meanwhile, land administration regulations for indigenous peoples in Indonesia are regulated in the Regulation of the Minister of ATR/Head of BPN Number 14 of 2024 concerning the Implementation of Land Administration and Registration of Customary Land Rights of Indigenous Law Communities.

#### D. Land Institutions

The agency that handles land affairs in Sweden is called *Lantmäteriet*. Since 1628, Sweden has carried out mapping activities with the initial aim of tax collection. Previously, through a long history until 2008, *Lantmäteriverket* (Land Survey Agency) and 21 local land survey authorities were named *Lantmäteriet*. In the same year, land registration activities were also transferred from *Tingsrätterna* (district courts), with a total of 7 (seven) offices in Sweden, to be merged into *Lantmäteriet* (Åstrand, 2011). Thus, *Lantmäteriet* is responsible for the entire land registration process (Lantmäteriet, 2009). The merger of these institutions has impacted other institutions, which have become increasingly strong in terms of rules and control over data handling compared to their status before the merger (de Vries et al., 2016). These institutional arrangements are regulated by *Förordning* (2009:946) med *instruktion för Lantmäteriet*.

Currently, *Lantmäteriet* is part of the *Landsbyggs- och Infrastrukturdepartementet* (Department of Rural Affairs and Infrastructure). *Lantmäteriet's* head office is in Gävle, with a total of 2,200 employees spread across 50 locations (Lantmäteriet, 2024). In addition, there are 49 locations for *fastighetsbildning*, 9 locations for *fastighetsinskrivning*, and 6 locations for Geodata. There are also Kommunal Lantmäterimyndigheter (KLM) or Municipal Surveying Authorities in 40 municipalities (Lantmäteriet, n.d.-b). A council presides over *Lantmäteriet*. The Director General and the Chief Executive are members of the board and are responsible for the day-to-day operations in accordance with the board's directives. The Swedish government appoints the chairman and other board members (Lantmäteriet, 2009).

*Lantmäteriet* has 3 (three) main divisions, each responsible for its area, as follows: *Fastighetsbildning* (Cadastral Services) is in charge of dividing property units or altering existing boundaries, ensuring the preservation of measurement data. This division is also responsible for making decisions about joint property, joint ownership, and management; *Fastighetsinskrivning* (Land Registration), responsible for examining, making decisions, and registering transactions of ownership, mortgages, land leases, or other rights which are then recorded in the property register. This division also makes decisions and handles stamp duty and other fees, and Geodata (Geodata) is responsible for the collection, storage, and updating of geographical and property information in Sweden and making this information available to the public, the public sector, and the private sector. This division is also responsible for regulating national place names and military mapping.

