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Transformation of Land Records: The 21st Century Digital Era

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Abstract

Land, in India is revered like a mother by the landholder. Although not a Fundamental Right under Part III of the Constitution of India, the right to land is guaranteed under Article 300-A. Land is a distinctive asset everyone wishes to hold in perpetuity through generations without any legal disputes. Holding of lands, to many millions, is a matter of self-esteem and security. In the past, most land records were on paper, the poor maintenance of which gave rise to a lot of property related scams. But now, after digital technology has marked its presence in every industry, it has led to a transparent system in terms of maintaining land records. It has helped to eradicate the problem of duplication of records, creation of false records and will make evasion of tax difficult for the public. Over the years, there have been various steps taken by the Central and the State Government in this regard. Under the List II of the VII Schedule of the Indian Constitution, the Union Government has been providing the State with financial assistance to digitize the Land Records, introducing programmes like the Digital India Land Records Modernization Programme (DILRMP), and the SVAMITVA scheme. However, various issues relating to capacity, ownership, backlog issues, technology obsolescence, unidentical data, mismanagement between various data handling agencies and other such obstacles still exist with regard to the development of the digitization of land records. Many states in India do not have any means to survey the lands. Apart from the issues aforesaid, we can also see new offences related with the maintenance of records rising after being coupled with new and innovative acts of mischief. The key to preventing such harm is proper and transparent maintenance of records along with greater awareness and responsibility of the citizens. Digitization of documents will help society as a whole by compiling records of buying, selling and transferring of all types of land in one website. The availability of statistical data through the click of a button, will be offer convenient data for better planning, implementation and development of industries and smart cities. Overall, it becomes a lot easier to check the genuineness of land records. In this paper the authors will be discussing in detail, the evolution of digitization of land records in India, its advantages, disadvantages and solutions to modernization and digitization of land records.

Keywords: Land Records, Digitization, Modernization, DILRMP

Introduction

Land is revered like a mother by its owner. Thus, anyone owning lands ensures that their portion of land is properly maintained. They always try to make sure that the land is litigation free and is passed on to the next generation with full rights. The digitization and modernization of land records is a crucial aspect in the field of real estate and land management. It is a critical step towards improving its governance. With the increasing demand for efficient and reliable land transactions, it has become necessary to modernize traditional land record-keeping practices.

Modernization of land records refers to the improvement and updating of traditional land record-keeping practices through the use of modern technology. This can include the digitization of paper-based records, as well as the implementation of advanced computer systems and software for managing, updating, and accessing land information. The modernization of land records can help streamline processes, increase transparency, reduce errors and fraud, and provide better access to information for government agencies, landowners, and the public. Additionally, modernization can support economic development by facilitating more efficient land transactions and reducing barriers to investment.

The digitization of land records refers to the process of converting traditional paper-based land records into an electronic format. This involves scanning and storing land-related documents, such as deeds, maps, and surveys, in a digital database. It can improve the efficiency and accuracy of land transactions, as well as enhance access to information for government agencies, researchers, and the public. Additionally, digitization can help

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reduce the risk posed by physical damage or loss of important land records and provide a secure and centralized repository for managing land information.

A centralized database of land records is established through the digitization process, which integrates maps, deeds, and other land ownership documents. This database can be accessed by relevant stakeholders, such as government agencies, landowners, and surveyors, providing a more efficient and secure way of managing land records. This digital database serves as a single source of truth for all land-related information.

In recent years, the use of blockchain [1] and GIS (Geographic Information Systems) technology has become increasingly common in the field of land record management. These technologies offer improved security and transparency, as well as the ability to update land records in real-time.

This research paper will provide an overview of the current state of the digitization and modernization of land records, including the benefits and challenges of this process, as well as the role of technology in improving land record management. In addition to this, the paper will explore the future of this field and the potential for further development and innovation.

Modernization of Land Records

Modernization of land records is a crucial process that involves the improvement and updating of traditional land record-keeping practices through the use of modern technology. The goal of modernization is to provide a more efficient, accurate, and accessible system for managing and utilizing land information.

