

Securing Land Tenure through Title Registration: A Systematic Review of Global Evidence

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Abstract

Land title registration reforms are widely promoted for their potential to strengthen tenure security, stimulate investment, and support broader social and economic development. However, evidence from different countries shows that the effectiveness of such reforms varies considerably across institutional and socio-political contexts. This study provides a systematic synthesis of global evidence on land title registration reforms by reviewing 50 peer-reviewed articles published between 2010 and 2024. The review followed a structured search strategy using the Scopus and Google Scholar databases, guided by the PRISMA framework to ensure transparent identification, screening, and selection of relevant literature. The review included English-language peer-reviewed publications that examined the impacts, implementation measures, and institutional dynamics of land titling programmes. The findings indicate that land titling initiatives are frequently associated with increased agricultural investment and productivity, improved access to formal credit, and stronger legal recognition of women's land rights. Evidence from countries such as Ethiopia, Vietnam, and Rwanda demonstrates that well-designed registration programmes can support agricultural development and strengthen the legal recognition of land rights. However, the review also reveals that the issuance of formal titles does not always translate into perceived tenure security, particularly in contexts where institutional enforcement is weak, administrative systems are fragmented, or customary tenure arrangements remain unresolved. The analysis further identifies key enabling conditions for effective reforms, including decentralized governance structures, participatory implementation approaches, performance-based institutional incentives, and the adoption of fit-for-purpose technological tools such as Geographic Information Systems (GIS). Overall, the findings highlight that successful land title registration requires context-sensitive governance strategies that integrate legal reforms, institutional capacity building, and inclusive participation.

Keywords: Land, Tenure security, Title Registration, Community, Land reform

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1.0 INTRODUCTION

Land is the most vital and limited factor of production, forming the foundation of human existence and driving economic development, social stability, and environmental sustainability. Effective and efficient land utilization is closely tied to land tenure security, which defines the rights of individuals or communities to access, use, and control land (Weerahewa et al., 2021). As the custodian of land, governments play a critical role in ensuring land tenure security, resolving disputes, and providing clear titles to facilitate land market operations, attract investments, boost agricultural productivity, and promote sustainable urban development (Byamugisha & Dubosse, 2023; Sheuya & Burra, 2016a).

Title registration is the formal process of documenting land rights and identifying rightful claimants, providing legal recognition and government backed ownership. It serves as conclusive proof of ownership, reducing conflicts and offering legal protection to titleholders. Despite its importance, approximately 70% of global land parcels remain unregistered, with many private lands in developing regions unmapped (Zeeuw & Lemmen, 2015). Globally, only 24% of rural land and 46% of urban land are registered, hindering the integration of land into formal economies (Byamugisha, 2021; Byamugisha & Dubosse, 2023). This gap limits economic potential and perpetuates land related conflicts.

Consequently, land title registration is considered a pivotal reform measure to secure property rights, drive economic development, and mitigate disputes (Feder & Nishio, 1999). However, there are significant challenges that persist, particularly in developing regions, posing bottlenecks to national development. For instance, Sri Lanka introduced the title registration initiative in 1998 under the Title Registration Act through the Bim Saviya programme; however, it has faced several challenges that undermine its intended benefits. As of 2025, the government has incurred over LKR 9.3 billion (approximately USD 30 million) on the programme, yet less than 10% of land

parcels have been brought under title registration (National Audit Office, 2025). This limited progress is attributed to institutional inefficiencies, legal barriers, low public awareness, and high operational costs (Wickramaarachchi & Namasinghe, 2022).

Thus, despite ongoing reform efforts, knowledge gaps remain regarding which models and reform strategies are most effective across diverse contexts, particularly in settings characterized by legal pluralism, weak organizations, or complex socio-political environments. While existing studies have examined land titling reforms within specific national contexts or focused on particular institutional or legal dimensions, there remains limited comparative synthesis of how political, institutional, technological, and socio-legal factors jointly shape reform outcomes across countries. Addressing this gap, this systematic review provides a structured comparative analysis of land title registration reforms across multiple countries between 2010 and 2024, examining reform approaches, implementation experiences, and the factors influencing their success or failure. Unlike prior studies that often focus on a single country or framework, this review identifies cross-contextual patterns and highlights both enabling and constraining factors affecting reform effectiveness. By synthesizing these insights, the study offers practical guidance for policymakers, land administration agencies, and researchers by outlining context-sensitive strategies and integrated pathways for strengthening inclusive and sustainable land tenure security reforms.

■ 2.0 LITERATURE REVIEW

Land tenure systems define the institutional framework through which property rights over land are established, allocated and enforced. In economic and legal studies, property rights are commonly conceptualised as a bundle of rights, referring to a collection of entitlements such as the rights to access, use, transfer and exclude others from land resources. These rights may include usufruct rights, tenancy rights and ownership rights, which together determine the extent of authority that individuals or communities exercise over land. Within this framework, tenure security refers to the degree of confidence landholders possess that their rights will be recognised and protected against disputes, eviction or expropriation. Secure tenure is widely considered essential for encouraging long-term investment in land improvements and supporting sustainable land use. However, land rights systems rarely operate within a single uniform legal structure. In many countries, statutory property laws coexist with customary or community-based tenure arrangements, creating a condition often described as legal pluralism (Doss & Meinzen-Dick, 2020; Ho et al., 2024). Recognising the diversity of tenure arrangements, scholars increasingly adopt the continuum of land rights perspective, which acknowledges that land rights may range from informal or customary use to fully formalised ownership rather than existing as a strict dichotomy between formal and informal systems (Zevenbergen et al., 2013). From this perspective, strengthening tenure security may involve recognising and protecting multiple forms of legitimate land rights rather than relying exclusively on formal titles. Empirical research also suggests that expanding the bundle of recognised rights can improve welfare outcomes and encourage investment in land improvement (Deininger & Feder, 2009).

Against this conceptual background, governments across many regions have introduced land title registration reforms as part of broader land administration modernisation programmes. A major theoretical justification for such reforms derives from the land titling theory advanced by Hernando de Soto, who argued that formalising property rights could unlock the economic potential of land assets held by informal landholders (Soto, 2000). According to this perspective, formal land titles transform land into a legally recognised asset that can be used as collateral in credit markets, thereby enabling households to access financial resources and invest in productive activities. In addition to improving credit access, formal registration is expected to reduce transaction costs, improve land market efficiency and encourage investment by providing greater legal certainty regarding ownership (Feder & Nishio, 1999). These expected benefits have led many international organisations and development agencies to promote large-scale land titling programmes as instruments for poverty reduction and economic development. Initiatives supported by institutions such as the World Bank and the Commission on Legal Empowerment of the Poor have emphasised the importance of formalising land rights in order to stimulate investment and enhance the functioning of land markets (Toulmin, 2009). Consequently, numerous countries have introduced land registration reforms aimed at strengthening tenure security and modernising land administration systems.

