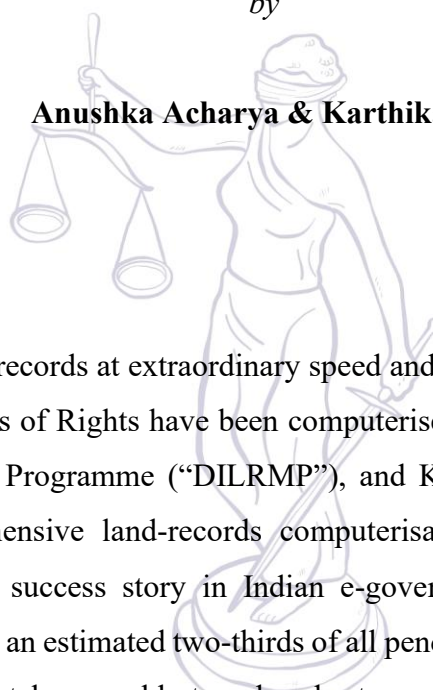


**THE DIGITAL LAND PARADOX:
DIGITISATION, TITLE CERTAINTY AND THE PERSISTENCE OF LAND
DISPUTES IN INDIA**

by

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ABSTRACT

India has digitised land records at extraordinary speed and scale: as of 2024, roughly 98.5 per cent of rural Records of Rights have been computerised under the Digital India Land Records Modernisation Programme (“DILRMP”), and Karnataka's Bhoomi system the country's first comprehensive land-records computerisation effort, launched in 2000 remains the most-cited success story in Indian e-governance. Yet land and property disputes still account for an estimated two-thirds of all pending civil litigation in India, and the average land dispute takes roughly two decades to resolve. This paper argues that this is not a paradox of implementation but a paradox of legal architecture: Indian land records, digitised or not, remain presumptive rather than conclusive evidence of title, because the underlying statutory scheme the Registration Act, 1908, the Transfer of Property Act, 1882, and state land revenue acts such as the Karnataka Land Revenue Act, 1964 was never built on a Torrens-style register of title and has not been re-engineered by any of the successive digitisation programmes to become one. Digitisation improves the speed, transparency and tamper-resistance with which an unreliable record can be retrieved, but it does not, by itself, resolve whether that record is legally correct. Drawing on Supreme Court and Karnataka High Court authority holding that revenue and mutation entries “neither create nor extinguish title,” and on both the celebratory and critical scholarship surrounding Bhoomi

including the World Bank's positive evaluation and Solomon Benjamin and co-authors' 2007 political-economy critique documenting increased bribery, transaction delay and elite land capture following computerisation the paper traces how a technically successful digitisation project can leave, and in some documented respects worsen, the underlying title-certainty problem it was designed to solve. The paper concludes with an assessment of what a genuine transition to conclusive titling, as contemplated by NITI Aayog's 2020 Draft Model Act on Conclusive Land Titling and the DILRMP's own stated objectives, would require beyond digitisation alone.

Keywords: *Land records; title certainty; presumptive title; conclusive titling; Bhoomi; Karnataka Land Revenue Act, 1964; Registration Act, 1908; DILRMP; Torrens system; land litigation; e-governance; ULPIN; SVAMITVA.*

1. Introduction

In November 2025, Justice P.S. Narasimha of the Supreme Court of India remarked, in the course of a property dispute, that buying property in India is “not difficult to find people grudgingly telling us that it is, in fact, traumatic.”¹ The observation was not hyperbole. According to DAKSH's 2016 Access to Justice Survey the most frequently cited empirical study of Indian civil litigation land and property disputes account for roughly two-thirds of all pending civil cases in the country, a figure independently corroborated by the Centre for Policy Research's Land Rights Initiative and repeated by NITI Aayog itself.² NITI Aayog's own research puts the average time to resolve a land dispute at approximately twenty years.³

The scale of the problem extends well beyond court docket statistics. Research by the Centre for Policy Research's Land Rights Initiative estimates that approximately 7.7

¹Samiullah v. State of Bihar (Supreme Court of India, 2025), quoted in India Property Dispute Crisis: 66% of Civil Cases Are Property Disputes, ASSETLY (Mar. 27, 2026), <https://assetlyhq.com/blog/india-property-dispute-crisis/>.