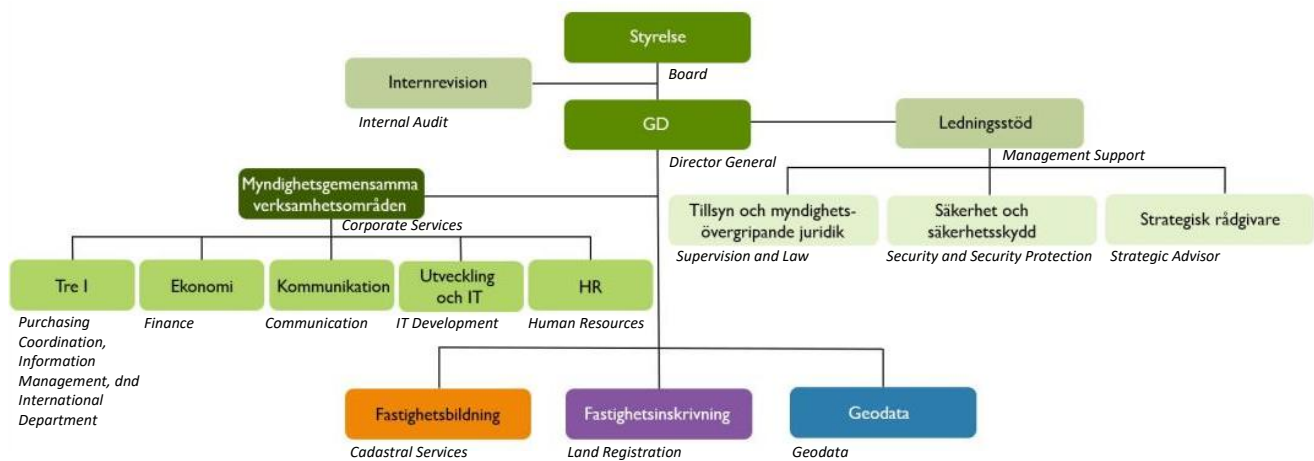


Figure 1. *Lantmäteriet* Organizational Structure  
Source: *Lantmäteriet* (2024)

In addition to the three divisions, there is a management support section called *Ledningsstöd* (Management Support), which has 3 (three) main tasks, namely, supervision and inter-agency law, security protection, and strategic advising; and *Myndighetsgemensamma Verksamhetsområden* (Corporate Services), which handles 5 (five) operational functions, namely, Tre I (purchase coordination, information management and international departments), finance, communication, technology and information development, and human resources. Intern revision (internal audit) is an independent and objective activity in the form of consulting designed to provide added value and improve the operations of an organisation. Through a systematic approach, this audit helps evaluate and improve the effectiveness of risk management, control, and governance. Internal audits are carried out on behalf of the *Lantmäteriet* board, which also sets the annual audit plan.

Unlike the *Lantmäteriet* in Sweden, the institution that handles land affairs in Indonesia is an independent institution at the ministerial level, namely, the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (Ministry of ATR/BPN), which is led by a minister or head of agency and can have a deputy. The institution is regulated in Presidential Regulation Number 176 of 2024 concerning the Ministry of ATR and Presidential Regulation Number 177 of 2024 concerning BPN. The Ministry of ATR/BPN consists of the following: Secretariat General, 7 (seven) Directorates General, Human Resource Development Agency, Inspectorate General, and 5 (five) Expert Staff. In addition, in carrying out the duties and functions of BPN in the regions, a BPN Regional Office is formed at the provincial level and a Land Office at the district/city level. The organisational structure chart of the Ministry of ATR/BPN can be seen in Figure 2, as follows:



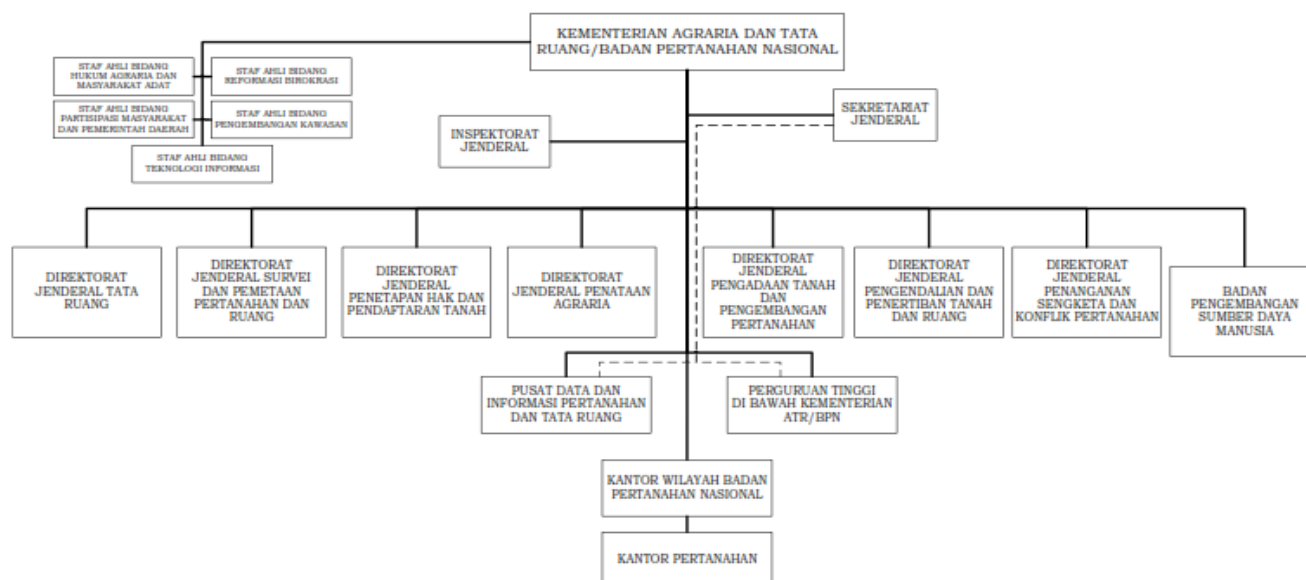


Figure 2. Organisational Structure Chart of the Ministry of ATR/BPN

Source: Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency Number 6 of 2025 concerning the Organisation and Work Procedures of the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency

### E. Land Registration Procedure

Land registration practices in Sweden are carried out electronically by visiting the *Lantmäteriet* website (Lantmäteriet, 2025b). All land-related transactions, such as purchases, sales, mortgages, and other rights, must be registered with *Lantmäteriet* using the electronic registration system or by post to *Lantmäteriet* within 3 (three) months after acquisition. This practice also includes registration of ownership, property boundaries, and use rights. The electronic registration system allows for a fast and efficient registration process and easy access for the public and related parties to check the status of ownership and rights related to land. The cadastral and mapping system is responsible for maintaining cadastral maps showing the boundaries of each property. This information is essential for clarity of ownership and to avoid land boundary disputes.

*Lantmäteriet* verifies the submitted documents, ensures that all legal requirements have been met, and then records the transaction in the land registration system. Once registration is complete, the submitting party will receive an official notification and updated documents. If there is a change in property boundaries or land division, field measurements are carried out by an official surveyor from *Lantmäteriet*. They will ensure that the changes are in accordance with applicable laws and standards. The applicant must pay fees associated with the land registration and measurement process. In addition, there are taxes imposed on certain property transactions. This process takes approximately 7 (seven) days and costs around 4.3% of the property value (World Bank Group, 2022b). *Lantmäteriet* generates a turnover of around SEK 2 billion per year or around IDR 3 trillion (Lantmäteriet, 2024).

Land ownership in Sweden is recognised once the deed of transfer is signed and registered by *Lantmäteriet* as protection for the owner's rights against third-party claims. With this system,

registration with *Lantmäteriet* becomes an additional protection tool that strengthens ownership. When making a sale and purchase contract (deed) in Sweden, there is no need to use a notary or deed-making official so that anyone can draw up a sales contract. However, the contract must be in writing and include information about the property being traded, the agreed price, the seller's statement, and the signatures of both parties. Typically, two witnesses confirm the seller's signature and also sign the contract (Jensen, n.d. ; Lantmäteriet, 2025b). The result of this land registration activity is property list information. Each property has a unique property designation consisting of 3 (three) parts, namely, the city name, followed by the area or block name, and the register number (unit).

Unlike in Indonesia, the role of the Land Deed Making Officer (PPAT) is crucial, especially in the process of transferring land rights. The deed made by the PPAT is the basis for registering rights. This deed is not direct proof of ownership but only evidence that precedes the issuance of a land title certificate. The land office officially registers new rights after issuing the certificate. This certificate serves as the official and legal proof of land ownership once the land administration process has been completed. In both countries, the deed's function and the official who created it carry different legal weights and roles. In Sweden, deeds are more private but have immediate legal force. Registration with *Lantmäteriet* is done for legal protection and transparency of ownership information. While in Indonesia, deeds are an initial administrative requirement before the rights are formally declared by the state through the issuance of a certificate.