Despite the strong theoretical rationale behind land titling reforms, a growing body of scholarship questions whether formal land titles alone can achieve the anticipated economic and social outcomes. One influential critique is the credibility thesis, which argues that the effectiveness of property rights depends not only on legal documentation but also on the credibility and legitimacy of the institutions responsible for enforcing those rights (Ho et al., 2024). From this perspective, landholders respond to the practical functioning of governance institutions rather than to the formal legal status of titles alone. If courts, administrative agencies or local authorities lack the capacity or legitimacy to enforce property rights, the existence of a formal title may not significantly improve tenure security. Empirical studies therefore report mixed outcomes from land titling programmes across different contexts. Some research indicates that formal titles can increase perceived tenure security and property values (Aikaeli & Markussen, 2022; De La O Campos et al., 2023; Ferree et al., 2023), while other studies find limited effects on credit access or investment behaviour (Sheuya & Burra, 2016; Subramanian & Kumar, 2024). For example, evidence from Nicaragua suggests that land titling improved landowners' perceptions of tenure security but did not significantly increase access to credit or investment in land improvements (De La O Campos et al., 2023). Similarly, study in Ghana indicates that formally titled landholders are more likely to perceive their tenure as secure than those relying solely on customary arrangements (Alhola & Gwaindepi, 2024). However, these studies also highlight the importance of social legitimacy, noting that communities may continue to rely on customary institutions when they perceive them as more accessible or trustworthy than state authorities (Ho, 2014; Ho et al., 2024). These findings suggest that the effectiveness of land titling reforms depends heavily on the broader institutional environment within which they are implemented.

In addition to theoretical debates regarding their effectiveness, land titling reforms face numerous practical implementation challenges. Many developing countries lack the administrative capacity required to implement comprehensive land registration programmes, including the technical expertise, financial resources and institutional infrastructure needed to manage large-scale cadastral systems (Ali & Imran, 2021; Chekole et al., 2020; Kirubanathan, 2013). Centralised land administration agencies often have limited

knowledge of local tenure arrangements, making it difficult to implement registration programmes that accurately reflect existing land rights (Toulmin, 2009). Administrative inefficiencies and complex procedures may further limit participation in land registration systems (Abubakari et al., 2018a). When registration processes involve high transaction costs or bureaucratic requirements, poorer households and residents of informal settlements may be excluded from formalisation programmes. In some contexts, inconsistent legal decisions and administrative practices have also undermined public confidence in state land institutions (De La O Campos et al., 2023). Political economy dynamics can further influence the outcomes of land registration reforms. Powerful actors may attempt to capture formalisation processes in order to consolidate land ownership, while local elites or customary authorities may resist reforms that threaten their control over land allocation (Alhola & Gwaindepi, 2024). As a result, scholars increasingly emphasise the need for context-sensitive land administration reforms that incorporate local institutions, reduce administrative barriers and protect the rights of vulnerable groups.

Although the literature on land tenure and land titling has expanded substantially over the past two decades, the existing evidence remains fragmented and often context specific. Many studies focus on individual country experiences, making it difficult to draw broader conclusions about the general effectiveness of land title registration reforms across diverse institutional settings. Furthermore, while some research emphasises the potential economic benefits of formal property rights, other studies highlight the limitations of titling programmes and the importance of institutional credibility, governance capacity and social legitimacy.

■ 3.0 METHODOLOGY

3.1 Study Design

This study employs a Systematic Literature Review (SLR) methodology to synthesize existing academic evidence on land title registration reforms and their implications for tenure security. The review follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparency and methodological rigor in identifying, screening, and synthesizing relevant literature.

Systematic literature reviews involve the systematic identification of relevant research addressing clearly defined review questions, followed by critical evaluation and structured synthesis of the findings (Pollock & Berge, 2018). This approach enables the integration of diverse empirical evidence and supports the development of comprehensive insights into complex policy issues such as land governance and title registration reforms.

The systematic review conducted in this study is guided by four key research questions:

1. **RQ1:** What are the impacts of land title registration on land tenure security?
2. **RQ2:** What measures have been implemented to adopt and streamline the land titling process?
3. **RQ3:** What key success factors influence the effectiveness of land titling reforms?
4. **RQ4:** What challenges and future directions should be considered in land titling processes?

3.2 Search Process

The literature search was conducted using a structured and replicable search strategy designed to identify relevant peer-reviewed studies addressing land title registration reforms and land tenure security. Two major academic databases, Scopus and Google Scholar, were selected as the primary sources for literature retrieval. These databases were chosen due to their extensive coverage of peer-reviewed publications across disciplines related to land administration, land governance, property rights, development studies, and agricultural economics. The use of two complementary databases allowed the study to capture a broad range of relevant research while minimizing the risk of omitting key studies.

In addition to these primary databases, supplementary sources such as SSRN and institutional publications produced by organizations including the World Bank were consulted during the initial search phase. These supplementary sources helped identify working papers, policy reports, and emerging discussions related to land registration reforms. However, to maintain academic rigor and ensure consistency in the quality of evidence included in the review, only articles published in peer-reviewed academic journals were retained for the final analysis following the screening process.

The literature search focused on publications published between 2010 and 2024 in order to capture contemporary developments in land administration systems and policy reforms. The search strategy was designed to capture studies addressing various dimensions of land title registration, including tenure security, land governance reforms, institutional arrangements, and socioeconomic outcomes.

A combination of keywords was used during the search process to identify relevant literature. Key search terms included “land titling,” “land tenure security,” “title registration,” “land registration,” and “land reform.” Boolean operators such as AND and OR were applied to combine these terms and refine the search results. Searches were performed within article titles, abstracts, and keywords to ensure the inclusion of studies that directly addressed the research themes.

The core Boolean search string used during the literature search was structured as follows: (*"land titl*" OR "title registration" OR "land registration" OR "land registration system" OR "land titling"*) AND (*"tenure security" OR "tenure" OR "property rights" OR "access to credit" OR "land investment"*). This search string was adapted where necessary to match the syntax requirements of the individual databases. After the initial search results were retrieved, duplicate records were removed and the remaining studies were screened based on their relevance to land title registration systems, tenure security, governance challenges, and reform outcomes.

To ensure transparency and replicability, the overall selection process followed the PRISMA framework. The PRISMA approach provides a standardized method for documenting each stage of the literature review process, including identification, screening, eligibility assessment, and final inclusion of studies. The study selection procedure is illustrated in the PRISMA flow diagram presented in Figure 1.

