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Challenges and improvements on digitalization of land records

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Abstract
India's digital land records initiative seeks to modernize and digitize land ownership documents, promoting easier access, improved accuracy, and enhanced security for citizens. The objective is to establish a unified digital land records system, providing instantaneous access to land information for landowners, prospective purchasers, and governmental agencies. India's rural landscape is undergoing a significant overhaul with the digitization of land records. By enhancing transparency, efficiency and accountability in land administration, this initiative is empowering rural communities and transforming the way land is managed, while also mitigating traditional challenges such as disputes and fraud.
The Indian government embarked on the Digital India Land Record Modernization Programme (DILRMP) in 2008, with the overarching goal of harnessing technology to streamline land records, create a unified database, and establish a robust land administration framework, previously referred to as the National Land Record Modernization Programme (NLRMP).The Union Minister of Rural Development has announced that approximately 95% of rural India's land records have been successfully digitized since 2016, marking a significant milestone in the government's efforts to modernize land administration and promote transparency and efficiency. The integration of land records with e-Courts aims to provide the judiciary with accurate and reliable land information, facilitating expedited case resolution and mitigating land disputes. To date, 26 States and Union Territories have cleared the integration, paving the way for a more efficient and informed judicial process.
The Digital India Land Records Modernization Programme (DILRMP). This framework safeguards title holders against potential disputes and challenges from rival claimants, with the government providing compensation for any losses incurred due to title flaws. "India's government is driving a paradigm shift in land governance, prioritizing transparency and public access to land information."
This paper analysis the Digital India Land Records Modernization Programme (DILRMP), a landmark initiative aimed at modernizing and digitizing land ownership documents, promoting transparency, efficiency and accountability in land administration, and empowering rural communities through enhanced access to land information.

Keywords: Framework, disputes, paradigm, initiative and empowering

Introduction
Land is a vital national asset, particularly in India, where over 50% of the workforce relies on agriculture for their livelihood. Therefore, it is crucial to establish a robust, transparent, and modern land record management system to ensure efficient utilization, dispute resolution and sustainable development. India's land digitization initiative represents a pivotal step towards transforming the country's land governance framework. The governance and administration of land fall as per entry 18 and entry 45 of list 2 of the seventh schedule of the Indian constitution.
By digitizing land records, this ambitious project seeks to enhance accessibility, transparency, and reliability, ultimately revolutionizing the way land is managed and administered. This article delves into the scope, benefits, challenges and progress of land digitization in India, providing a comprehensive overview of this landmark initiative.
Digitalisation faces several challenges. Variability in state progress is a major issue, given that land is a state subject. Data accuracy and updates are also a challenge due to discrepancies in old records. Limited internet access and technical expertise hinder digital land record effectiveness. A supportive legal framework is crucial for success. The Indian government has launched various initiatives to achieve land digitalization, with a focus on modernizing land records management and reducing land disputes through the Digital India Land Records Modernization Programme (DILRMP). The Ministry of Rural Development is taking a significant step towards preventing fraudulent land transactions and disputes by linking digitized records with e-courts and banks. This initiative aims to provide authentic land information to the judiciary, facilitating faster case resolution and reducing land disputes [1].

Background
"In India, historical land records, comprising village maps, field books, and records of rights, were conventionally maintained in physical format, typically archived in the Survey and Settlement department's record room."
India's land records have a rich and ancient lineage, paralleling the country's civilization. Over time, their maintenance has undergone significant transformations, adapting to diverse administrative regimes and socio-economic pressures. The contemporary system of land record-keeping has its roots in the Mughal era, with the British period ushering in a more systematic approach.
The Computerisation of Land records programme was initiated in 1988-89, with the objective of digitising and automating land records. India contemporary land registration framework was formally instituted through the registration Act 1908.Subsequent efforts have focused on revising and refining these records, incorporating newly delineated areas and aligning them with prevailing laws and regulations. Accurate and up-to-date land records are crucial for addressing pressing socio-economic concerns, as they

provide valuable insights into shifting social dynamics. However, the process of updating and rectifying land records is intricate and multifaceted.

