

“A Pre-requisite for Sustained Economic Growth in India”: Securing Property Rights through Blockchain-based Ledger Distribution Technology

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Abstract

India has seen strong economic development in recent years, with the GDP rising 7.6 percent in recent fiscal years. While economic activity is robust, the country is still a long way from recovery. The administration must seize the economic momentum prevailing now and use it to advance its reform programmes. The property market is one of the sectors that need regulatory attention. Despite efforts to modernise the land title system, under the Digital India Land Records Modernization Programme (DILRMP), India's present land title system continues to have flaws. If India wants to become an economic superpower, it would require a standardised property rights framework. To strengthen existing systems, a decentralised, open, and transparent form of record keeping must be implemented, complemented with a legal framework, capable of protecting and enforcing property rights. Blockchain technology may hold the key to resolving the present record-keeping problem. If the government can assist in overcoming technical, institutional, and regulatory impediments, the blockchain land registry, when combined with rigorous titling legislation, may still prove to be the most secure, transparent end means, to establish a land records system in India.

Keywords: Land registration, blockchain network, economic, digital records, Government agency.

INTRODUCTION TO PROPERTY RIGHTS IN INDIA

India has seen strong economic development over the previous couple of years, with the GDP rising 7.6 percent in recent pre-pandemic fiscal years. The economic character of the country has also changed significantly over time i.e. from rural agricultural output to urban economic activity, and from low-value manufacturing to high-value services. While economic activity is robust, the country remains a long way from recovery. The property market is one of the sectors that need regulatory attention. After all, a strong property rights system is a necessary condition for long-term economic prosperity. Secure tenure has been demonstrated to improve land market efficiency, increase access to formal finance channels, stimulate investment in physical and human capital, boost growth performance, decrease macroeconomic volatility and promote a fair and efficient allocation of economic opportunity.

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The world is now undergoing a post-industrial digital revolution, which is characterised by increased information density, connection, specialisation and globalisation. This new technology era has the potential to create an environment in which, civilization is motivated by collaborative rather than selfish goals. To reap the benefits of this *technology-driven paradigm*, the Modi administration announced the ambitious Digital India Mission in 2014, whose central

objective is the supply of trustworthy and current data to enable the effective delivery of government services, to the general population.

Nonetheless, the information architecture that stores this data is now fragmented among several databases. The present technology allows for the very easy modification or manipulation of data. This is a particularly prevalent problem in the case of land records. In the United States, the centralised management of land records and registration processes provides only a semblance of openness and accountability. As a result, vital data is frequently missing, causing unacceptably long delays in real-time decision-making [1]. Due to insufficient land records, purchasing property becomes difficult, resulting in delays in infrastructure projects. Land is frequently purchased for development projects, however the *7/12 land extract* (a copy of the revenue department's land registry) does not reflect these changes. As a result of this administrative shortcoming, fraudulent land transfers are prevalent. In some instances, individuals mortgage government-owned property in order to receive bank loans. The *Digital India Land Records Modernization Program* (DILRMP), a federal government initiative to digitise and update land records was restarted in 2016, but it is still vulnerable to comparable injustices. If India wants to become an economic superpower, it must establish a standardised property rights framework. To reinforce existing systems, it is necessary to implement a decentralised, open, and transparent form of record keeping. This must be accompanied with a legal structure capable of safeguarding and enforcing property rights. Blockchain technology may hold the key to resolve the present recordkeeping problem.

INDIA'S LAND ADMINISTRATION STRUCTURE

Before addressing how blockchain technology may improve land administration results, it is critical to understand India's land administration system in its entirety. There is a *contrast between land records and land registration*, as well as the evolution of these records across time. Land records were quickly established in India during colonialism, particularly in rural regions, with agricultural potential. Forests and urban areas were excluded from this system's coverage [2]. Land records were created to collect taxes, not to establish rights. Throughout the colonial period, land revenue became the primary source of government revenue. The Bengal Regulation XXXVI of 1793, the Bombay Regulation IV of 1802 and the Madras Regulation XVII of 1802 established the system of document registration, for transfers of immovable property. The Acts empowered the Registrar to record conveyances, gift conveyances, mortgage conveyances, wills, and leases. These were followed by a succession of legislations culminating in the 1908 Registration Act, during the colonial era.

The Registration Act was applicable to all British Indian provinces and required registration of all papers, pertaining to the transfer of immovable property. After Independence, things remained unchanged. The newly independent Indian administration mainly preserved the colonial system of land records and registration. Rural regions rely heavily on the Revenue Department's land records, whereas urban areas rely heavily on deed registration through the Stamps and Registration Department. Since independence, the popular perception of land reforms in India has been lukewarm. According to a study by the former Planning Commission's Task Force on Agrarian Relations, the huge gaps between policy and legislation, as well as between law and its execution, may be attributed to widespread political indifference.