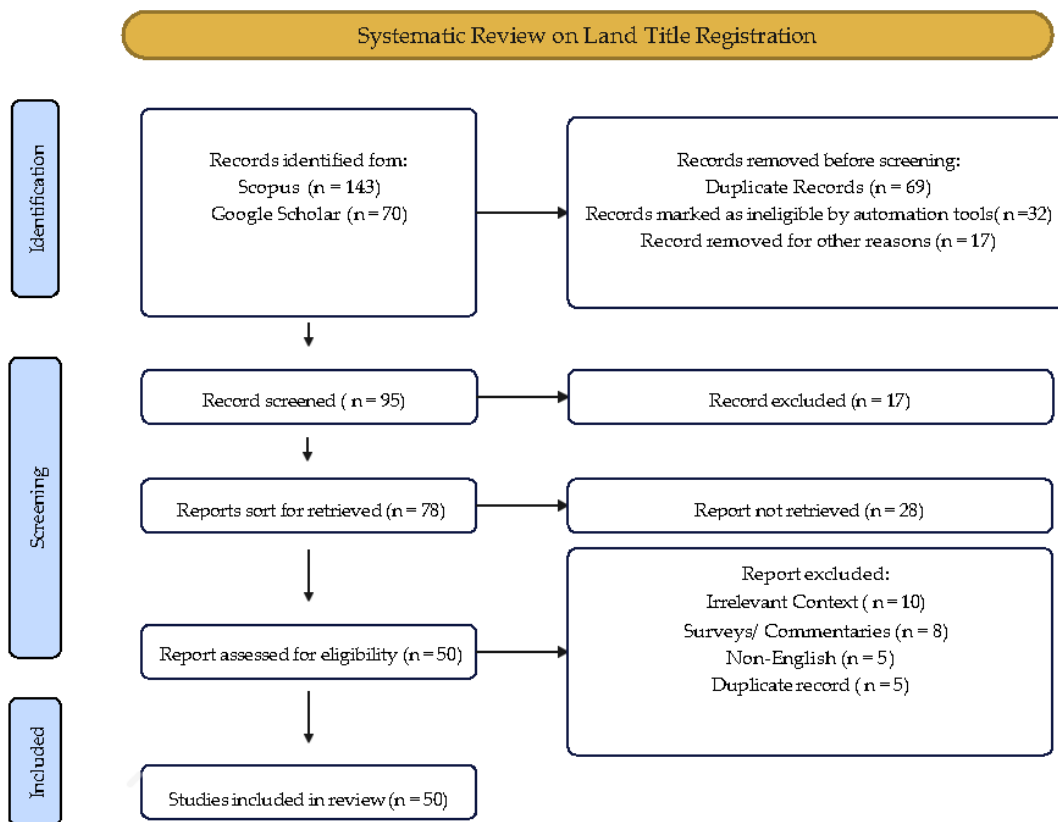


Figure 1 PRISMA flow diagram illustrating the study selection process for the systematic review
(Source: Authors, 2026)

3.3 Eligibility Criteria and Screening Procedure

The selection of studies followed a multi-stage screening procedure in accordance with the PRISMA guidelines. During the initial identification stage, all publications retrieved from the database searches were collected and organised for further evaluation. Only studies published between 2010 and 2024 were considered eligible for inclusion in the review in order to ensure that the analysis reflects contemporary developments in land governance and title registration systems.

All retrieved records were imported into Zotero reference management software, which was used to organize and manage the literature throughout the screening process. Zotero facilitated the identification and removal of duplicate records and enabled efficient management of bibliographic information during subsequent stages of analysis.

The next stage involved screening the titles and abstracts of the retrieved studies. At this stage, articles were assessed based on their relevance to the research questions guiding the review. Studies that focused on land titling programmes, land tenure security, land administration reforms, or related governance challenges were retained for further examination. Articles that did not address these topics or that were unrelated to land registration systems were excluded.

Following the title and abstract screening stage, the remaining studies were subjected to a full-text eligibility assessment. The PRISMA-guided screening process resulted in the identification of 213 records during the initial search stage, consisting of 143 records obtained from Scopus and 70 records retrieved from Google Scholar. During the pre-screening phase, 118 records were removed, including 69 duplicate records, 32 records marked as ineligible by automated filtering tools, and 17 records removed for other reasons. This left 95 records for the title and abstract screening stage.

After reviewing the titles and abstracts, 17 records were excluded because they were not directly relevant to the research questions. As a result, 78 reports were sought for full-text retrieval. However, 28 reports could not be retrieved due to access limitations. The remaining studies were evaluated through a detailed eligibility assessment, after which 50 peer-reviewed articles were included in the final systematic review. These 50 studies formed the core dataset for the subsequent thematic analysis.

The distribution of the selected studies across journals and their respective impact factors is presented in Table 1. The majority of the reviewed studies were published in journals specializing in land governance, development economics, agricultural economics, and urban studies, reflecting the interdisciplinary nature of land tenure research.

Table 1 2024 Journal Impact Factor of selected journals included in the review
(Source: Web of Science and Journal Citation Reports 2024)

No	Journal	Impact Factor (Clarivate JCR 2025)	No. of Papers in this Review
1	Land Use Policy	5.9	6
2	Land (MDPI)	3.2	4
3	World Development	4.8	2
4	American Political Science Review	5.8	1
5	Journal of Agrarian Change	2.9	2
6	Urban Studies	4.1	1
7	Agricultural Economics	4	1
8	Land Degradation & Development	3.7	1
9	Other	-	18
		Total = 50	

To minimize potential selection bias, predefined inclusion and exclusion criteria were consistently applied throughout the screening process. Titles and abstracts were first reviewed to determine their relevance to the research questions, followed by full-text assessments of eligible studies. The use of multiple academic databases helped ensure comprehensive coverage of peer-reviewed literature related to land governance and property rights research. Duplicate records and ineligible studies were systematically removed using Zotero to reduce the risk of screening errors. The PRISMA-guided workflow ensured transparency and consistency in documenting each stage of the study selection process, thereby enhancing the reliability and reproducibility of the review.

3.4 Data Extraction and Quality Appraisal

Following the final selection of studies, relevant information from each article was extracted and recorded in a structured spreadsheet to facilitate systematic analysis. Key bibliographic and study characteristics were documented, including the authors, publication year, study location, research design, data sources, and primary outcomes examined. In addition, the main findings of each study were recorded in relation to the research questions guiding the review.

To assess the robustness of the evidence, each study was evaluated using a simple quality appraisal rubric. The assessment considered factors such as the transparency of the research design, the reliability of data sources, the rigor of empirical analysis, and the relevance of the findings to the research questions. Based on these criteria, the studies were provisionally categorized according to their methodological robustness. This quality appraisal process helped ensure that the synthesis of findings was informed by the relative strength of the available evidence.