²DAKSH, Access to Justice Survey (2016); see Understanding Land Conflict in India and Suggestions for Reform, CENTRE FOR POLICY RESEARCH (2022), <https://cprindia.org/understanding-land-conflict-in-india-and-suggestions/> (finding that 66% of all civil cases in India are related to land or property disputes, and that 25% of all Supreme Court decisions involve land disputes); Millions of Land, Property Cases Stuck in Courts, DECCAN CHRONICLE (2016), <https://www.deccanchronicle.com/nation/current-affairs/090816/millions-of-land-property-cases-stuck-in-indian-courts.html>.

³Conclusive Land Titling, DRISHTI IAS, <https://www.drishtias.com/daily-updates/daily-news-analysis/conclusive-land-titling> (last visited Aug. 29, 2026) (citing NITI Aayog research on average land-dispute resolution time).

million people in India are presently affected by on-ground conflict over some 2.5 million hectares of land, with the associated investment risk quantified at over \$200 billion; analysis of stalled infrastructure projects has found that land disputes contributed to the stalling of approximately 14 per cent of all large capital investment projects announced in India between 2000 and 2016.⁴

Over the same two decades in which this litigation crisis has deepened, India has pursued an ambitious and, by most technical measures, successful programme of land-records digitisation. The Digital India Land Records Modernisation Programme (“DILRMP”) the successor to the earlier National Land Records Modernisation Programme (“NLRMP”) reports that 98.5 per cent of rural land records had been digitised as of 2024, and Karnataka and Odisha have achieved 100 per cent computerisation of land records.⁵ Karnataka's own Bhoomi project, launched in 2000, was the first comprehensive state-level land-records computerisation effort in India and remains the programme most frequently cited by the World Bank, by Indian e-governance award bodies, and by other states seeking to replicate it as a model of successful public-sector digital transformation.

This paper's central claim is that these two facts, near-universal digitisation and a persistent, arguably worsening land-litigation crisis are not in tension so much as they are two faces of the same underlying legal architecture. India's land records, whether kept on paper in a taluk office or served instantly from a state data centre, have never been documents of title in the technical sense; they are, and remain, presumptive evidence administered for primarily fiscal purposes, sitting alongside a wholly separate deed-registration system that records transactions rather than verifying ownership. Digitisation can make a presumptive, potentially erroneous record faster to retrieve, harder to tamper with at the point of retrieval, and more transparently auditable all genuine achievements without making that record legally conclusive, and, as the Bhoomi case study in Part IV shows, digitisation can under

⁴Namita Wahi, 'Understanding Land Conflict in India and Suggestions for Reform' (Centre for Policy Research, 2022) <<https://cprindia.org/understanding-land-conflict-in-india-and-suggestions/>> accessed 31 August 2026; 'Land Disputes and Stalled Investments in India' (Rights and Resources Initiative, 2017) <<https://rightsandresources.org/publication/land-disputes-stalled-investments-india/>> accessed 31 August 2026.

⁵DILRMP and Digitalisation of Land Records, DRISHTI IAS, <https://www.drishtias.com/daily-updates/daily-news-analysis/dilrmp-and-digitalisation-of-land-records> (last visited Aug. 29, 2026); Opinion — Modernizing Land Records in India, PRS INDIA, <https://prsindia.org/articles-by-prs-team/opinion-modernizing-land-records-in-india> (last visited Aug. 29, 2026) (reporting Karnataka and Odisha as the first two states to reach 100% computerisation).

some conditions create new opportunities for exactly the kind of elite capture and fraud it was designed to prevent. *Part II* sets out the doctrinal foundations of presumptive title in Indian land law and the reform architecture built, so far only partially, to move beyond it. *Part III* explains the paradox in structural terms. *Part IV* examines Bhoomi in detail, drawing on both the celebratory and critical literature. *Part V* restates the paradox as a general diagnosis, and *Part VI* considers what genuine conclusive titling would require.

2. Doctrinal Foundations: Presumptive Title in Indian Land Law

2.1 The Registration Act, 1908: registering deeds, not title

The starting point for understanding India's title-certainty problem is that the Registration Act, 1908 registers *documents*, not title. Section 17 of the Act makes registration compulsory for instruments purporting to create, declare, assign, limit or extinguish an interest in immovable property of value exceeding one hundred rupees, and registration under the Act gives the instrument legal effect and public notice.⁶ But the Sub-Registrar who registers a sale deed does not verify that the seller actually owned the property, that the chain of prior transfers was valid, or that no competing claim exists; registration is administrative recording of a transaction, not an official adjudication or guarantee of the transferor's title. This is the single most consequential structural feature of Indian property law for the purposes of this paper: a buyer who obtains a duly registered, stamped sale deed has documentary evidence of a transaction, but not a state guarantee of ownership, and can in principle still be defeated by a person with a better underlying title who was no party to that transaction.