Cadastral maps, which provide a spatial representation of land parcels, require periodic updates every 30 years through comprehensive settlement and survey operations. Regrettably, since independence, most states have not undertaken these operations, resulting in outdated records that have lost touch with the realities of land possession and ownership.

DILRMP

The National Land Record Modernization Programme (NLRMP) was revamped and renamed as the Digital India Land Records Modernization Programme (DILRMP) in 2016 [2]. Launched in 2008, DILRMP aims to digitize and modernize agricultural land records, enhancing accessibility and reducing disputes.

The Ministry of Rural Development has devised a comprehensive DILRMP technical manual and guidelines document, serving as a seminal resource for stakeholders. This exhaustive manual provides nuanced insights into the program's operational framework, performance tracking mechanisms, and meticulous protocols for modernizing land records, thereby facilitating a seamless transition to a digitized land administration system [3].

1. Benefits of DILRMP

Spatial Data Management: The portal provides instant access to digitized cadastral maps, offering a spatial representation of land parcels, ownership, and associated attributes.

Electronic Land Ledger: DILRMP pioneers the digitization of legacy land records, transitioning from manual to digital documentation and ensuring seamless data retrieval.

Land Inventory Management: The program undertakes periodic government land surveys and updates land records in real-time, ensuring data accuracy and integrity. The portal showcases the current status of land ownership and utilization.

Transaction Streamlining: DILRMP facilitates the convergence of land records with property registration processes, streamlining transactions and mitigating the risk of fraudulent activities.

Data Standardization: The program adopts standardized data formats and coding protocols for land records, ensuring interoperability, consistency and compatibility across disparate regions [4].

Svamitva Scheme

The SVAMITVA scheme an innovative initiative of the Ministry of Panchayati Raj launched in April 2020, revolutionizes rural land ownership by leveraging cutting-edge technologies, including drones, to create detailed maps of rural inhabited areas. This pioneering program empowers rural residents by providing them with secure and legally recognized property rights through official property cards, thereby democratizing land ownership and streamlining land records. By promoting transparency, accountability, and data-driven decision-making, the SVAMITVA Scheme fosters a stable and prosperous rural economy, enabling residents to access credit, services, and economic opportunities while ensuring sustainable development [5].

Democratizing Property Rights: Over 2.25 crore property cards have been distributed, providing rural residents with a secure and tamper-proof record of ownership, unlocking their economic potential.

Drone Technology for Inclusive Growth: Drone surveys have covered 92% of villages, leveraging cutting-edge technology to bridge the rural-urban divide and promote inclusive growth.

1. Achievements of SVAMITVA

Unlocking Rural Economic Potential: 67,000 sq. km of rural land has been surveyed, valued at ₹132 lakh crore, opening up new avenues for economic development and prosperity.

Pan-India Reach: 31 states and UTs are participating in the scheme, with Uttar Pradesh and Madhya Pradesh achieving 100% drone survey completion, demonstrating the scheme's nationwide impact.

Real-Time Governance: A centralized online dashboard enables real-time monitoring and evaluation, fostering transparency, accountability and data-driven decision-making.

Global Thought Leadership: The Ministry will showcase the SVAMITVA Scheme at the International Workshop on Land Governance and the World Bank Land Governance Conference in 2025, highlighting India's pioneering efforts in digital land governance.

Empowering Rural Communities: The scheme promotes rural entrepreneurship, innovation, and self-reliance, enabling communities to drive their own development and prosperity.

Future-Proofing Rural Development: The SVAMITVA Scheme lays the foundation for sustainable rural development, leveraging digital technologies to create a more equitable, inclusive and prosperous rural India.