3.5 Data Analysis

Given the diversity of research designs, methodological approaches, and geographical contexts represented in the reviewed literature, a quantitative meta-analysis was not considered appropriate for this study. Instead, a thematic synthesis approach was adopted to analyse the selected studies.

The 50 articles included in the review were systematically examined and categorized according to the four research questions guiding the study. During the analysis process, similar findings were grouped into thematic categories reflecting the major topics addressed in the literature. These categories included the impacts of land title registration on tenure security, measures implemented to streamline land titling processes, key success factors influencing the effectiveness of titling reforms, and the challenges associated with land registration programmes.

Through this process, recurring patterns and relationships across different studies were identified. Redundant or unrelated information was removed in order to maintain analytical clarity and focus. The thematic synthesis enabled the integration of findings from diverse empirical contexts and facilitated a comprehensive understanding of the institutional, economic, and social dimensions of land title registration reforms. The resulting analysis provides insights into global land governance practices and highlights potential policy directions for improving land administration systems.

4.0 FINDINGS AND DISCUSSION

4.1 Bibliography Coverage

The geographical distribution of studies included in this systematic review indicates that research on land tenure and title registration between 2010 and 2024 has been concentrated primarily in developing regions undergoing land governance reforms. As illustrated in Figure 2, the largest clusters of empirical studies originate from China, India, Brazil, and several African countries including Ethiopia, Nigeria, Kenya, Ghana, and Rwanda. In addition, a notable number of studies focus on South and Southeast Asian contexts, particularly Sri Lanka, Vietnam, Laos, and Indonesia.

These regions have attracted considerable scholarly attention because they have experienced active land reform programmes, ongoing efforts to formalise land rights, and persistent challenges related to tenure insecurity. For instance, many African countries have introduced systematic land certification programmes to address long-standing issues related to customary land tenure and weak land administration institutions (Azadi et al., 2024; Zuka, 2019). Similarly, countries such as Vietnam and China have undertaken significant reforms aimed at improving land governance and supporting agricultural development (Byamugisha, 2021).

In contrast, relatively fewer empirical studies were identified from developed countries, including Canada, most European nations, and Russia. The limited number of studies from these regions likely reflects the presence of long-established land administration systems and relatively stable property rights regimes. As a result, academic attention in these contexts tends to focus on specialised issues such as property taxation, land market regulation, or digital land information systems rather than fundamental land tenure reforms.

The bibliographic distribution also reveals several geographical research gaps. In particular, relatively limited research has been conducted in Central Asia, the Middle East, and small island developing states. Given the growing importance of land governance in addressing issues such as climate resilience, migration, and urbanisation, these regions represent potential areas for future research.

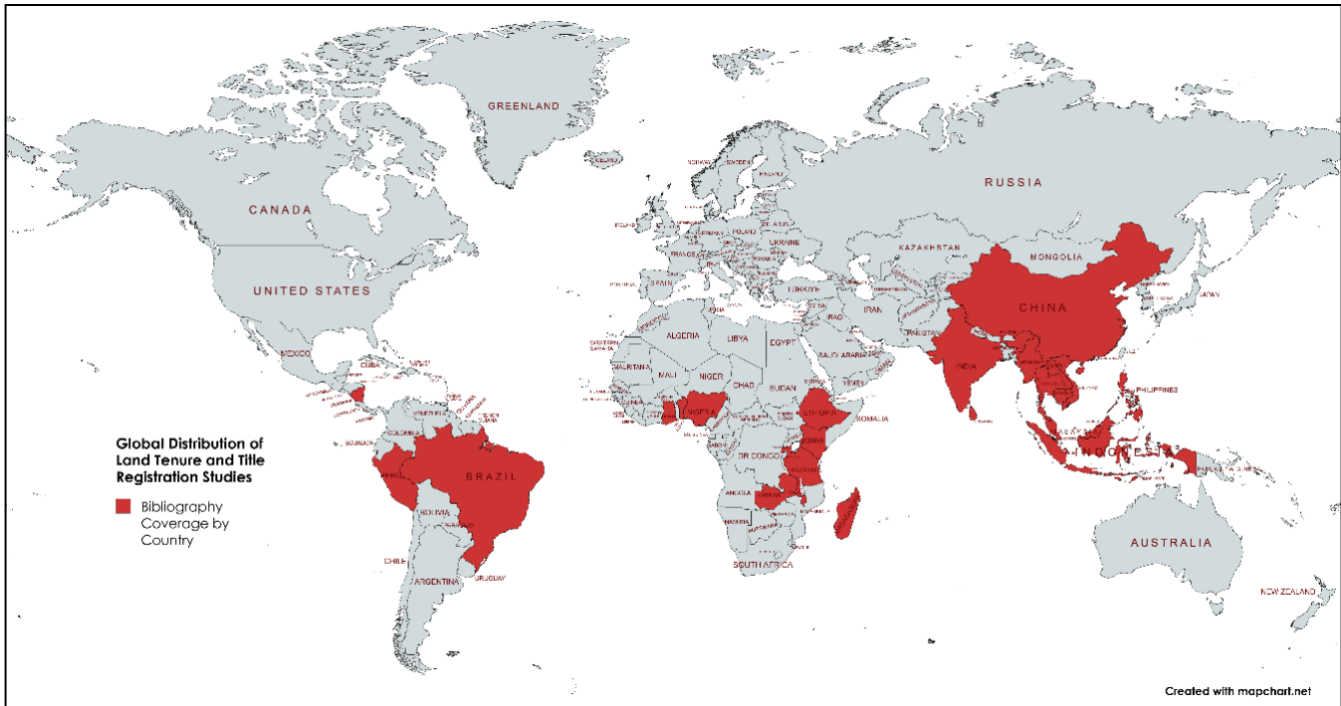


Figure 2 Bibliography Coverage on Land Tenure and Title Registration between 2010 – 2024

(Source: Authors, 2026)

4.2 Co-Occurrence Analysis

The bibliometric co-occurrence analysis presented in Figure 3 identifies several dominant themes within the literature on land tenure and title registration. The most frequently occurring keywords relate to land tenure, land rights, land titling, and land registration, indicating that these concepts form the core analytical focus of the reviewed studies.

Several thematic clusters emerge within the literature. One cluster focuses on legal and institutional aspects of land governance, including topics such as land administration, land reform, and tenure security. A second cluster highlights the socioeconomic dimensions of land tenure, with particular attention to issues such as gender equality, women's land rights, and agricultural investment.

Geographically, the literature is dominated by studies from developing regions, particularly Kenya, Tanzania, Ethiopia, China, India, Peru, and Brazil. These countries have implemented significant land policy reforms during the past two decades, making them frequent case study locations for research on land tenure systems.