2.2 The statutory presumption attaching to revenue records

Alongside the registration system sits an entirely separate body of land revenue law, administered by each state's revenue department rather than its registration department, whose core document is the Record of Rights known in Karnataka, and much of South India, as the RTC (Record of Rights, Tenancy and Crops, colloquially Pahani). Revenue records were historically maintained for the fiscal purpose of assessing and collecting land

⁶Registration Act, 1908, No. 16 of 1908, § 17 (India).

revenue, and this fiscal origin still shapes their legal character. Section 133 of the Karnataka Land Revenue Act, 1964 provides that an entry in the Record of Rights is presumed to be true until the contrary is proved, or a new entry is lawfully substituted.⁷ Karnataka courts have repeatedly held that this presumption, while real, is not “readily rebuttable” only in the weak sense that it shifts an evidentiary burden it does not, and under the Act cannot, amount to a guarantee of ownership.⁸

2.3 The judicial gloss: revenue entries “neither create nor extinguish title”

A long and consistent line of Supreme Court authority, several of it arising directly from Karnataka, confirms that revenue and mutation entries carry no probative weight on the underlying question of ownership. In *Narasamma & Ors. v. State of Karnataka & Ors.*, concerning a tenancy dispute over land in Uttarahalli, Bangalore South Taluk, the Supreme Court reiterated that entries in the revenue record cannot create title in respect of disputed land, though they may be relevant evidence of who was in possession on the date of the entry.⁹ The Court reached the same conclusion, independent of any Karnataka connection, in *Smt. Bhimabai Mahadeo Kambekar (D) Th. LR v. Arthur Import and Export Company*, holding that mutation of a property in revenue records “neither creates nor extinguishes title, nor has it any presumptive value on title,” and merely entitles the person in whose favour mutation is recorded to pay the land revenue in question.¹⁰ Most recently, in a November 2023 ruling that expressly set aside a Karnataka High Court decree granted on the strength of revenue documents, the Supreme Court held that revenue records are “not documents of title,” being “essentially fiscal in nature,” and that a plaintiff in a title suit cannot succeed merely by pointing to gaps in the defendant's title while failing to produce any document of title of their own.¹¹ In May 2025, the Supreme Court extended this logic

⁷Karnataka Land Revenue Act, 1964, § 133 (India) (“Presumption regarding entries in the records”); see also Indian Evidence Act, 1872, § 35 (presumption of genuineness attaching to entries in public records made by a public servant in the discharge of official duty).

⁸See, e.g., *Sri B.C. Gappanna v. N.U. Kasturi* (Karnataka High Court) (discussing the presumptive value of Record of Rights entries under § 133 of the Karnataka Land Revenue Act, 1964); Presumptive Value, CASEMINE, <https://www.casemine.com/search/in/presumptive+value> (last visited Aug. 29, 2026) (compiling Karnataka and other state authority on the presumptive, non-conclusive character of revenue record entries).

⁹*Narasamma & Ors. v. State of Karnataka & Ors.*, (2009) 5 SCC 591 (India).

¹⁰*Smt. Bhimabai Mahadeo Kambekar (D) Th. LR v. Arthur Import and Export Company*, (2019) 3 SCC 191 (India).

¹¹Revenue Records Not Documents of Title: SC, LAWBEAT (Nov. 23, 2023), <https://lawbeat.in/supreme-court-judgments/revenue-records-not-documents-title-supreme-court> (discussing the Supreme Court's Nov. 20, 2023 ruling, Bench of Trivedi and Datta JJ., setting aside a Karnataka High Court decree); Revenue Records Won't Confer Title,

one step further up the documentary hierarchy, holding that even a registered sale deed is not automatically conclusive proof of ownership where the vendor's own title was defective confirming that neither revenue entries nor deed registration, individually or together, function as a title guarantee under Indian law.¹²

The cumulative effect of this jurisprudence is that Indian land law operates, in substance, on a presumptive rather than conclusive titling model: no single document sale deed, RTC extract, mutation entry, or khata is dispositive of ownership, and a determined litigant can, and frequently does, reopen apparently settled titles by producing an earlier or better chain of documents, or by challenging the authenticity of the documents relied upon by the current possessor. This is the legal soil into which every land-records digitisation programme in India, including Bhoomi, has necessarily been planted.