ULPIN

The Unique Land Parcel Identification Number (ULPIN) is a 14-digit alpha-numeric code that uniquely identifies and provides secure access to land parcel records, acting as a digital fingerprint for each parcel. Developed by the National Informatics Centre under the Digital India Land Records Modernization Programme (DILRMP), ULPIN utilizes geo-referenced cadastral maps to ensure accurate and precise identification, streamlining land record management and promoting transparency and accountability in the land record management system [6].

1. Advantages of ULPIN

Streamlined Processes: ULPIN introduces a single-window approach, consolidating all land related services into one convenient platform. This harmonized system reduces bureaucratic hurdles, saving time and effort for stakeholders.

Unparalleled Transparency: By providing precise and up-to-date land records, ULPIN fosters a culture of transparency, accountability and trust. This clarity empowers stakeholders to make informed decisions, minimizing the risk of disputes and fraudulent activities.

Dispute Resolution: ULPIN's unique 14-digit alphanumeric code provides an unambiguous identity for each land parcel, resolving ambiguities and reducing conflicts. This certainty promotes a more stable and predictable land market.

Accelerated Transactions: With ULPIN, stakeholders can access accurate and reliable information, expediting the land transaction process. This efficiency enables faster decision-making, reducing the time and effort required to complete land deals.

Enhanced Security: ULPIN's robust system ensures the integrity and security of land records, protecting against tampering, manipulation and unauthorized access.

Improved Governance: By promoting transparency, accountability and efficiency, ULPIN contributes to better governance and decision making in the land sector. This, in turn, fosters a more stable and prosperous real estate market.

Bhoomi Samman

The Bhoomi Samman Award is a prestigious recognition program that celebrates outstanding achievements in the implementation of the Digital India Land Records Modernization Programme (DILRMP). Launched by the Union Ministry of Rural Development, this award scheme acknowledges the remarkable efforts of states and districts in streamlining land record management.

The award recognizes excellence in six key components: Digital transformation through computerization of land records, digitization of cadastral maps, data integration, modern surveying, computerization of registration and interoperability between registration and land records.

The Bhoomi Samman Award is presented by the President of India to state secretaries and district collectors, along with their teams, who have demonstrated exceptional commitment and excellence in implementing the DILRMP. By acknowledging and rewarding outstanding achievements, the Bhoomi Samman Award encourages innovation, transparency and accountability in land record management, promoting a more efficient and reliable land administration system [7].

Challenges in Digitalization of Land Records

Inaccurate or Outdated Records: Many existing land records are plagued by inaccuracies and outdated information, it was incomplete and based on antiquated methods leads to complex web of problems.

Inconsistent data: Inaccurate or outdated land records can lead to inconsistent data, making it difficult to determine the true ownership and value of land.

Impersonation fraud in Digital Land Records: Identity deception in digital land registers poses a significant threat, as scammers exploit vulnerabilities to orchestrate illicit property transfers. This sinister scheme involves the fabrication of documents or impersonation of rightful owners, underscoring the imperative for airtight authentication protocols and robust security safeguards in digital land record systems. To thwart these fraudulent machinations, it is essential to comprehend the modus operandi of identity deception and implement proactive countermeasures [8].

1. Techniques Used by Scammers in Impersonation Fraud

Counterfeit Document Creation: Scammers design and generate fake documents, such as deceptive sale deeds or powers of attorney, to illegitimately claim ownership or authorize transactions.

Identity Hijacking: Fraudsters pose as legitimate property owners, signing documents or conducting transactions without the owner's awareness, consent, or permission.

Exploitation of Digital Vulnerabilities: Scammers capitalize on weaknesses in digital land record systems, including subpar authentication, inadequate security measures, or poor data integrity controls.

Unauthorized Property Transfers: Using counterfeit documents or posing as owners, scammers execute illicit property transfers, transferring ownership to themselves or accomplices.

Internal Collusion: Rogue insiders, including registration officials or employees of registration authorities, may secretly collaborate with scammers, facilitating fraudulent activities and compromising the integrity of digital land record systems.