Despite the expansion of research on land governance, several thematic gaps remain evident. In particular, relatively few studies examine the application of emerging technologies, such as blockchain systems, Geographic Information Systems (GIS), and remote sensing, within land administration processes. Similarly, the intersection between land tenure systems and climate change adaptation remains an emerging area of research.

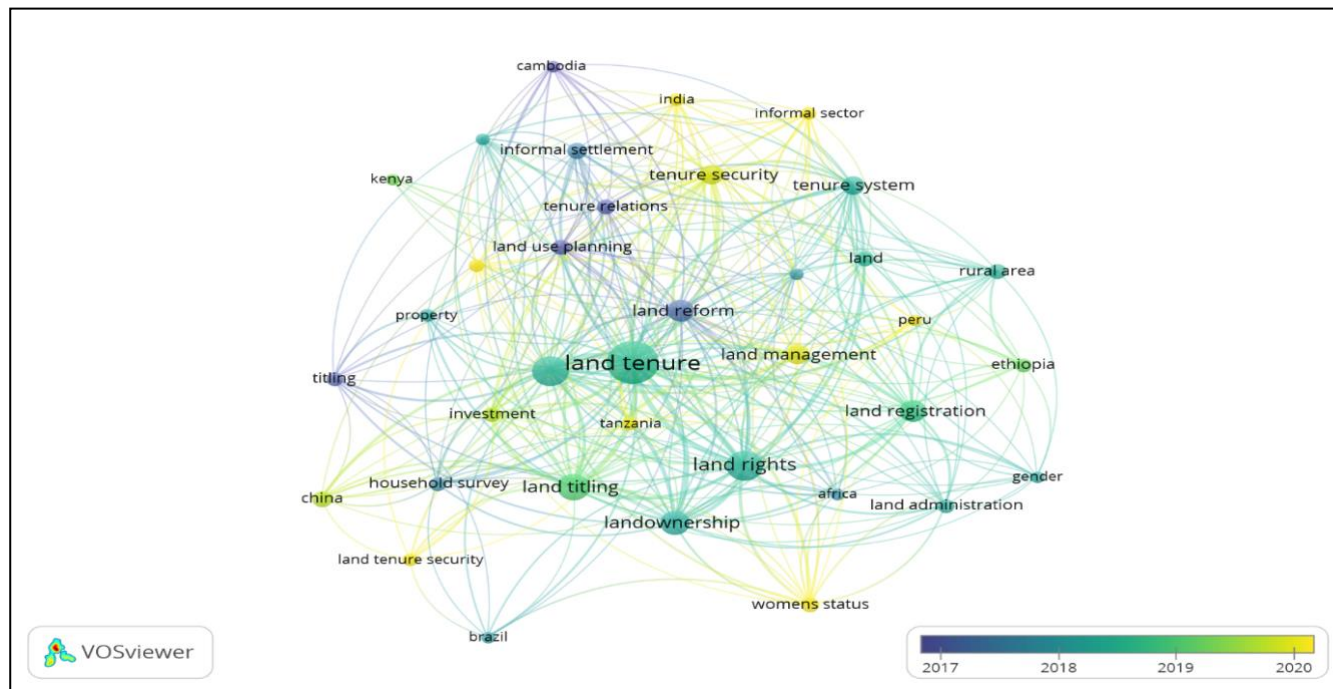


Figure 3 Co-Occurance Map
(Source: Authors, 2026)

4.3 Impact of Land Title Registration on Tenure Security

A substantial proportion of the studies reviewed examine the relationship between land title registration and land tenure security. Empirical evidence generally indicates that the formalisation of land rights is associated with improvements in agricultural investment, productivity, and access to financial services, particularly in rural contexts.

For instance, studies from Ethiopia show that land certification programmes have encouraged farmers to invest more in soil conservation and land management practices (Gedefaw et al., 2020; Melesse & Bulte, 2015). Similarly, research in Vietnam demonstrates that land titling reforms increased the use of agricultural inputs and facilitated crop diversification, suggesting that enhanced tenure security influences long-term production decisions (Nguyen, 2012).

Several studies also highlight the role of land titles in improving access to formal credit markets. Flower (2018), in the context of Cambodia, finds that formal titles can enable landholders to use land as collateral, thereby reducing reliance on informal lending mechanisms. In Rwanda, the Land Tenure Regularisation Programme has been linked to improved recognition of women’s land rights and increased access to financial resources (Bayisenge, 2018; F. Santos et al., 2014).

Beyond economic outcomes, secure land tenure is associated with broader social and institutional benefits. These include reductions in land disputes, clearer inheritance arrangements, and improved government revenue generation through land-based taxation systems. The key impacts identified across the reviewed studies are summarised in Table 2.

Table 2. Impacts of Secure Land Tenure Identified in the Systematic Review
Source: Compiled by the Authors, 2025

Tenure Impact Factor	Impact on Tenure Security	Study Context	Sources
Agricultural Productivity and Investment	Secure land tenure encourages better land management practices, leading to increased agricultural productivity and higher farm investment.	Ethiopia, Vietnam, China	Byamugisha (2021); Gedefaw et al. (2020); Melesse & Bulte (2015); Nguyen, (2012)
Investment in Land Improvements and Housing	Clear ownership rights encourage households to perceive their land as an asset that accrues value, encourage to invest in land improvements, housing, and infrastructure development.	Tanzania, Peru, Brazil, China	Childress et al., (2021); Gutierrez & Molina, (2020); Van Gelder, (2013); Zhou et al., (2022)
Land Dispute	Secure land tenure reduces land disputes and legal	Burundi,	Tchatchoua-Djomo et al., (2020);

Management	conflicts; however, uneven implementation may generate new conflicts or marginalize certain groups.	Zambia, Ethiopia	Umar et al., (2023)
Gender Equality and Women's Empowerment	Strengthened land tenure security enhances women's empowerment, improves decision-making power, and contributes to household welfare.	Rwanda, Ethiopia	Bayisenge, (2018); Santos et al., (2014); Yami & Snyder, (2016)
Government Revenue Generation	Formal land rights facilitate property taxation and improve government revenue collection through land administration systems.	Ethiopia, Ghana, Colombia	Ameyaw & De Vries, (2020); Ehwi & Asante, (2016); Gedefaw et al., (2020)
Market Efficiency and Land Transactions	Clearly defined land titles improve real estate market efficiency by enabling smoother land transactions and reducing uncertainty.	Nigeria, African Countries	Abraham, (2023); Ehwi & Asante, (2016); Permadi & Herlindah, (2023)
Food Security	Secure land tenure promotes sustainable agricultural practices and reduces vulnerability to food shortages.	Ethiopia, Ghana, Vietnam, Rwanda	Abubakari et al., (2018); Byamugisha & Dubosse, (2023); Mengesha et al., (2022)
Social Stability and Inclusion	Secure land rights promote social inclusion and reduce marginalization of vulnerable or minority groups.	Ethiopia, Rwanda, Zambia	Umar et al., (2023); Mengesha et al. (2022); Ameyaw & De Vries (2020)
Inheritance and Intergenerational Equity	Secure land tenure supports clear inheritance rights and facilitates intergenerational wealth transfer.	Ethiopia, Ghana, Nigeria	Umar et al., (2023); Gedefaw et al. (2020); Zuka, (2019); Santos et al. (2014)

(Source: Authors, 2026)

Despite these positive associations, the evidence is not uniformly consistent across contexts. Several studies emphasise that the effectiveness of land titling programmes depends on broader institutional and governance conditions. For example, while land certification in Burundi has reduced boundary disputes (Tchatchoua-Djomo et al., 2020), poorly designed programmes may reinforce existing inequalities, as wealthier households are often better positioned to navigate administrative processes (Flower, 2018; Murtazashvili & Murtazashvili, 2016, 2019).