As of 2024, Sweden has registered 3,622,941 properties, with details: 3,371,022 *fastigheter*, 140,829 *samfälligheter*, and 111,090 *gemensamhetsanläggningar* (Lantmäteriet, 2025a). *Fastigheter* is the basic unit of property in the Swedish land registration system. *Samfällighet* is land or facilities owned and used jointly by several properties. This ownership is attached to the property that has a share (*andel*) in it and is recorded with a separate registration code. *Samfällighet* can be managed directly by the owners or through a management association (*samfällighetsförening*), and the distribution of operational costs is determined based on the percentage of ownership or so-called *andelstal* (Lantmäteriet, n.d.-d). *Gemensamhetsanläggningar* are facilities that are owned and managed jointly by several properties, such as roads, parking lots, playgrounds, or water and sanitation systems (Lantmäteriet, n.d.-a). Thus, *samfällighet* is a collective ownership concept that includes shared land and facilities, while *gemensamhetsanläggning* is a type of *samfällighet* that specifically refers to facilities or infrastructure that are shared by several properties. In addition, there are 47,866 objects called *fastigheter upplåtna med tomträtt* (properties granted *tomträtt* rights), namely the right to build on land owned by other people or the government. To find out more information, users can use the electronic service called *Min Fastighet* (My Property). This service can be accessed using BankID or an identity number in Sweden to access detailed information about the property, such as land maps, area, boundaries, mortgages, and property tax values (Lantmäteriet, n.d.-c).

Sweden has a unified and integrated land registration system in the form of The Real Property Register, which is regulated in Lag (2000:224) om *fastighetsregister* or The Real Property Register Act. *Lantmäteriet* manages this electronic system to manage and monitor the property data, in accordance

Figure 3. Property Information Format in Sweden  
Source: Quan (2011) and Shahanova (2025)

Data management in this system is also assisted by other agencies such as *Skatteverket* (The Swedish Tax Agency), which also contributes to providing and updating data. You can access this system online by subscribing and paying a specific fee. Users can obtain information such as property tax value, owner, address, and property map. However, we limit ownership and mortgage information to ensure privacy. Banks, real estate companies, financial institutions, and government agencies widely use this data for land management and development planning. Sweden guarantees the accuracy of the information in this system and provides compensation for parties who suffer losses due to technical or administrative errors. This system is increasingly financially independent, with only about 30% of its operational expenses funded by the government, while the rest is obtained from paid services (Quan, 2011).

In comparison, in Indonesia, there are still many land documents in physical form (paper-based), although there have been efforts to digitise through an electronic system that connects the land office

with PPAT and the issuance of Electronic Certificates (e-certificates), which are more secure because of the use of digital signatures (Mujiburohman, 2021; Tetama, 2023). E-certificates are not based on the UUPA and its implementing regulations but refer to the Electronic Information and Transactions Law (UU ITE) and the Job Creation Law, with a legal basis in Government Regulation Number 18 of 2021 and Regulation of the Minister of ATR/Head of BPN RI Number 3 of 2023 concerning the Issuance of Electronic Documents in Land Registration Activities (Masri & Hirmansyah, 2023). Even though it is electronic, data security and infrastructure improvements in its management always need to be considered (Putri & Putri, 2024). Throughout 2024, the Ministry of ATR/BPN (2025) stated that various land registration programmes had obtained additional economic value of IDR 912.27 trillion. The Ministry of ATR/BPN (2025) derived this figure from the successful registration of 9.1 million land plots.