Here are the steps involved in achieving modernization of land records in an elaborate manner:

- *Digitization of paper records:* The first step in modernizing land records is to convert traditional paper-based records into a digital format. This involves scanning and digitizing physical documents, such as deeds, maps, and surveys, and storing them in a secure and centralized digital database. Digitization makes it easier to access and search for information, and eliminates the risk of physical damage or loss of important records [2].

- *Implementation of advanced technology*: Modernizing land records management systems involves incorporating advanced technology such as Geographic Information Systems (GIS), blockchain, and cloud computing. GIS can help create interactive maps and visual representations of land information, while blockchain provides a secure and transparent method for recording land transactions. Cloud computing can help make the information more accessible and allow for easier collaboration among stakeholders [3].

- *Data standardization:* To ensure consistency, accuracy, and interoperability of land information, data standardization is important. This involves establishing a common data format, definitions, and processes for all land records, which can help prevent errors and misunderstandings.

- *Collaboration with stakeholders:* Modernization of land records requires the participation and cooperation of multiple stakeholders, including government agencies, private sector organizations, and the public. It's important to involve all stakeholders in the planning, implementation, and monitoring of the modernization process to ensure that their needs and concerns are taken into consideration [4].

- *Capacity building:* Providing training and support to staff and stakeholders on the use and maintenance of modernized systems is crucial to ensure their success. This can include training on the use of new technology, data management practices, and other skills necessary for effective land records management.

- *Continuous improvement:* Regular reviews and updates of the systems and processes can help keep the modernization of land records ongoing and adaptable to changing needs. This can involve monitoring the effectiveness of the systems, gathering feedback from stakeholders, and making improvements as necessary [5].

By implementing these steps, countries can modernize their land records systems, improving transparency, accuracy, and accessibility of land information.

Evolution of Land Ownership

Evolution of Land Ownership in India can be majorly traced back to the post-Vedic era. The post-Vedic era can be characterized by the use of iron equipment, development of irrigation systems and their application for enhancement of agriculture. During 6th to 4th century BCE, in the Mahajanapada era, the property from which the livelihood of people was drawn from could not be divided and the property was collectively owned by the community/. In the Mauryan Period, there were mixed opinions about the ownership of the land among various. Chanakya was in favour of the idea that all agricultural land shall be owned by the king and did not support the idea that all land shall be owned by the king. He also speaks about the sale of immovable property and land attached to it therein but not about the sale of the land alone. But according to Rishi Katyayan, the king had the right over one-fourth of the products which are reaped in his kingdom. He also said that the person who is in the possession of a piece of land shall be deemed to be the owner of that land. According to the observation of the Dharmashastras, Dharmasutras and other authors, the ownership of land was decided on the period of time a person was in possession of such property. The period ranged from three generations residing in the same place to having possession of a property for 105 years. Such person or his heirs in possession will get the ownership [6].

After the establishment of Muslim rule in major parts of India, there was a change in the pattern of ownership of land. Under the Sultanate empire the land was divided into three parts- Khalsa, Ekta and Inam. These lands had their own usage and purpose which was fulfilled by the intermediate classes (Khoots, Zamindars, Mansabdars, Jagirdars and etc.) [7]. Until this period in Indian history, owning land was very rare and mostly it was either used collectively or were owned by the kings and governed by the intermediate classes assigned by kings. It was only during the British era that the question of individual ownership came to the forefront. In the initial phase of British ruling, Britishers considered all land to belong to the ruler Land was given to the subjects on a contractual basis with a consideration of paying the revenue. Later this system was replaced by the Zamindars having the ownership of the property and these zamindars had the responsibility of collecting and paying the revenue to the ruler. This zamindari system was applicable in Bengal. In South India, revenue was directly paid to the British Government. In places like Punjab, Awadh and other parts of Northern India, the Mahalwari system was practiced where the Mahal collected and produced the revenue to the government. When any landlord under the Zamindari system, Mahalwari system or farmers directly paying the revenue failed to do so, the land was auctioned and for this purpose, the land was made saleable by the Britishers. Similarly, as time moved on, the British Government introduced several other types of land revenue collection system which required clear classification of boundaries of land and the owner of the land. Post-independence, movements like the Bhoodan Andholan, Enactment of Hadbandi Act and many more began gaining traction, demanding that land be divided equitably to all. All these movements urged the need of characterization of land as a saleable property. Thus, from being a community owned property, land became individually owned.