Gender-focused studies further highlight mixed outcomes. Evidence from Ethiopia shows that joint titling increased women's formal recognition but did not necessarily transform intra-household power dynamics (Mengesha et al., 2023). Similarly, widows in Madagascar continue to face challenges in exercising land rights despite holding formal certificates (Widman, 2014).

Overall, these findings suggest that while land title registration can strengthen the legal recognition of property rights, it does not automatically guarantee effective tenure security. Its impact depends on complementary factors such as institutional capacity, legal enforcement, and the alignment of formal systems with local tenure practices.

4.4 Measures to Streamline Land Titling Processes

4.4.1 Technological Innovations

A number of studies identify technological innovation as a mechanism for improving the efficiency and transparency of land registration systems. Digital land information systems, electronic registries, and geospatial technologies have been introduced in several countries to modernise land administration processes and reduce delays associated with manual record management (Ehwi & Asante, 2016; Katigbak, 2019; Umar et al., 2023).

Geospatial technologies such as Geographic Information Systems (GIS), Global Positioning Systems (GPS), and satellite imagery have also been used to support land mapping and parcel identification. Participatory mapping initiatives that combine geospatial technologies with community involvement have been reported to improve the documentation of customary land rights and enhance the visibility of women's land claims (Paradza et al., 2020).

Recent studies have also explored the potential application of blockchain technology within land registration systems. Several authors discuss theoretical advantages such as improved transparency and traceability of transactions (Ameyaw & De Vries, 2020; Kaczorowska, 2019; Okoli et al., 2024). However, most empirical evidence currently derives from pilot initiatives or conceptual analyses rather than large-scale implementation. For example, pilot initiatives in Georgia and Sweden have examined the use of blockchain-based systems to record land transactions (Shang & Price, 2019). Similarly, a pilot initiative in Kenya explored blockchain technology to document customary land rights (Chesang et al., 2024). In Ghana, studies examining smart contract platforms suggest that digital technologies could potentially support real-time updating of land records (Mintah et al., 2021).

Overall, studies indicate that digital technologies may support improvements in land administration efficiency, particularly in contexts where institutions possess adequate technical capacity, legal frameworks, and regulatory oversight. However, the available evidence suggests that many technological innovations remain at early stages of implementation. Consequently, the long-term effectiveness of technologies such as blockchain in land governance systems remains uncertain and likely depends on broader institutional readiness.

4.4.2 Organizational Reforms

Several studies identify institutional restructuring as an important strategy for improving the efficiency of land registration systems. Fragmented land administration structures can lead to duplication of responsibilities across multiple agencies, resulting in bureaucratic delays and inconsistent record management (Abraham, 2023; Alananga et al., 2019a; Ehwi & Asante, 2016; Ho, 2015).

To address these challenges, some countries have implemented organisational reforms aimed at improving coordination among land administration institutions. For example, Ghana consolidated several land-related agencies into a unified Lands Commission, with the objective of improving institutional coordination and reducing administrative complexity in land registration processes (Ehwi & Asante, 2016). Other studies report that simplifying administrative procedures and improving internal record management systems can reduce delays in land title processing and enhance service delivery.

The literature also highlights the role of institutional capacity building in improving land registration systems (Abraham, 2023; Byamugisha, 2021). Training programmes for land administration staff, improvements in technical resources, and strengthening of local administrative offices have been associated with improvements in registration efficiency (Gedefaw et al., 2020). In addition, public awareness initiatives aimed at educating citizens about land registration procedures can improve participation rates in titling programmes (Ajayi, 2021; Alananga et al., 2019; Santos et al., 2014).

The reviewed studies suggest that organisational reforms can contribute to improved land administration performance when accompanied by adequate institutional capacity and coordination mechanisms. However, the effectiveness of such reforms varies across countries. Differences in administrative traditions, governance structures, and legal frameworks mean that institutional restructuring strategies cannot always be directly replicated across contexts. Consequently, organisational reforms must be carefully aligned with national institutional environments.

4.4.3 Decentralization and Local Governance

Another measure frequently discussed in the literature is the decentralisation of land administration functions. Several studies suggest that transferring certain land governance responsibilities to regional or local authorities can improve the accessibility and responsiveness of land registration systems (Abubakari et al., 2018b; Ferree et al., 2023).

Local governments often possess more detailed knowledge of customary tenure arrangements, local land disputes, and community social structures. This contextual understanding can facilitate the integration of customary land rights into formal land administration systems. In some cases, decentralised land offices have improved service accessibility by reducing the physical distance between landholders and registration authorities (Abubakari et al., 2018; Mengesha et al., 2022; Tchatchoua-Djomo et al., 2020).

However, decentralised systems also present several operational challenges. Studies indicate that decentralised land administration may face capacity constraints when local offices lack sufficient financial resources, technical expertise, or administrative oversight (Katigbak, 2019; Okoli et al., 2024). In addition, decentralisation can sometimes lead to variations in implementation quality across regions, particularly when regulatory frameworks and monitoring systems are weak (Azadi et al., 2024). Therefore, decentralisation alone does not automatically guarantee improved service delivery. Its effectiveness depends largely on the capacity of local institutions and the degree of coordination between national and local land administration bodies (Zevenbergen et al., 2013).

4.4.4 Performance based and Structural Reforms

Some studies highlight the role of performance-based administrative incentives in accelerating land registration programmes. For example, research on land certification initiatives in Ethiopia indicates that performance-based financing mechanisms were used to motivate local officials to increase the pace of land registration activities (Gedefaw et al., 2020). Linking financial incentives or performance targets to registration outcomes reportedly helped improve administrative efficiency and accountability in certain cases.

Structural reforms aimed at improving coordination among land administration institutions have also been identified as important measures for improving titling systems. In Ghana, institutional consolidation helped reduce duplication of responsibilities between agencies and facilitated more efficient communication across government departments involved in land governance (Ehwi & Asante, 2016).