2.4 The conclusive-titling alternative and why India never adopted it

The theoretical alternative to India's presumptive model is the Torrens system of title registration, developed in South Australia in 1858 and since adopted, in varying forms, across Australia, much of Canada, and parts of the United Kingdom. A Torrens-style register operates on three linked principles: the mirror principle, under which the register reflects, completely and accurately, all facts material to title; the curtain principle, under which a purchaser need not investigate the history of title behind the register, since the register itself is conclusive; and the insurance principle, under which the state indemnifies any person who suffers loss through an error in the register. Because the state, rather than the private purchaser, bears the residual risk of title error, a Torrens jurisdiction can support the near-instant, low-friction property transactions that are commonplace in those systems. India has never adopted this model at the national level: the Registration Act's document-recording function and the state revenue departments' fiscal recording function have historically operated in parallel, neither one performing the register-of-title function that underpins the mirror, curtain and insurance principles.

LIVELAW (Jan. 6, 2024), <https://www.livelaw.in/supreme-court/supreme-court-judgment-burden-of-proof-land-title-dispute-kishore-kumar-vs-vittal-patkar-242714>.

¹²Property Registration Alone Does Not Prove Ownership: Supreme Court Ruling, LANDEED (2026), <https://www.landeed.com/post/property-registration-alone-does-not-prove-ownership-supreme-court-ruling> (discussing the Supreme Court's May 7, 2025 ruling).

Any transition to a Torrens-style system in the Indian context would require not merely new legislation but a prior adjudication of disputed title across the existing land stock, since conclusive registration cannot meaningfully operate on a contested baseline. Scholarly analysis specific to India has identified this upfront adjudication requirement as the critical obstacle, noting that the volume of outstanding title disputes makes it a substantially more demanding undertaking in India than in the colonial-era frontier jurisdictions where the Torrens system was originally adopted on comparatively unencumbered title registers.¹³

2.5 Reform architecture: NLRMP, DILRMP, ULPIN and the Draft Model Act

The Government of India has recognised this gap for close to two decades. The National Land Records Modernisation Programme, launched in 2008, was renamed the Digital India Land Records Modernisation Programme in 2016 and has been extended, in its current phase, to 2025–26, with two significant additions: consent-based linking of Aadhaar numbers to Records of Rights, and computerisation of revenue courts and their integration with land records.¹⁴ The DILRMP's stated long-term aim is precisely to replace the manual, presumptive land-title system with a digital conclusive titling system carrying a government-backed title guarantee a Torrens-style ambition explicitly acknowledged in the programme's own documentation.¹⁵ To this end, the Department of Land Resources has rolled out the Unique Land Parcel Identification Number (“ULPIN”), a fourteen-digit alphanumeric identifier assigned to each surveyed land parcel based on its geo-coordinates and compliant with international geospatial data standards popularly described, echoing the Aadhaar biometric identity system, as an “Aadhaar for land.”¹⁶ A complementary rural initiative, the SVAMITVA scheme (Survey of Villages and Mapping with Improved Technology in Village Areas), launched in 2020, uses drone-based surveying to generate property records for inhabited rural areas that had historically fallen outside the agricultural land-revenue system altogether, with the explicit goals of reducing land disputes and

¹³Jonathan Zasloff, 'India's Land Title Crisis: The Unanswered Questions' (2011) Social Science Research Network Working Paper <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1923903> accessed 31 August 2026.

¹⁴Digital India Land Records Modernization Programme, PRESS INFORMATION BUREAU (2023), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1989671®=3&lang=2>; Digitization of Land Records, VISION IAS (2024), <https://dce.visionias.in/monthly-magazine/2024-12-17/polity-and-governance/digitization-of-land-records>.

¹⁵DILRMP and Digitalisation of Land Records, *supra* note 8.

¹⁶Digital India Land Records Modernization Programme, *supra* note 12 (describing the ULPIN system).

enabling villagers to use their property as collateral for institutional credit.¹⁷ At the doctrinal level, NITI Aayog circulated a Draft Model Act on Conclusive Land Titling in 2020, intended to give states a template for the legislative overhaul title registration, an indemnity fund, and curtailment of open-ended civil litigation over registered titles that a genuine move to conclusive titling would require.¹⁸ As of this writing, however, no state has enacted and brought into force a comprehensive conclusive-titling statute built on this model; digitisation has advanced far more quickly than the underlying legal reform on which conclusive titling depends.