Recording of Lands [8]

- **In the 1800s**

In the 1800s, land records were typically recorded on paper, in ledgers, and maps. The process of recording land ownership and property descriptions was manual, often involving the use of hand-written documents and maps. The recording of land transactions, such as sales and transfers, was also manual and typically required the physical presence of both parties involved. The accuracy and completeness of land records were dependent on the diligence and expertise of the individuals responsible for maintaining the records. There was often little standardization in the format and content of land records, leading to inconsistencies and errors in the information recorded. Additionally, the lack of a centralized system for storing and managing land records made it difficult to access and share land-related information across different government agencies and jurisdictions. In many cases, the recording of land ownership and transactions was subject to corruption, and fraudulent claims to land were common. The limited accessibility of land records also made it difficult for individuals to prove their property rights and for governments to enforce land-related laws and regulations [9].

- **In the early 1900s**

In the early 1900s, land records were primarily kept as physical documents in government offices and other archives. These records included maps, deeds, and other documents related to land ownership and transactions.

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The process of accessing and updating these records was time-consuming and often involved manual searching through large volumes of paper documents. This made it difficult for government agencies, landowners, and other stakeholders to efficiently manage land records, leading to a high potential for errors and inaccuracies. Despite these challenges, the importance of accurate and reliable land records was widely recognized, as land ownership and transactions were a crucial aspect of the economy and society. As a result, various efforts were made to improve the system of land record-keeping, such as the creation of centralized land offices and the implementation of land registration systems. However, these efforts were limited by the technology of the time, and the process of accessing and updating land records remained slow and inefficient. Nevertheless, the importance of land records and the need for a more efficient system of record-keeping continued to drive innovation and progress in the field.

- **In the last 1900s**

In the late 1900s, land recording systems began to modernize and move towards more efficient and centralized methods. The introduction of computers and digital technology facilitated the digitization of land records, allowing for faster and more accurate recording of land transactions and ownership information. The use of computerized databases and GIS systems allowed for the creation of centralized and standardized land record systems, enabling easier access and sharing of land-related information across different government agencies and jurisdictions. The digitization of land records also allowed for the implementation of security measures, such as encryption and backup systems, to enhance the protection and privacy of land information. Despite the advances in technology, many land recording systems in the late 1900s still relied heavily on manual processes, particularly in rural and developing regions. In many cases, the transition to digital land recording systems was slow, and the use of paper-based records persisted in many regions. Nevertheless, the trend towards digitization and modernization of land recording systems continued to gain momentum, and the adoption of digital land recording systems continued to grow in the late 1900s and beyond.

- **Current Day Scenario [10]**

In the present day, the majority of land recording systems have been digitized and modernized. Land records are now stored in centralized databases and are accessible through digital platforms and mobile devices. The use of technology, such as GIS systems and blockchain, has also allowed for more secure, transparent, and efficient land record management. The digitization of land records has greatly improved the accessibility and accuracy of land-related information, making it easier for individuals and businesses to access and verify property rights and ownership information. The integration of land records with other government systems such as tax and revenue collection, has also increased government efficiency and transparency. The view given by the judiciary in Ram Chandra v. State of Maharashtra case [11], the Bombay High Court held that the modernization of land records was a necessary step in order to ensure transparency and accuracy in the recording of land ownership and transactions. The Court directed the State government to take steps to modernize its land records and to provide for a system of appeal and revision for individuals who disagreed with the record of their land ownership. In addition, the use of digital signatures and e-payments has facilitated online land transactions, reducing the need for physical presence and paperwork. The increased security and privacy of land records, as well as the improved accessibility and efficiency of land transactions, have enhanced the protection of property rights and reduced the risk of fraud and corruption in the real estate sector. Overall, the present-day scenario of land recording systems is characterized by the widespread adoption of technology and digital platforms, which has greatly improved the accuracy, efficiency, and security of land record management.