## **F. Land Information System**

Technology integration and policy standardisation are important to increase legal certainty, especially for land registration in many countries in Asia (Gultom et al., 2024). The land information system based on land parcels in Indonesia is presented through the BHUMI ATR/BPN page, namely <https://bhumi.atrbpn.go.id/>, which was developed by the Ministry of ATR/BPN. This geoportal was built using the TerriaJS framework, which is able to support the development of WebGIS with the Open Geospatial Consortium (OGC) protocol format. The Ministry of ATR/BPN can also connect the geoportal to several other geoportals (Widiyantoro & Rineksi, 2024). Land parcel information that can be obtained from the geoportal includes the following: land location, parcel shape, type of land rights, area, land value zone, and spatial planning. Until 2024, there were 121,118,353 nationally registered land parcels and 95,606,578 certified land parcels (Directorate General of Determination of Land Rights and Registration, Ministry of Agrarian Affairs and Spatial Planning/National Land Agency, 2025). The certificates are divided into various types of rights, namely: Ownership Rights, Cultivation Rights, Building Rights, Usage Rights, Management Rights, and Waqf Rights. The challenge faced is the vastness of Indonesia, which means that all land areas cannot yet be mapped. The digitalisation process is still ongoing, so not all land data is available online. Various innovations have been made so that land data are integrated, and quality improvements include providing a basic land model (base map), complete systematic land registration (PTSL), and complete city mapping (Amrin, 2021; Mujiati & Aisiyah, 2022; Setiawan et al., 2025).

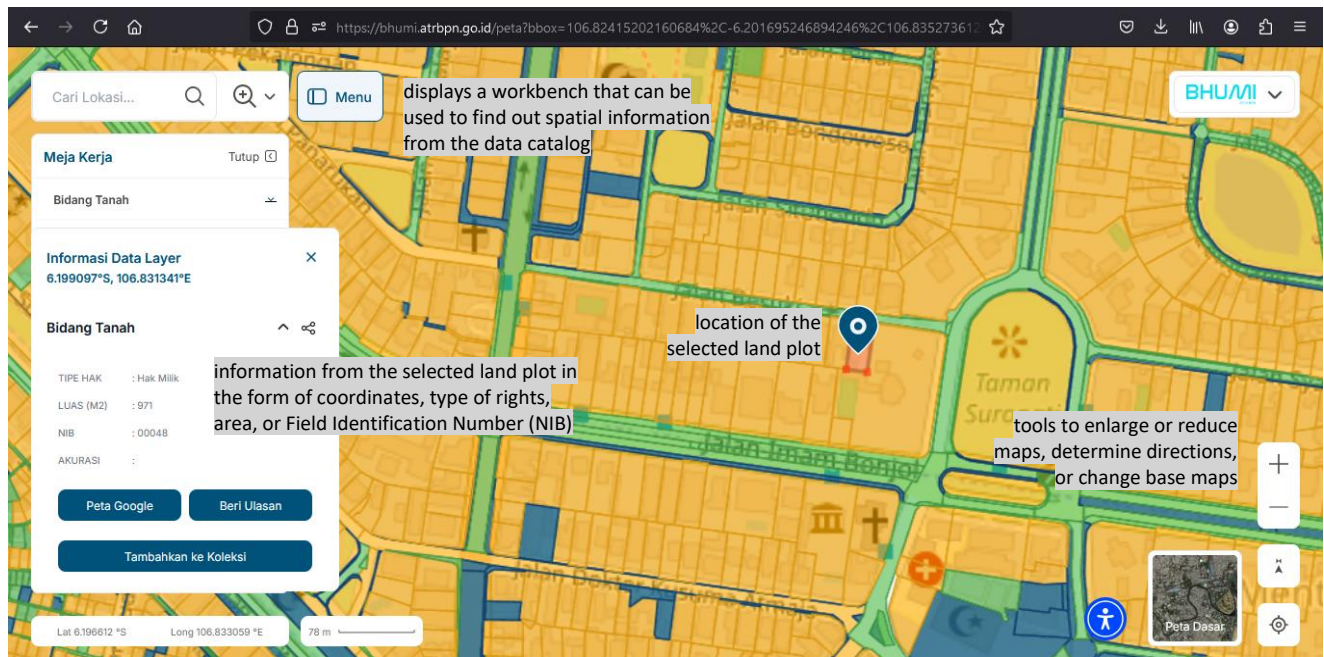


Figure 4. Land Information System Page View in Indonesia  
Source: <https://bhumi.atrbpn.go.id> (2025)