Despite the technical promise of the ULPIN system, its implementation has been markedly uneven across states. As of October 2024, approximately 30 per cent of rural land parcels nationally had been assigned ULPINs, with over 28.72 crore parcels listed in the ministry's portal but only 8.4 crore ULPINs actually generated; states such as Gujarat, Goa, and Madhya Pradesh have shown comparatively strong progress, while West Bengal, Bihar, and Uttarakhand lag significantly behind.¹⁹

The SVAMITVA scheme has recorded significant operational progress: by April 2025, drone surveys had been completed in over 3.17 lakh villages, representing approximately 92 per cent of the villages notified under the programme, and more than 2.25 crore property cards had been prepared for over 1.53 lakh villages across 31 States and Union Territories. However, the property cards issued under SVAMITVA confer Records of Rights for residential holdings in rural abadi areas, not conclusive title documents, and their legal character under state revenue law remains presumptive in the same sense as the agricultural RTCs that Bhoomi has been generating for twenty-five years -- a limitation that the scheme's design does not address.²⁰

¹⁷DILRMP and Digitalisation of Land Records, *supra* note 8 (describing the SVAMITVA scheme).

¹⁸Digitization of Land Records, *supra* note 12 (describing NITI Aayog's Model Act on Conclusive Land Titling, 2020, as a template for state legislation).

¹⁹'What is Unique Land Parcel Identification Number (ULPIN)?' (GKToday, October 2024)

<<https://www.gktoday.in/what-is-unique-land-parcel-identification-number-ulpin/>> accessed 31 August 2026; 'Bhu-Aadhar: Unique Land Parcel Identification Number (ULPIN)' (Department of Land Resources, Government of India)

<<https://dolr.gov.in/en/ulpin/>> accessed 31 August 2026.

²⁰Press Information Bureau, 'Prime Minister Distributes Over 65 Lakh SVAMITVA Property Cards' (18 January 2025) <<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2094019>> accessed 31 August 2026.

3. The Paradox Explained: Why Digitisation Cannot, by Itself, Fix Title

The structural argument of this paper can now be stated precisely. Digitisation, as implemented across Indian states including Karnataka, operates almost entirely on the retrieval and administration side of the land-records system: it converts existing paper Records of Rights into searchable databases, automates the mutation workflow, authenticates the government official processing a transaction, and issues a tamper-evident, digitally signed copy of the record to the citizen. Every one of these is a genuine improvement in speed, transparency and resistance to petty, transaction-level corruption. None of them touches the underlying legal question that Part II identifies as the true source of India's land-litigation crisis: whether the record being digitised is itself correct.

This is sometimes described, in the data-quality literature more broadly, as a “garbage in, garbage out” problem, but the land-records version of it carries a distinctive legal danger beyond mere data inaccuracy: a digitised record, precisely because it is fast, authoritative-looking, PKI-signed and instantly retrievable, can acquire a *practical* authority in the minds of banks, buyers and even lower-level officials that exceeds its actual *legal* weight under Section 133 of the Karnataka Land Revenue Act and the Supreme Court authority discussed in Part II. A digitally signed RTC extract is, in law, exactly as rebuttable as its paper predecessor *Narasamma*, decided in 2009, nine years after Bhoomi's launch and concerning land in the very taluk where Bhoomi was first rolled out, confirms that digitisation changed nothing about the presumption's legal character but the friction cost of actually rebutting it in the ordinary course of a transaction has, if anything, gone down, meaning erroneous or fraudulent entries can now travel further and faster through the banking and property system before anyone has occasion to litigate them.

Two further structural features compound the problem. First, India's presumptive system depends on a functioning civil court system as the ultimate forum for resolving title disputes that revenue records cannot conclusively settle; digitising the records that feed into that system does nothing to relieve the caseload, delay, or cost of the courts themselves, which the DAKSH and CPR statistics in Part I show remain the binding constraint on dispute resolution. Second, and more subtly, digitisation without prior ground-truthing can convert genuinely contested or erroneous boundaries into apparently settled digital facts,

simply because the legacy paper record itself possibly the product of an earlier era's errors, encroachments or fraud is what gets scanned and entered. The Bhoomi case study in Part IV shows both of these dynamics operating in practice.