Effect of Modernization and Digitalization of Land Records

Digitization is a process of accessing or using the system through computers and internet. Continuous growth of digitization will lead to the better usage of data. Digitization is growing rapidly and has impacted every industry and real estate is no exception. The real estate and housing sector contributes to about 18%-20% of the country's GDP [12]. Modernization and digitization will further accelerate the growth in the sector. Digitization and modernization of land records is a step-in furtherance of the Digital India Mission [13].

Digitization leads to availability of documents, title deeds and other documents to be available to the citizens in one website and will be easily accessible. Since everything is available online, it also makes the owner upload a genuine document and makes the process transparent [14].

Transparency of land documents reduces the issues related to ownership status and other litigation process on a whole. Since the documents are already uploaded, online approvals of maps and plans will also be easier. Access of all documents to the government will make the process of tax evasion difficult. Everything will be available online from the ownership - Public or Private, to the age of the property and even expansion of land use, the shift to Smart Cities will be made easier. The High Court of Karnataka in M Chandrasekhar v. State of Karnataka [15] the Karnataka High Court held that the modernisation of land records was essential for the efficient and effective administration of justice in land-related disputes. The Court directed the State government to take steps to digitize its land records and to provide for a system of online access to these records. Ultimately, it leads to simplifying the process of buying, selling and transferring of land or other property.

Digitization and modernization have proved to be good move but they also have their own disadvantages. The automation of many jobs due to digitization can result in unemployment for workers in certain industries. As machines and algorithms become increasingly efficient at performing tasks, many jobs that were once done by people may become obsolete. In the retail industry, the use of self-checkout machines has reduced the need for cashiers.

Digitization can create a digital divide, with some individuals or communities having limited access to technology and digital skills. This can result in unequal opportunities for education, employment, and economic growth, exacerbating existing social and economic inequalities. The case was dismissed, but it highlights the disparities in technology access that exist in some communities. In the case of "Common Cause v. Union of India [16]," the Delhi High Court directed the Indian government to take steps to bridge the digital divide between rural and urban areas.

With more and more personal and sensitive information being stored online, digitization increases the risk of cyber-attacks, data breaches, and loss of confidential information. This can have serious consequences for individuals, businesses, and entire nations. In the case of "People's Union for Civil Liberties v. Union of India [17]," the Indian Supreme Court held that the right to privacy includes protection against unauthorized use and disclosure of personal information. This case was in response to concerns about the potential misuse of personal information collected by private entities, such as telecommunications companies.

Digitization leads to the collection of vast amounts of personal data by corporations, governments, and other organizations. This data can be used to target individuals with advertising, track their behaviour, and even influence their opinions and decisions. This raises serious concerns about privacy and the potential misuse of this information. In the case of "Justice K.S. Puttaswamy (Retd.) v. Union of India [18]," the Indian Supreme Court held that the right to privacy is a fundamental right under the Indian Constitution. This case was in response to concerns about the potential misuse of personal information collected by the Indian government's biometric identity scheme, Aadhaar.

Over reliance on technology can lead to a decline in critical thinking skills and a loss of creativity. As people become more dependent on algorithms and machines to perform tasks, they may also become less able to solve problems and make decisions on their own. The constant availability of digital devices and the internet can lead to an addiction to technology.

Digitalization Schemes in India

Post-independence, the main aim of the government was to solve all the issues which were created by the Britishers during their reign in India. The issues were in relation to ownership of the land being vested in the hands of a few people who acted as intermediaries during the pre-independence period. This in turn led to the exploitation of the real landholders and turned their position into that of a mere tenant. As land was indefinitely fragmented, the actual usage and outcome from such land was deduced. Due to indefinite ownership of lands, the aggrieved parties approached the courts which resulted in mass litigation. To mitigate all such issues related to land issues, a committee headed by J.C. Kumarappan was appointed by the government which gave its report in the year 1949. The committee proposed four components to address the issue of land ownership and distribution which was proposed to take place in different phases.