The Indian Constitution clearly mentions the state's obligation to keep land records. Specifically, *Article 18 and Article 45 of List II of the Seventh Schedule* declare unequivocally that land and all associated activities are within the States' domain. At the national level, the Union Ministry of Rural Development's Department of Land Resources is responsible for land policy concerns [3]. In the United States, the Revenue Department is responsible for land records, the Stamps and Registration Department is responsible for registration and the Survey Department is responsible for land surveys. The Tehsildar is the official responsible for maintaining land records, at the taluk or tehsil level. Land records are kept at the circle level by the Revenue Inspector and Circle Inspector. Typically, the Village Accountant (VA) is responsible for a village or a cluster of villages.

The Predicament of Titles in India Today

The National Land Records Modernization Programme was established in 2008 with the goal of modernising the management of land records, reducing the scope of land/property disputes, increasing transparency in the land records maintenance system and gradually moving towards guaranteed conclusive titles to immovable property [4]. According to this plan, land records are expected to be computerised in all districts of the country by 2017, with a Public-Private-Partnership [PPP] model, serving as the foundation. The idea did not make much progress, since the costs of putting it into action proved to be increasingly expensive. The digitalization of land records was recently re-launched, as part of the Digital India Land Records Modernization Programme, for which INR 150 crores was earmarked in the Union Budget of 2016.

The crucial re-launched project has the following goals: all land records, including mutations will be computerised; maps will be digitised and integrated with textual and spatial data; survey and re-survey records will be updated and additional original cadastral records will be created, wherever necessary; all land records will be computerised; Geospatial Information System (GIS) development will take place; and training will be provided [5]. Overall, this approach represents an encouraging first step toward the establishment of a stable property system. There are, however, some difficulties with the way it is being implemented, including administrative and procedural delays.

Matter of Contention with the Ongoing System

The records kept by the government are largely utilised for taxation and financial reporting reasons. The role of proving title is entirely incidental to the primary objective of collecting land income. Thus, land titles are completely fictitious. Registration notifies the public of the existence of an agreement between two parties but says nothing about the legality of the underlying transaction. This exposes registration-based titles to legal disputes in courts of law. The Indian court system is presently collapsing under the weight of a three-crore case backlog, with 70% of cases involving land or property issues. In the absence of opposing claims, registrars today register any instrument received without verifying its legitimacy. *The Registration Act of 1908* makes no provision for the examination of the authenticity of papers or transactions. Due to a lack of coordination among the many nodal organisations responsible for land records, the information recorded is not uniform [6]. This creates uncertainty regarding the nature of the rights being transferred and the borders of the land being transacted. Additionally, records are not updated on a timely basis. As a result, they rarely represent the real nature of land ownership. According to a CAG study, there was a backlog of about 1,24,325 property registration files in 2020.

Corruption abounds in the existing system. Each year, experts believe that USD 700 million in bribes are exchanged in registrar offices, around the country. Additionally, the system has facilitated the growth of an *informal loan industry*. Due to the absence of official title to their land, the majority of impoverished farmers in India are unable to utilise it, as security for a loan. As a result, the majority of farmers are unable to access conventional lending institutions [7]. The DILRMP continues to rely significantly on government officials to act, as trustworthy third parties responsible for deeds and verifying data.

According to recent statistics from the DILRMP, the digital land record database has not been link, with the digitised land registration database, in majority of States. This data shortage obstructs the automated verification of documents, submitted for registration [8]. VAs and patwaris frequently exhibit apathy, when it comes to cross-referencing and validating data, resulting in many delays. Additionally, this system is susceptible to *cyber-attacks*. A cyber-attack on a digital land register might result in the loss or theft of sensitive information.

BLOCKCHAIN TECHNOLOGY

Understanding 'Block-chain' and its Operation in Tech-World

The word 'blockchain' was coined in 2008, when a person or group of individuals using the pseudonym '*Satoshi Nakamoto*', published a paper outlining the workings of Bitcoin, a peer-to-peer

electronic payment system, that eliminated the need for financial institutions. The blockchain technology served, as the foundation for the Bitcoin electronic cash system. Bitcoin was the preferred money of criminal networks, such as the infamous 'Silk Road', an online marketplace for people trading illicit goods. However, since then, blockchain has developed a new character in industry. Numerous financial institutions and businesses across sectors are experimenting with this technology, as a safe and transparent means of *tracking asset ownership* and *transaction verifiability* online. Certain nations are now experimenting with blockchain technology in order to solve inefficiencies in existing systems and improve public service delivery.