Lantmäteriet provides a land information system through the page <https://minkarta.lantmateriet.se/> or the Min Karta (My Maps) application. The application offers information related to topographic maps; past or current aerial photographs (around 1960 or 1975); and property boundaries that are updated daily. This application also includes features that allow users to search for locations by address, property designation, place name, or coordinates; measure distance or height; and mark a location. Topographic maps present information, such as toponymy, agricultural land, road and railway transportation access, address, height, and so on. In addition, if you want to know land information, you can access the *Lantmäteriet* page through an agreement or licence that is signed and granted after paying the specified fee.

Documentation of previous maps, such as economic maps or landscape maps, is still neatly stored and published for free on the page <https://historiskakartor.lantmateriet.se/>. Before 1874, the *Lantmäteristytelsen* archives provided the previous documentation, while the *Rikets allmänna kartverk* (national council) archives held it until the 1970s. In general, BHUMI ATR/BPN is still in the development stage to achieve full digitisation like *Minkarta Lantmäteriet*. However, both systems have the same main goal, which is to provide transparency in land management. What can be learnt regarding the management of information systems in Sweden is that the data presented is not only the latest data, but they still maintain previous archives and publish them.



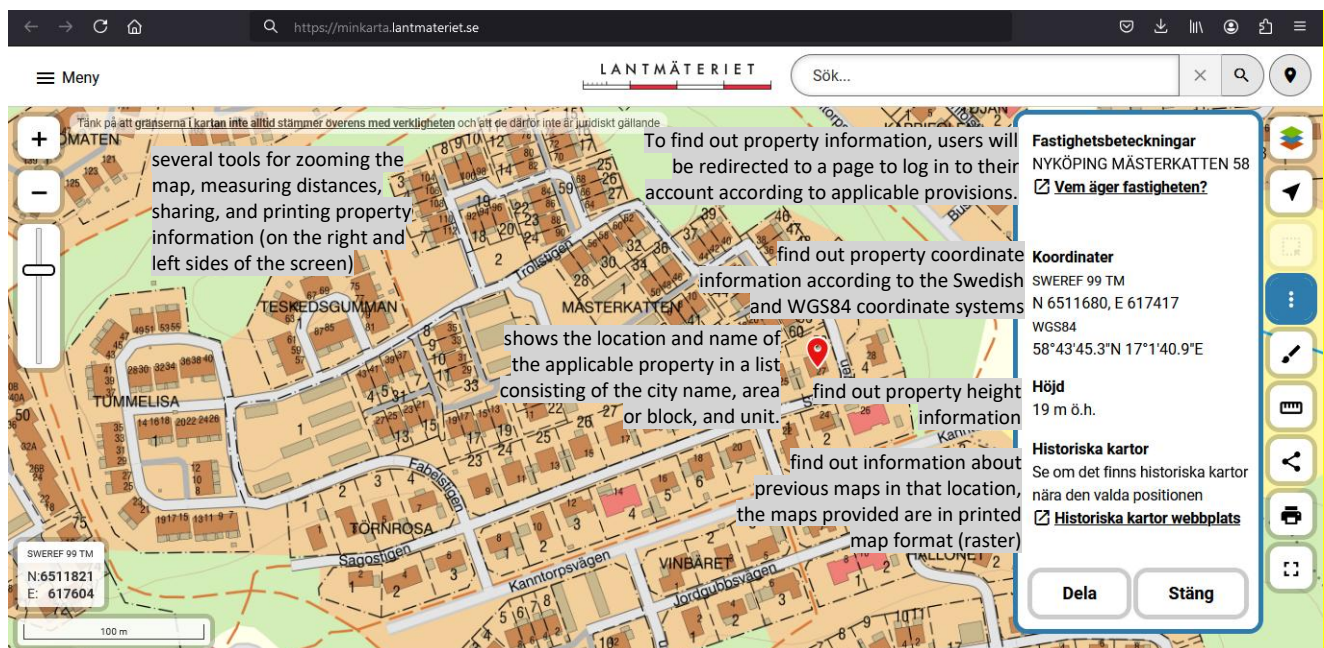


Figure 5 shows the Land Information System page view in Sweden.