Kumrappan Committee Recommendation

[1] Abolishing Intermediaries

The committee recommended the initial phase as abolition of the intermediaries in the zamindari, mahalwari and ryotwari systems [20-21]. The removal of intermediaries proved to be beneficial as the Zamindars

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had more power and control over the land than the landowner, which resulted in the deteriorating economic status of the landowners. These intermediaries were like the parasites who depended on the powerless and poor peasants and developed themselves as dominant in economic and political terms. As per statistics, the abolition of intermediaries resulted in making more than 2 crore tenants the owner of their land. The abolition of intermediaries was done with the aim of creating a direct relationship between the farmers and the government.

[2] Tenancy Reforms and Regulation

The second phase suggested by the committee was to address the issue of tenancy regulation and reform Tenancy reform aimed to reduce the rent paid by the tenants pre independence which ranged between 35% to 75% [22] of the gross produce of India. After the enactment of tenancy reforms the rent to be paid by the cultivators was fixed at a rate between 20% to 25% [23] of the gross production in all states except the states like Jammu and Kashmir, Tamil Nadu, Punjab, Haryana and few parts of Andhra Pradesh [24]. The after-effects of the enactment was either complete abolishment of tenancy or specified the rights of the owners and the farmers.
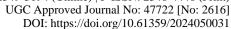
[3] Land Ceilings

The third stage in the process of land reform suggested by the committee was enactment of Land Ceiling Acts [25]. This legislation stipulated the maximum holding of land by an individual peasant. The Land Ceiling Acts fixed such ceilings in order to reduce the power and concentration of land in hands of a few people who are not the real owners or the cultivators. The ceiling on landholding proved to be a boon to the landless farmers and peasants who lost their land to the Britishers and all those who lost their land to the Zamindars and other intermediaries. According to the Kumarappan Committee, a family could retain up to three times its economic needs and the surplus was to be transferred. In 1961-1962, all state governments enacted the land ceiling acts with different limits of holding the land. In order to bring uniformity in the land ceiling limit the Central government changed the policy in 1971. The ceiling limits were divided on the basis of the type of the land. For best land it was 10-18 acres, second class land was 18-27 acres and for all other types of land including hill, desert areas it was 27-54 acres [26]. The land ceiling limit promised to redistribute the surplus amount of land to the have-nots such as SCs, STs and other landless communities.

[4] Consolidation of landholdings

Consolidation of fragmented land was the four and the last phase recommended by the committee. The shift in the usage of land and decreasing scope in the agricultural sector led to fragmentation of land. Fragmentation also led to the issues like irrigation control, supervision etc. of the agricultural land. Due to these issues, enactment related to landholdings consolidation was done. The provisions under the act were, when a farmer has lands distributed in several parts of a village then such land was consolidated either through purchasing or exchanging with the other farmers. States like Kerala, Tamil Nadu, Manipur, Nagaland, Tripura and some parts of Andhra Pradesh did not implement such policies but almost all the remaining states implemented the new reform and in states like Punjab and Haryana, consolidation was mandatory. Consolidation of landholdings was advantageous as it benefitted in terms of minimal and sustainable usage of water, laborers and reduced the litigation of such lands.

Land Reforms and Gandhian Approach

1. Social Activist Vinoba Bhave [27] advocated about the rights and problems faced by the Harijans residing in Pochampalli district, Telangana. The movement was known for the non-violent approach of land reforms schemes in India. The Bhoodan (Gift/ Donation of Land) movement started in 1951 and lasted for 13 years. The movement urged voluntary donation of excess land to the landless farmers to earn their livelihood. The aimed outcome of the movement was to reduce the gap between the haves and the have-nots.

2. The revolution started by Bhave created a chain effect in Uttar Pradesh as Gramdhan (Gift/Donation of a village). Gramdhan refers to the transfer of land by the landowner in every village as village property and for joint cultivation. The movement was established on the ideology of collective ownership and benefit of the farmers.