2. Vulnerabilities in Property Laws and Legal Procedures

Legislative Loopholes: The complexities of property laws and convoluted legal procedures can inadvertently create vulnerabilities, allowing dishonest individuals to exploit loopholes and facilitate unauthorized property transfers.

Power of Attorney Abuse: Power of Attorney (POA) documents, initially designed for legitimate purposes, can be manipulated and exploited to illicitly transfer property rights without the owner's knowledge, consent, or authorization, highlighting the need for robust safeguards and oversight mechanisms.

3. The Complexity of Land Ownership Records

Land ownership is established through multiple documents, scattered across various departments, making it challenging to access and verify them.

Example: Sale deeds was Stored in the Registration Department and Maps are Maintained by the Survey Department. Property tax receipts are held by the Revenue Department. Mutation records are managed by the Local Municipal Corporation. Land use certificates were issued by the Town Planning Department [9]. This fragmentation leads to:

- Inefficient record-keeping: Multiple departments, multiple records.
- Difficulty in verification: Challenging to verify ownership and property details.
- Delays in transactions: Lengthy processes due to scattered documents.

- Increased risk of disputes: Errors and inconsistencies due to fragmented records.
- Limited transparency: Difficulty in accessing and tracking land ownership information.

4. Cyber Security Risks: A Threat to digital land records

Deficiencies in technical support can expose digital land records to Cyberattacks, data breaches, and errors, jeopardizing the reliability and confidentiality of land records and titles.

5. The Benami Transaction Conundrum: A Challenge to Digital Land Records

Benami transactions, where property is held in someone else's name, pose a significant obstacle to the digitalization of land records, leading to:

Inaccurate Land Ownership Data: Benami transactions can result in incorrect land ownership information, compromising the integrity of digital land records.

Land Title Verification Challenges: Verifying land titles becomes complicated due to benami transactions, potentially leading to disputes and litigation.

Digital Land Record Implementation Hurdles: Benami transactions hinder the effective implementation of digital land records, creating uncertainty and ambiguity in land ownership.

6. Navigating the Complexities of Ostensible Ownership in Digital Land Records

The concept of ostensible ownership, where an individual's apparent ownership status may not reflect the actual ownership, poses significant challenges in the digitalization of land records.

- **Ownership Ambiguity:** Ostensible owners may not be the actual owners, leading to uncertainty and confusion in land ownership data.

- **Verification Quagmire:** Land title verification becomes increasingly complex when ostensible owners are involved, potentially triggering disputes, litigation and reputational damage.

- **Digital Record Integrity:** Ostensible ownership can compromise the accuracy and reliability of digital land records, undermining trust in the system and hindering efficient land transactions.

- **Compliance Risks:** Failure to address ostensible ownership issues can result in non-compliance with regulatory requirements, exposing stakeholders to legal and financial liabilities.

- **Inefficient Land Administration:** The presence of ostensible owners can lead to inefficiencies in land administration, causing delays, increased costs and reduced productivity.

Improvements in digitalization of land records

The Tamil Nadu Registration Department has introduced multiple checks to prevent fraudulent registration of documents.

The Tamil Nadu Registration Department has introduced multiple checks to prevent fraudulent registration of documents.

While the system of identifying a property owner is now on the basis of valid identity cards and fingerprint validation from Aadhaar database, the department has now introduced iris recognition as part of the automatic biometric identification. The process of installing the iris scanner in all Sub-Registrar Offices was already on [10].

1. To update the land records: Implementing standardized protocols for digital land records.

Implementing a unified framework, where land records are seamlessly integrated with revenue, survey, and registration departments, will foster a cohesive and efficient system.

To update land records quickly without submitting documents like death certificates, several solutions:

Seamless CRS Integration: Automate land record updates in real-time, triggered by the issuance of vital events like death and birth certificates [11].

Aadhaar-Based Ownership Updates: Leverage the Aadhaar database to reflect changes in land ownership, ensuring accuracy and efficiency.