Source: <https://minkarta.lantmateriet.se/> (2025)

Sweden is also a leading country in Europe in integrating blockchain technology with its land registration system. Since June 2016, *Lantmäteriet* has been working with blockchain company Chromaway, telecommunications company Telia, and consultant Kairos Future to develop a blockchain-based system to store land registration transactions. The project consists of three stages: a trial conducted to test the technical benefits of blockchain technology, the publication of a report highlighting the benefits of using smart contracts in land transactions, and the implementation of actual transactions using e-signatures and smart contracts (Shuaib et al., 2020). This technology is used to increase efficiency by reducing fraud, eliminating the use of physical documents, speeding up transactions, and saving annual tax expenses of up to EUR 100 million (Shuaib et al., 2022). The evaluation is still ongoing. If the results are satisfactory, this system will be widely implemented. In addition, other important aspects are the legal validity of digital signatures and the data governance framework for stakeholders in the Swedish land registration system (McMurren et al., 2018; Proskurovska & Dörry, 2022).

## F. Results of the Comparative Study of Land Registration Systems

A comparative study of land registration systems in developed countries, such as Sweden, and Indonesia, a developing country, is crucial to identify best practices as well as challenges and opportunities for improvement. The following table presents the findings from the comparative study of land registration systems in the two countries:

Table 1. Results of the Comparative Study of Land Registration Systems

Aspects	Sub-Aspect	Indonesia	Sweden
Governance and Legal System	Form of State	Republic	Constitutional monarchy
	Territorial Divisions	38 provinces with 416 districts and 98 cities	21 <i>counties</i> with 290 <i>municipalities</i>
	Legal System	<i>Civil Law</i> with Islamic Law and Customary Law	<i>Nordic Civil Law</i>
	Land Registration System	Rights Registration	Rights Registration
	Publication/Group System	Negative with a positive tendency	<i>The German/Swiss Group</i>
	Basic Rules	Law Number 5 of 1960 concerning the Basic Regulations on Agrarian Principles or the Basic Agrarian Law (UUPA)	<i>Jordabalk (1970:994) or Land Code</i>
	Definition of "Land"	Soil is the surface of the earth. The expansion of the definitions of "earth" and "water" with "space" is related to future progress.	<i>Real property is land.</i> Land is a unit of property that can be delimited horizontally and/or vertically (can include upper/underground spaces).
Institutions	Institution	Ministry of Agrarian and Spatial Planning/National Land Agency	<i>Lantmäteriet</i>
	Shape	Government department	Part of the <i>Landsbygds-och infrastruktur departementet</i>
	Leader	Minister/Head of Agency	<i>Styrelse</i> (Board)
	Head Office Location	Jakarta	<i>Gävle</i>
	Work Unit	34 Regional Offices (provincial level) and 486 Land Offices (district/city level)	49 <i>Fastighetsbildning</i> , 9 <i>Fastighetsinskrivning</i> , and 6 Geodata, as well as 40 <i>Kommunala Lantmäterimyndigheter</i> .
	Settings	Presidential Regulation Number 176 of 2024 concerning the Ministry of ATR and Presidential Regulation Number 177 of 2024 concerning BPN.	<i>Förordning (2009:946) med instruktion för Lantmäteriet or Instructions for Lantmäteriet Ordinance.</i>
	Technical Division (outside administration, audit, agency)	Directorate: a. spatial planning; b. Land and Space Survey and Mapping; c. Determination of Rights and Land Registration; d. Agrarian Arrangement; e. Land Acquisition and Land Development; f. Land and Space Control and Control; and g. Handling Land Disputes and Conflicts.	a. <i>Fastighetsbildning</i> (Cadastral Services) b. <i>Fastighetsinskrivning</i> (Land Registration) c. Geodata (Geodata)
Procedures	Method	Coming to the land office, began to develop priority and	Electronics, can also send files by mail