The macro-economic consequences of this persistent title uncertainty extend well beyond the individual litigant. Analysis by the Rights and Resources Initiative found that land disputes contributed to the stalling of approximately 14 per cent of over 40,000 capital investment projects announced in India between 2000 and 2016, with 21 high-value stalled projects alone representing investments of nearly Rs 1.93 lakh crore at risk; the Ministry of Road Transport and Highways has separately reported to Parliament that a significant proportion of national highway project delays are attributable to land acquisition difficulties, many of which trace to unclear or contested revenue records of the kind that digitisation has made faster to retrieve but not more legally reliable.²¹

4. Case Study: Bhoomi, Karnataka's Digital Land Records System

4.1 Origins and design

Bhoomi Kannada for “land” is the Karnataka government's land-records management system, inaugurated in 2000 under the Department of Revenue and developed by the National Informatics Centre, with Rajeev Chawla, then a senior IAS officer, widely credited as the project's institutional champion.²² Before Bhoomi, Karnataka's roughly twenty million land records were maintained on paper by around nine thousand village accountants, each responsible for three to four villages, who exercised substantial personal discretion over both the content of records and the speed with which farmers could obtain an RTC copy a document required, among other things, to secure agricultural bank loans.²³

²¹ ‘Land Disputes and Stalled Investments in India’ (Rights and Resources Initiative, 2017) <<https://rightsandresources.org/publication/land-disputes-stalled-investments-india/>> accessed 31 August 2026; ‘Unlocking India's Land Potential’ (Drishti IAS) <<https://www.drishtiiias.com/daily-updates/daily-news-editorials/unlocking-indias-land-potential>> accessed 31 August 2026 (noting that 35 per cent of highway project delays resulted from land acquisition disputes, often exacerbated by inaccuracies in land records).

²² Bhoomi (software), WIKIPEDIA, [https://en.wikipedia.org/wiki/Bhoomi_\(software\)](https://en.wikipedia.org/wiki/Bhoomi_(software)) (last visited Aug. 29, 2026); Land Records, District Bengaluru Urban, Government of Karnataka, <https://bengaluruurban.nic.in/en/service/land-records/> (last visited Aug. 29, 2026).

²³ Rajeev Chawla, Subhash Bhatnagar, Bhoomi: Online Delivery of Record of Rights, Tenancy and Crops to Farmers in Karnataka, India, in E-GOVERNANCE: CASE STUDIES 76 (2007), https://csi-sigegov.org.in/casestudies/04_bhoomi.pdf.

Bhoomi digitised the manual RTCs prevailing at the time of data entry, established computerised “back offices” in every taluk, introduced biometric (fingerprint) authentication for the operators who process land-record transactions, and issues digitally signed, PKI-authenticated RTC copies through land-record kiosks, and later through gram panchayats, Atalji Jana Snehi Kendras, and an online portal.²⁴ Ownership and other changes continue to be processed through mutation under the Karnataka Land Revenue Act, now routed through the Bhoomi database rather than a village accountant's paper register.

4.2 The success narrative: access, transparency and measured corruption reduction

By the metrics most commonly cited in the e-governance literature, Bhoomi has been a substantial success. A widely cited World Bank case study reports that the share of RTC-seeking farmers who said they had to pay a bribe fell from 66 per cent under the manual system to 3 per cent after Bhoomi's introduction, alongside a dramatic reduction in the time required to obtain a copy of the record.²⁵ By 2006, the system was processing between ten and fifteen lakh mutations annually, roughly double the volume the manual system had managed, and the user-fee revenue collected through RTC issuance approximately ₹45 crore by the end of that year comfortably exceeded the project's own computerisation costs, making Bhoomi one of the rare Indian e-governance projects to demonstrate fiscal self-sustainability.²⁶ The project has since expanded and integrated with Karnataka's Kaveri (registration) and Mojini (cadastral resurvey) systems, and won multiple national e-governance awards; it remains, more than two decades after launch, the system most frequently pointed to by other Indian states seeking to replicate a successful land-records digitisation.²⁷

²⁴Bhoomi, District Bengaluru Urban, Government of Karnataka, <https://bengaluruurban.nic.in/en/bhoomi/> (last visited Aug. 29, 2026); Bhoomi RTC Karnataka: Check Land Records & Pahani Online, <https://www.rtcbhoomi.in/bhoomi-app/> (last visited Aug. 29, 2026).