A blockchain is a type of data structure that enables the creation and sharing of a digital record of transactions, over a dispersed network of computers. Without the requirement for a central authority, each network participant may alter the ledger in a secure manner using encryption. Each block contains a distinct hash. The transaction is reduced to a numerical code called the hash value. A hash is basically a digital fingerprint associated with a certain transaction. Each computer connected to the blockchain network is referred to as a node. Each node maintains a copy of the whole ledger and collaborates with other nodes, to ensure its correctness. This adds to the present system's redundancy and inefficiency [9]. Nothing is lost if a node goes down or vanishes. A consensus mechanism is a set of rules that the network follows, in order to validate transaction and agree on the blockchain's current state of registration.

Once a block of data is written to the blockchain ledger, it becomes nearly impossible to alter or transfer. When someone wishes to add to the blockchain, the network's members i.e. each of whom has a copy of the existing blockchain, execute algorithms to assess and validate the proposed transaction. The hash of the transaction must match the blockchain's history. If a majority of nodes agree on the legitimacy of the transaction, it is authorised and added to the ledger. Blockchain is an open platform, with its inner workings available for scrutiny and expansion. A special emphasis is being placed on the potential for blockchains to be utilised as registers. At the moment, blockchain technology is being used to track diamond transactions, serve as a notary and securely store personal data without the necessity of passwords.

While this system still requires an intermediary to correctly store data, there are ways to limit the intermediary's capacity to change the nature of the data, such as through '*smart contracts*.' Contracts that have been reduced to code are referred to as smart contracts. Smart contracts enable the input of additional information to the blockchain's existing data, in order to govern authorization and storage. They self-validate their conditions through data and then execute. They are resistant to tampering because they are executed and stored on a network of computers, that is inaccessible to the contract's participants. Due to the fact that none of the contract's parties have any influence on the smart contract, beyond their actual fulfilment of their obligations, all participants may trust that this sort of contract will be performed exactly as stated [10]. *Estonia, Honduras, Georgia, Ghana* and *Sweden* are all investigating blockchain-based land register systems at the moment. Sweden is pioneering this endeavour, with a functioning pilot in place and plans for full-scale implementation in the near future. A review of previous systems might offer information on the system that India should adopt.

The Swedish Block-chain based Ledger Registry

The existing land registration system in Sweden is inefficient in terms of openness. As a result, private parties established a framework to safeguard the sanctity of their own agreements. Recognizing the need for change, the *Lantmateriet* (the Swedish Mapping, Cadastre, and Land Registration Authority) collaborated with Kairos Future (a consulting firm), The Telia Company (Sweden's largest telecommunications company) and Chroma Way (a blockchain solutions firm) to develop an innovative solution to the problems plaguing the current land registry framework.

They created a strategy to develop an application that would facilitate transactions, through the usage of blockchain technology. The programme serves as a conduit for communication between the

different parties (real estate agent, bank, buyer, seller and Lantmateriet). The property's whole history (current owner, cadastral surveys, and so on) is *digitised* and *stored on the blockchain*. After then, smart contracts ensure that this digitised area is governed by certain regulations (e.g., Sweden's regulatory policies) [11]. After then, the application serves as an interface for all transactions involving a given property. The purchase agreement is reduced to a single hash code and then stored on the blockchain. The unique digital signatures, banks, real estate brokers, purchasers, and the Lantmateriet vouch for the authenticity of this purchase agreement and other papers. Additionally, banks may verify that the buyer has sufficient cash in their account to complete the deal. The Lantmateriet can then record the transaction and transfer title to the purchaser. The elegance of this software is its ability to do lateral operations. In general, linear progressions are sluggish and time-consuming. Numerous procedures, actions and formalities may be conducted concurrently via a single, open and transparent platform, for land registration.

Rajasthan Land (Certification of Titles) Act 2016: A Pilot Undertaking

Rajasthan's legislative assembly approved the *Rajasthan Urban Land (Certification of Titles) Act, 2016*, establishing the state as a suitable site for a blockchain pilot project. The Act established the legal basis for providing valid property rights to a State resident. According to the Act, if a third party successfully challenges the title to a transaction between two parties, the government is required to compensate the buyer for the amount paid. Additionally, it establishes the time frame during which individuals may contest provisional certificates of title to property. Furthermore, the State maintains a functioning website that contains current copies of the Records of Rights. The tehsil with the greatest per capita mobile phone usage would be the perfect place for the trial project to be launched. The deployment process should begin with a re-survey of the terrain. Currently, the majority of cadastral maps in India come from the British era. The Department of Land Resources is contracting with companies that offer *Unmanned Aerial Vehicle (UAV) technology* services to complete the cadastral mapping process. Once established, freshly registered property may be recorded on the blockchain, because land parcels are always tangible.