Aspects	Sub-Aspect	Indonesia	Sweden
		electronic services for some services	
	Process	Starting from checking the certificate at the land office, paying taxes on the transfer (BPHTB & PPh), validating tax payments at the tax office, making a transfer deed by PPAT, changing the name on the land certificate, and reporting to the Regional Tax Office on the change of ownership for the United Nations.	Registration of ownership in <i>Lantmäteriet</i> . The buyer submits a transfer of ownership document that has been signed by both parties (seller and buyer) and witnessed by 2 (two) people. There is no need to involve a notary or lawyer.
	Acknowledgement of Ownership	It is recognised after the right is registered and the certificate is issued by the land office.	Recognised when the transfer deed is signed and registered with <i>Lantmäteriet</i> .
	The Role of the Deed/Contract Making Partner	Requires PPAT to make an authentic deed as the basis for the registration of rights.	It does not require a notary or deed officer. The contract can be made by the party concerned.
	Dispute Resolution	It can be faster, providing a variety of options, ranging from: complaints, mediation, to the judiciary.	It is longer, but supported by a digitised registration system and there is a state guarantee for administrative errors.
	Registered Land Parcels	More than 121 million plots of land.	More than 3.6 million plots of land.
	Types of Rights	Property rights, business use rights, building use rights, use rights, management rights, waqf rights.	<i>Fastigheter, Samfälligheter, Gemensamhetsanläggningar, Fastigheter upplåtna med tomträtt.</i>
Land Information System (Technology)	Information Systems Page	BHUMI ATR/BPN <a href="http://bhumi.atrbpn.go.id">bhumi.atrbpn.go.id</a>	Min Karta <a href="http://minkarta.lantmateriet.se">minkarta.lantmateriet.se</a>
	Data Storage	Not fully digital, it still requires paper.	Digital (fully computerised).
	Geographic Coverage	Still in the process of complete mapping (not all registered).	All land is registered and mapped.
	Paper Map	It has not been fully <i>scanned</i> and stored in a system.	The results of scanning old maps are uploaded to the system as historical maps.
	<i>Blockchain</i>	In the trial and implementation stage.	System planning and development.

Source: author's processing (2025)

Based on the comparative table, it can be seen that, although both countries have the same goal of providing legal certainty for land, they have different approaches, both in terms of law, institutions, procedures, and information technology. This finding is an important basis for formulating recommendations for the development of a land registration system in Indonesia that is more efficient and adaptive to current needs.



## G. Conclusion

The fundamental difference lies in data integration and the use of technology in the land registration system. Sweden has long built a cadastral system since 1628. Sweden has a more advanced, integrated, and efficient land registration system than Indonesia. Indonesia needs to accelerate digitisation, data integration, and the adoption of technologies such as blockchain to increase the transparency and efficiency of the land registration system. In terms of the legal system, both Indonesia and Sweden apply civil law, and for land registration, they apply a rights registration system. However, the fundamental difference lies in the publication system used. Indonesia applies a negative system with a positive tendency, where land certificates that have been issued can still be sued within a certain period of time. Meanwhile, Sweden uses the German/Swiss Group system, which provides stronger legal protection for registered owners so that legal certainty over land ownership is more guaranteed. Land registration procedures in Indonesia are relatively more complex with many administrative stages that can cause the process to be slow and prone to inefficiency. Meanwhile, Sweden has a simpler and more transparent procedure, where all processes have been digitised. This allows land ownership transactions to be carried out quickly and safely. The information and technology systems in Indonesia are still in the digitalisation development stage. On the other hand, Sweden is more advanced in full digitalisation and has begun to develop blockchain technology to improve the security and efficiency of land registration transactions. Strategic steps in the form of strengthening digital infrastructure, regulatory reform, and implementing modern technology are needed to improve the quality of the land registration system in Indonesia.

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