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Post-Independence Schemes

[1] DILRMP

National Land Records Modernization Programme (NLRMP) later known as Digital India Land Records Modernization Programme (DILRMP) [28] was approved by the Centre on 21st Aug 2008 which has been extended till 2023-2024 to achieve its target as well as giving time and space to new related implementations. The scheme aims for improving modernization of all the land records and its system in India. DILRMP is the culmination of two centrally sponsored schemes that are Computerization of Land Records and Strengthening of Revenue Administration and the updating of Land Records. This scheme is implemented by Department of Land Resources under the Ministry of Rural Development (MoRD). The scheme aims at deducing the land related issues faced by all the citizens across the countries and also to develop a suitable Integrated Land Information Management System (ILIMS). The benefits of DILRMP are that the land ownership details are easily accessible (anywhere-anytime) to all the citizens through a single window service. Free access to documents and records reduces the scope of interference by the intermediaries and helps in boosting better contact between the citizens and the Government. Easy availability of records reduces the occurrences of fraudulent property deals.

[2] Bhoomi Samvaad

Bhoomi Samvaad [29] is a National Workshop on Digital India Land Records Modernization Programme (DILRMP) conducted on 16 November 2021, inaugurated by Shri Raj Giriraj Singh.

I. Unique Land Parcel Identification Numbers (ULPIN) [30] was introduced which is similar to that of the Aadhar Card given to the citizens of the country. The ULPIN scheme was initially launched in 10 States and to be continued in remaining states by March 2022 [31]. The identification is made on the basis of the latitudinal and longitudinal coordinates of any land. Along with that it is also dependent on the geo-referenced cadastral maps/. The scheme gives every land its own serial number which ensures uniqueness of each land and it also helps in tracking all the transactions related to that of such land. The ULPIN helps in the development of ILIMS throughout the country.

II. National Generic Document Registration System (NGDRS) [32] is marked as a major transition from manual registration of land to online registration including buying, selling and all other transfers of land. It is said to be the major step towards 'One Nation One Software' in regards to land. NGDRS is implemented in 12 States with a pilot test in 3 States which covers 10 crore population of the country. The software is designed in such a way that it is a compatible, accountable, flexible and transparent system fulfilling the needs of the citizens and efficiently reduces the time and cost used while executing registration of lands [33].

III. SVAMITVA Scheme: SVAMITVA abbreviated as Survey of Villages and Mapping with Improvised Technology in Village Areas Scheme, an initiative step collectively taken by Ministry of Panchayati Raj, State Panchayati Raj Departments, State Revenue Departments and Survey of India. The scheme aims for proper mapping of rural inhabited lands with the drone technology and Continuously Operating Reference Station (CORS). The mapping is done in four years from 2020-2024 in different phases. The scheme tries to create a better map of rural areas in order to improve better functioning of Gram Panchayat Development Plans (GPDPs) [34-36].

Conclusion

Land in India has transitioned from collective ownership to individual ownership. But regardless of its nature, it is always dear to its owner. The owner tries to protect his land at any cost and sometimes in order to get protection through litigation cases filed might take years. Land is an asset which has proved to be reliable whenever needed. People buy, sell and transfer their land. All transactions and registrations related to land was earlier manual but after digitization of the land records documents and modernizing the real estate sector, things are much easier and transparent than they were earlier. Introduction of new schemes and collective initiative from both the central and state governments in India have led to the rapid growth in digitizing land documents.

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Future Scope

The future scope of digitization and modernization of land records is promising and holds several opportunities for growth and improvement. Some of the areas where there is potential for future development in this field include:

- *Artificial Intelligence and Machine Learning:* AI and ML algorithms can be used to automate various land record processes, such as property registration and title search, to further improve the efficiency of land record management.
- *Blockchain Technology:* Blockchain can be used to create decentralized and secure land record systems that can increase transparency, reduce fraud, and enhance the protection of property rights [37].
- *GIS Integration:* Integrating land records with Geographic Information Systems (GIS) can provide a comprehensive view of land and real estate, enabling better land-use planning, management, and decision-making [38].
- *Mobile Access:* Increasing access to land records through mobile devices can improve the accessibility and convenience of land record services for citizens and businesses.
- *Interoperability:* Interoperability between different land record systems can facilitate the exchange of land-related information between different government agencies and jurisdictions, leading to increased efficiency and accuracy [39].

Overall, the digitization and modernization of land records is expected to play a key role in shaping the future of the real estate sector and improving the governance of land.

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