To expedite dispute settlement, the Act may be modified to require that disputes arising under the Act be addressed, within a year. A flat rate transaction tax might be used in place of Stamp Duty on real estate transactions. This tax may be levied on the application itself or included in the price of the land parcel and paid *directly to the appropriate government agency*. While this does not eliminate Stamp Duty entirely, it does eliminate the practise of paying Stamp Duty to a collector and the associated ambiguity. Due to the ambiguity of the Stamp Duty Act, there is frequent controversy about the amount of duty owed, between the Collector and the individual attempting to pay duty [12]. In addition, collectors have been known to exploit their position to harass members of the public. Thus, the payment of Stamp Duty serves, as a catalyst for a great deal of litigation. Rates vary by state and the Stamp Duty Act is a lengthy and inefficient piece of legislation. Tax avoidance would also be prevented by including the tax directly in the transaction amount, paid through digital/online platforms.

CONCLUSION: THE PROSPECT OF A BLOCK-CHAIN REGISTRY IN INDIA

There are multiple roadblocks in the way of India, implementing a Blockchain based land registration system. For one thing, it necessitates a complete legal and administrative reform, beginning with a Constitutional change and the adoption of a *comprehensive Titling Act*. Furthermore, it will necessitate a reorganisation of the administrative regime, now in charge of land records. Overcoming these institutional impediments would be difficult, to put it mildly. However, without legislative approval, the blockchain ledger would be worthless [13]. Under the existing legal framework, ledger entries would still only allow for presumptive titles and so a definitive land titling legislation would need to be enacted to avoid future conflicts, in the land registration procedure.

There are numerous infrastructure gaps to be addressed, before implementation of a Blockchain based land registration system in India. At the moment, just 34.8 percent of India's population has

internet connection. This lack of access, along with low literacy rates and extreme poverty, creates significant impediments to the expansion of any digital application. In addition, while mobile data plans are attractively priced, they remain prohibitively costly for the vast majority of Indians. The big Pruthvi project is a significant step in this respect. *Saankhya Labs in Bengaluru* has created a chip that makes advantage of unused television spectrum capacity to provide internet access, to thousands of rural families. The project is currently undergoing field-testing in 2021.

The new property regime would significantly reduce the government's involvement in supporting property transfers. The business collaborating with the government on this project will be responsible for initialising the blockchain with data. Through the use of smart contracts, the blockchain can be designed to verify the integrity of this data. Smart contracts will guarantee that transactions and titles comply with the government's laws and regulations [14]. Additionally, they may be programmed to access court registries during the resolution of disputes and the issuance of titles, as well as cadastral surveys and other public documents to verify the correctness of titles. Intermediaries are then solely responsible for monitoring the network and alerting authorities, if there is any indication of manipulation. Even if they progress to manually adding data, they cannot evade the system, which would reject any modification that does not match the information in public records.

Despite significant implementation and acceptance hurdles, the present *government's enthusiasm for digitization* contributes to a positive prognosis for the future of this technology. If the government can assist in overcoming technical, institutional and regulatory impediments, the blockchain land registry, when combined with rigorous titling legislation, may still prove to be the most *secure, transparent and efficient* means to establish a *land records system in India*. It will contribute to the elimination of a large number of flaws in the present system. As previously said, technology provides an inventive answer to a range of the country's problems. In addition, while it is far from a panacea, the benefits greatly exceed any drawbacks associated with its adoption today.

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Brief Career History

Participated (through invite) at the 3rd International Conference on Arbitration in the era of Globalization at Federation House, Tansen Marg, New Delhi, with the Current Chief Justice of India, Justice Sharad Arvind Bobde, as the Chief guest. Understood arbitration under contract law, through participating in the 10th Indian Willem C. Vis International Commercial Arbitration Moot 2020, by Surana and Surana; with Internships at Supreme Court of India and Delhi High Court.

Conflicts of Interest

"The authors declare no conflict of interest." This is to solemnly swear that the submitted research article is the Author's i.e. *Dev Agrawal* original work and is being submitted to the National Journal of Real Estate Law Board, for publication in the National Journal of Real Estate Law exclusively.

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