While performance-based incentives and structural reforms have shown positive outcomes in some national contexts, the reviewed literature indicates that their effectiveness is closely linked to broader governance conditions. Incentive mechanisms may improve administrative efficiency where accountability systems are strong, but they may also create unintended pressures or distortions if implementation targets are prioritised over accuracy or procedural fairness (Yami & Snyder, 2016). Therefore, such reforms should be implemented alongside strong institutional oversight mechanisms.

4.4.5 Integration of Customary and Forma Tenure Systems

In many developing countries, customary land tenure systems coexist alongside statutory land administration frameworks, creating challenges for land registration reforms. Ignoring customary practices can undermine the legitimacy and acceptance of formal systems (Abubakari et al., 2018; Alananga et al., 2019; Zuka, 2019). As a result, several countries have adopted hybrid approaches that integrate customary rights into formal registration processes.

Evidence from Indonesia illustrates how such integration can be operationalised. The land registration system incorporates transitional rights such as *girik* and *garapan*, allowing customary claims to be gradually formalised. Recent reforms, including electronic land certification, aim to strengthen legal certainty while linking customary practices with statutory systems (Permadi & Herlindah, 2023). Similarly, hybrid institutional arrangements, such as Ghana's collaboration between the Lands Commission and Customary Land Secretariats, demonstrate how state and traditional authorities can jointly manage land transactions and improve administrative efficiency (Abubakari et al., 2018b).

In urban contexts, integration often involves the formalisation of informal settlements through flexible tenure arrangements. Programmes such as intermediate titling in India, land regularisation initiatives in Zambia, and Brazil's Terra Nova model illustrate efforts to combine statutory frameworks with community-based recognition of tenure rights (Rao P. et al., 2022). These approaches effectively “bridge” informal and formal systems while improving tenure security for vulnerable populations (Childress et al., 2021; Mulyani, 2015).

The literature also emphasises the importance of recognising a continuum of land rights rather than a rigid formal–informal dichotomy. Tools such as the Social Tenure Domain Model (STDM) support this approach by capturing diverse tenure relationships (Lahoti, 2022). Overall, successful integration requires adaptive legal frameworks, institutional coordination, and meaningful community engagement to ensure both legitimacy and inclusiveness.

4.5 Factors Affecting the Success of Title Registration Reforms

The literature indicates that the success of land title registration reforms depends on a combination of political commitment, community participation, appropriate legal and institutional frameworks, public awareness, and the perceived credibility of the registration system. These factors influence both the effectiveness of implementation and the willingness of landholders to participate in formal land administration systems.

4.5.1 Political and Institutional Commitment

Strong political and institutional commitment is widely recognised as a key determinant of successful land registration reforms. Effective programmes require sustained government support, adequate financial resources, and coordination among agencies responsible for land administration.

Evidence from Rwanda demonstrates how strong political leadership can accelerate land registration initiatives (Bayisenge, 2018). The Land Tenure Regularisation Programme achieved extensive national coverage due to strong presidential backing and sustained government support (Byamugisha & Dubosse, 2023). Similarly, land reforms in Vietnam benefited from high-level political commitment and coordinated policy implementation, which strengthened institutional performance and improved tenure security (Nguyen, 2012).

In contrast, weak political support or fragmented governance structures can hinder reform efforts. Bureaucratic complexity and overlapping institutional responsibilities often create delays in title registration and reduce administrative efficiency (Alananga et al., 2019; Ehwi & Asante, 2016). In Ghana, inconsistent policy support and fragmented institutional arrangements have been shown to undermine the continuity of land registration initiatives (Tchatchoua-Djomo et al., 2020). Institutional restructuring, such as consolidating land-related agencies, can improve coordination and reduce duplication, although its effectiveness depends on broader governance capacity (Abraham, 2023; Ehwi & Asante, 2016).

4.5.2 Community Participation

Community participation is an important factor influencing the legitimacy and effectiveness of land registration programmes. Participatory approaches enable local communities to engage in boundary verification, land adjudication, and dispute resolution, thereby improving the accuracy of land records and strengthening public trust (Byamugisha, 2021; Lahoti, 2022; Tchatchoua-Djomo et al., 2020).

Empirical evidence highlights the importance of community involvement. In Rwanda, local participation in boundary demarcation contributed to transparency and reduced post-registration disputes (Bayisenge, 2018). Similarly, participatory mapping initiatives in Vietnam allowed farmers to collectively verify parcel boundaries, resulting in fewer disputes following registration (Nguyen, 2012). Community engagement has also been associated with higher participation rates, particularly in decentralised registration systems (Byamugisha, 2021).

However, the effectiveness of participation depends on inclusiveness. Processes dominated by local elites or implemented in a top-down manner may exclude vulnerable groups such as women and poorer households (Lahoti, 2022; Yami & Snyder, 2016). Therefore, participatory approaches must be carefully designed to ensure equitable representation and avoid reinforcing existing inequalities.

4.5.3 Legal and Institutional Frameworks

Clear and well-defined legal frameworks are essential for the effective functioning of land registration systems. Legal certainty enables the recognition, transfer, and enforcement of property rights, which in turn supports investment and market development (Abraham, 2023; Okoli et al., 2024; Permadi & Herlindah, 2023). However, rigid or overly centralised legal systems may struggle to accommodate diverse tenure arrangements, particularly in contexts where customary systems remain significant.

Institutional coordination is equally important. Weak legal enforcement, unclear institutional mandates, and inconsistent implementation can undermine the effectiveness of registration systems (Alananga et al., 2019a). Therefore, adaptive and “fit-for-purpose” legal frameworks that recognise a range of tenure forms are increasingly emphasised in the literature as a means of improving both coverage and legitimacy (Byamugisha, 2021; Ferree et al., 2023).

4.5.4 Perceived Credibility of Land Titles

The perceived credibility of land titles is a critical factor influencing whether formal registration translates into effective tenure security. The value of a title depends on landholders' confidence that their rights will be protected by the state and enforced through legal and administrative systems (Murtazashvili & Murtazashvili, 2019).

Studies show that formal titles may not enhance perceived security where institutional enforcement is weak or where landholders lack trust in governance systems (Gedefaw et al., 2020). Delays in updating records, inconsistencies in recognising customary rights, and weak dispute resolution mechanisms can further undermine confidence (Azadi et al., 2024). In such cases, landholders may continue to rely on customary or informal systems that they perceive as more legitimate (Zuka, 2019).

Nevertheless, formal documentation remains important as it provides tangible evidence of land claims and enhances the visibility of rights within both formal and informal governance systems (Badoux, 2018; Umar et al., 2023).