Digital Inheritance Declarations: Empower heirs to conveniently declare inheritance online, initiating instant land record updates and simplifying the succession process.

2. Preventing Impersonation Fraud:

Enhanced Verification: Implement robust verification processes, such as biometric identification (fingerprint or iris scanning) and digital identification documents, to ensure the authenticity of parties involved in land transactions.

- **Secure Digital Records:** Ensure the security of digital land records by using strong encryption, access controls, and regular security audits.

- **Secure QR Codes:** Implement secure QR codes with digital signatures to verify the authenticity of land records and prevent unauthorized modifications.

- **Digital Signatures:** Use digital signatures to ensure the authenticity and integrity of digital documents.

- **Transparency and Accountability:** Increase transparency in land record systems by making information publicly accessible (within legal limits) and establishing clear lines of accountability for those involved in land transactions.

- **Public Awareness:** Educate the public about the risks of property fraud and how to identify suspicious activities.
- **Legal Framework:** Strengthen the legal framework to address property fraud, including penalties for forgery and impersonation.

- **Inter-Agency Coordination:** Enhance coordination between different government agencies involved in land administration to prevent fraud and ensure the integrity of land records.

- **Leverage Technology:** Utilize technology, such as blockchain, to create an immutable and transparent record of land ownership and transactions.

- **Due Diligence:** Individuals involved in property transactions should conduct thorough due diligence, including verifying the identity of the seller and the authenticity of documents, before proceeding with a transaction.

- **Seek Legal Advice:** Consult with a legal professional to ensure that all legal aspects of a property transaction are covered and to protect against potential fraud.

- **Report Suspicious Activity:** If you suspect property fraud, report it to the relevant authorities immediately.

3. To safeguard digital land records from cyber threats, implement robust security measures

Regularly validate data inputs, back up land record data and develop a disaster recovery plan to ensure data integrity. Conduct vulnerability assessments, penetration testing and provide security awareness training to personnel.

Leverage emerging technologies like blockchain, artificial intelligence, and cloud security to fortify the land record system. By adopting these measures, you can significantly minimize the risk of cyber security attacks on digital land records.

4. To prevent Benami transactions in digital land records, the government has implemented the following solutions:

- **Unique Land Parcel Identification Number (ULPIN):** Assigns a 14-digit code to each land parcel for streamlined transactions.

- **National Generic Document Registration System (NGDRS):** Standardizes document registration processes online.

- **E-Court Integration:** Links land records with e-Courts for authentic information and faster case resolution.

- **Biometric Verification:** Use biometric authentication to confirm identities in land transactions.

5. To mitigate the risks of ostensible ownership in digitalization of land records:

Implementing Robust Verification Mechanisms: Develop and deploy robust verification processes to identify actual owners and ensure accurate land ownership data.

Establishing Clear Regulatory Frameworks: Develop transparent policies and regulations to address ostensible ownership, promote transparency, and ensure compliance with regulatory requirements.

Leveraging Technology: Harness the power of technology, such as blockchain and artificial intelligence, to enhance the accuracy, security and efficiency of digital land records and reduce the risks associated with ostensible ownership.

6. To overcome challenges and ensure the success of the Digital India Land Records Modernization Programme (DILRMP):

Central and state governments must adopt a collaborative approach, focusing on,

Land Governance Harmonization: Standardize land laws, policies, procedures, and systems across states.

Interstate Knowledge Sharing: Facilitate the exchange of best practices, experiences, and lessons learned among states.

Joint Problem-Solving: Establish mechanisms for central and state governments to tackle common challenges together [12].

7. Unlocking a Brighter Future: The Transformative Power of Digital Land Records

As the digital revolution transforms the world, the humble land record is poised for a dramatic makeover. Digital land records are set to revolutionize land administration, management, and utilization, with far-reaching implications for governments, landowners, and citizens.

Transparency and Accountability: The New Normal

Digital land records will usher in an era of transparency, providing a tamper-proof record of land ownership. This increased transparency will promote accountability, ensuring that government officials and land administrators act in the public interest.