4.5.5 Public Awareness and Education

Public awareness and education play a fundamental role in encouraging participation in land registration programmes (Abraham, 2023). Limited knowledge about registration procedures, costs, and benefits can discourage landholders from engaging with formal systems.

Studies indicate that many landowners view registration as relevant only for transactions such as sales or mortgages rather than as a tool for strengthening tenure security (Santos et al., 2014). Awareness-raising initiatives, such as those implemented in Rwanda, have been shown to improve participation by informing landholders of their rights and the benefits of registration (Bayisenge, 2018). These programmes have also contributed to greater gender inclusion by enabling women to assert their land rights during registration processes (Ajayi, 2021; Santos et al., 2021).

Providing clear, accessible information on procedures, costs, and legal protections can therefore enhance participation rates and improve the overall effectiveness of land registration systems.

4.6 Challenges and Future Directions

While land title registration contributes to tenure security and economic development, the literature highlights several persistent challenges that limit its effectiveness, particularly in contexts characterised by institutional complexity, legal pluralism, and rapid socio-economic change.

4.6.1 Institutional Governance Constraints

A recurring issue identified in the literature is the gap between formal land registration frameworks and their implementation in practice. This gap is often driven by fragmented governance structures, overlapping institutional mandates, and weak coordination among land administration agencies (Abraham, 2023). For example, in Ghana, administrative ambiguities and coordination challenges result in registration processes that diverge from statutory requirements (Abubakari et al., 2018). Similar patterns of institutional fragmentation have been observed in other contexts where multiple agencies share responsibility for land governance (Alananga et al., 2019).

Political dynamics further complicate implementation. In some cases, land registration reforms become entangled with broader political interests, leading to administrative interference or elite capture of land resources (Honig, 2017; Tchatchoua-Djomo et al., 2020). These factors undermine institutional credibility and reduce public trust in formal systems. The evidence suggests that effective land registration requires not only technical design but also strong institutional coordination, transparency, and governance accountability.

4.6.2 Legal Pluralism and Contextual Legitimacy

Legal pluralism presents another major challenge to land titling reforms. In many developing countries, statutory land laws coexist with customary tenure systems, creating ambiguity in the recognition and enforcement of property rights (Azadi et al., 2024). Customary authorities often continue to regulate land access and dispute resolution, which can conflict with formal registration systems.

This institutional complexity complicates efforts to formalise land ownership. In several African contexts, overlapping claims and unresolved land disputes hinder the implementation of standardised registration systems (Alananga et al., 2019). Even when titles are issued, they may not translate into perceived tenure security if they do not align with local social norms or dispute-resolution practices (Flower, 2018; Manara & Regan, 2024).

To address these challenges, the literature increasingly advocates for fit-for-purpose land administration approaches that recognise a continuum of land rights rather than imposing rigid ownership models. Tools such as the Social Tenure Domain Model (STDM) offer flexible frameworks for documenting diverse tenure arrangements and socially embedded land rights (Lahoti, 2022; Zevenbergen et al., 2013).

4.6.3 Social and Political Dynamics

The literature also highlights the risk that land titling programmes may reinforce existing socio-economic inequalities if not carefully designed. High registration costs, complex administrative procedures, and documentation requirements tend to favour wealthier households while excluding poorer and more vulnerable groups (Byamugisha & Dubosse, 2023).

Women, customary landholders, and residents of informal settlements often face additional barriers to accessing formal land rights. For example, studies from Madagascar show that individual titling can undermine secondary rights embedded within customary systems, particularly affecting women (Widman, 2014). Similarly, residents of informal settlements may be unable to obtain formal titles due to legal restrictions and lack of recognised documentation (Rao et al., 2022).

However, some evidence suggests that inclusive policy interventions can mitigate these challenges. Participatory mapping initiatives have improved recognition of women's land rights in Sub-Saharan Africa (Paradza et al., 2020), while joint titling policies in Rwanda have

increased gender inclusion in land registration (Bayisenge, 2018). These findings highlight the importance of pro-poor and inclusive design in land titling reforms.

4.6.4 Technical and Administrative Capacity Constraints

Technical and administrative limitations also constrain the effectiveness of land registration systems. In many countries, land registries rely on outdated cadastral records, incomplete datasets, and manual documentation processes, which reduce efficiency and increase the risk of errors (Ameyaw & De Vries, 2020; Zevenbergen et al., 2013).

High transaction costs further discourage participation. When registration costs exceed perceived benefits, landholders may continue to rely on informal or customary documentation systems (Ehwi & Asante, 2016). Evidence suggests that affordable pricing strategies and flexible payment mechanisms can improve participation and accelerate registration processes (Byamugisha & Dubosse, 2023). Addressing these constraints requires sustained investment in data infrastructure, digital systems, and institutional capacity.

4.7 Future Research and Policy Directions

Overall, the reviewed literature suggests that land title registration should be understood as part of a broader land governance framework rather than as a standalone intervention. Its effectiveness depends on the interaction between institutional governance, legal legitimacy, social inclusion, and administrative capacity.

Future policy efforts should therefore prioritise integrated reform strategies that combine institutional strengthening, adaptive legal frameworks, inclusive participation mechanisms, and improvements in land administration infrastructure. In addition, further research is needed to evaluate the long-term impacts of land registration programmes on economic development, social equity, and environmental sustainability, particularly in contexts characterised by customary tenure systems and rapid urbanisation (Masuda et al., 2020; Probst et al., 2020).

■ 5.0 CONCLUSION

Land title registration reforms have shown substantial potential to improve tenure security, stimulate investment, and promote social stability, although their outcomes vary considerably across contexts. For example, in Ethiopia, the low cost certification programme increased investment in soil conservation and enhanced agricultural productivity. In Vietnam, participatory titling approaches strengthened farmer engagement and reduced boundary disputes, while in Rwanda, systematic titling, supported by strong political leadership, achieved over 90% coverage and significantly strengthened women's property rights. These cases illustrate that the effectiveness of land titling depends not only on the formal recognition of rights but also on how well the process is adapted to local legal, institutional, and socio-political conditions.

Key reforms such as performance based incentives, decentralisation, and the adoption of fit for purpose legal and technological solutions can streamline registration processes and extend benefits to broader populations. However, persistent challenges remain. Implementation gaps, socio-political resistance, the exclusion of vulnerable groups, and mismatches between legal titles and perceived tenure security continue to undermine the impact of reforms. These issues underscore the need for adaptive, inclusive, and participatory approaches that recognise customary tenure systems, build local trust, and integrate wider development objectives.

Ultimately, land titling is not a one size fits all solution. It must be embedded within broader legal, institutional, and social systems to achieve its full transformative potential. For reforms to succeed, policymakers must look beyond technical interventions and prioritise context sensitive strategies that promote equity, enhance credibility, and ensure that secure land rights are accessible to all.

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Conflict of Interest

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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