Smart Land Use Planning: A Key to Sustainable Development

Digital land records will empower policymakers and urban planners to make informed decisions, balancing competing demands for land use. By integrating factors like population growth, environmental sustainability, and economic development, digital land records will optimize land resource utilization.

Secure, Efficient and Dispute-Free: The Future of Land Administration

Digital land records will fortify land administration, reducing disputes and fraudulent activities. With real-time updates and secure storage, digital records will minimize errors and maximize efficiency, saving costs and streamlining processes.

Seamless Integration: The Key to Holistic Land Management

Digital land records will facilitate seamless integration with complementary services, such as property taxation, zoning regulations, and environmental permits. This holistic approach will create a more efficient and effective system for managing land resources.

Building Resilience: Digital Land Records in the Face of Adversity

Digital land records will provide a secure and accessible record of land ownership and transactions, even in times of crisis. This will facilitate faster recovery and reconstruction efforts, ensuring that communities can bounce back stronger.

Empowering Citizens: Digital Land Records and Participatory Governance

Digital land records will democratize access to information, empowering citizens to participate in land-use planning and decision-making. This increased transparency and accountability will foster a more responsive and inclusive governance system.

As governments and policymakers invest in digital land record systems, it's essential to consider the future implications of these systems. By designing and implementing digital land records with the needs of all stakeholders in mind, we can unlock a brighter future for land administration, management, and utilization.

8. Noorudeen and Ors vs UmiarathuBeevi and Ors (1998) [13]

Is a notable case that highlights the importance of verifying identities and preventing impersonation in property transactions.

Facts of the Case:

- The plaintiff, UmiarathuBeevi, was a blind woman who owned a property.
- The defendants, Noorudeen and others, impersonated the plaintiff's son and executed a sale deed, transferring the property to themselves.
- The defendants forged the plaintiff's signature and obtained a false certificate from a doctor, stating that the plaintiff was of sound mind.

Issue

The main issue was whether the sale deed executed by the defendants was valid, given the impersonation and forgery.

Legal Study

The case involved the interpretation of several legal principles, including:

- Section 115 of the Indian Evidence Act, 1872, which deals with the presumption of due execution of documents.
- Section 17 of the Indian Contract Act, 1872, which defines fraud and misrepresentation.

Judgement

- The Kerala High Court held that the sale deed was invalid, as it was executed through impersonation and forgery.
- The court observed that the defendants had taken advantage of the plaintiff's blindness and vulnerability.
- The court ordered the defendants to return the property to the plaintiff and also directed them to pay compensation.

This case emphasizes the need for verifying identities and preventing impersonation in property transactions, especially when dealing with vulnerable individuals [14].

Conclusion

India's digital land record initiative is a game-changer for the country's governance, economy and society. By harnessing the power of technology and data integration, the government aims to establish a transparent, efficient and citizen-centric land administration system. This ambitious endeavour has the potential to transform land management, promote equitable and efficient use of land resources, and drive inclusive growth.

A significant milestone in this journey is the introduction of land records in 22 languages, announced by the State Government in June 2023. This move is expected to enhance accessibility and ease of business, making it easier for citizens to access and conduct business. By providing land records in multiple languages, the government is taking a significant step towards bridging the digital divide and promoting digital inclusion.

As India continues on its digital transformation journey, the digitization of land records is likely to have a profound impact on the country's development trajectory. By providing a cornerstone for effective governance, economic development, and inclusive growth, this initiative has the potential to unlock new opportunities for citizens, businesses, and the government alike. With its potential to drive growth, efficiency and transparency, India's digital land record initiative is a shining example of how technology can be harnessed for the betterment of citizens.

Property owners must seek the counsel of experienced legal professionals to navigate the complexities of property law, ensuring the protection of their rightful ownership and interests in the face of illegal transfers. In a world where property rights hold immense value, safeguarding against forgery and impersonation is paramount for a secure and just society.

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