²⁵ Rajeev Chawla & Subhash Bhatnagar, Online Delivery of Record of Rights, Tenancy and Crops to Farmers in India, WORLD BANK (2007), <https://documents1.worldbank.org/curated/en/209541468774682650/pdf/308280IN0Bhoomi01see0also0307591.pdf>.

²⁶Rajesh & Bhatnagar, E-Governance: Case Studies, *supra* note 20, at 76.

²⁷Integration of Bhoomi and Kaveri: A Case Study on Land Records Management System in Karnataka, ACADEMIA.EDU (2026), https://www.academia.edu/13449128/Integration_of_Bhoomi_and_Kaveri_A_case_study_on_Land_Records_Management_System_in_Karnataka.

The practical reach of Bhoomi's credit integration has also been substantial. The World Bank's case study reported that nearly 2,500 bank branches in Karnataka were making approximately Rs 40 billion in agricultural working-capital loans annually using the RTC as security, and subsequent analysis has noted that Bhoomi's consolidated database of 40 lakh farmers enabled the Karnataka government to save an estimated Rs 4,000 crore in the 2018-19 crop loan waiver scheme by eliminating duplicate payments to non-farm loan accounts. These downstream uses of the RTC illustrate both the genuine administrative reach of Bhoomi's gains and the institutional dependence that has built up around a document whose legal weight, as Part II establishes, has remained unchanged.²⁸

4.3 The critical counter-narrative: Benjamin et al. and the political economy of Bhoomi

This positive narrative, however, is contested by an equally well-known body of critical scholarship, most influentially a 2007 working paper by the geographer Solomon Benjamin and co-authors R. Bhuvaneswari, P. Rajan and Manjunatha, provocatively titled *Bhoomi: 'E-Governance', Or, An Anti-Politics Machine Necessary to Globalize Bangalore?* Based on field research including farmer interviews across several Karnataka districts, the study's central finding directly inverts the World Bank narrative: it found that digitisation of land records led to *increased* corruption, higher bribe amounts, and substantially longer transaction times for ordinary land-record tasks, with the fee for an RTC copy rising from roughly ₹5–10 under the manual village-level system to ₹15–25 (plus travel costs and lost days' wages) after centralisation to computerised taluk-level offices.²⁹ The study attributes this partly to the closure of village-level record-keeping and centralisation of authority at the taluk level, which multiplied the number of intermediary “agents” navigating the system on behalf of farmers who found the computerised interface, server downtime and power outages more, rather than less, difficult to work around than the earlier personal

²⁸Rajesh Chawla and Subhash Bhatnagar, 'Online Delivery of Record of Rights, Tenancy and Crops to Farmers in India' (World Bank, 2007)

<<https://documents1.worldbank.org/curated/en/209541468774682650/pdf/308280IN0Bhoomi01see0also0307591.pdf>> accessed 31 August 2026; 'Digitising Land Records in India' (TEAL India, 2020)

<<https://tealindia.github.io/research/Digitising%20Land%20Records%20in%20India.pdf>> accessed 31 August 2026 (noting that Bhoomi's database enabled Karnataka to save an estimated Rs 4,000 crore in the 2018-19 crop loan waiver scheme).

²⁹Solomon Benjamin, R. Bhuvaneswari, P. Rajan & Manjunatha, *Bhoomi: 'E-Governance', Or, An Anti-Politics Machine Necessary to Globalize Bangalore?*, CASUM-m Working Paper (Jan. 2007), <https://casumm.files.wordpress.com/2008/09/bhoomi-e-governance.pdf>.

relationship with a village accountant and the authors report that, from around 2004 onward, these agents became increasingly enmeshed with an intensifying, and in places criminalised, real-estate speculation economy around Bangalore.³⁰ Most strikingly, the study argues that Bhoomi's centralised, standardised, GIS-referenced digital records made it easier not harder for large, well-resourced players in Bangalore's booming land market to identify, assemble and acquire large contiguous parcels of land, effectively using the state's own improved data infrastructure as a tool of land aggregation, a dynamic the authors situate within Bangalore's broader globalisation-era land economy rather than treating as an incidental side-effect of an otherwise neutral IT project.

A separate strand of criticism, summarised in the broader open-government-data literature, focuses on distributive fairness rather than corruption as such: poorer and less literate landholders, it is argued, were placed at a relative disadvantage by Bhoomi's new procedural complexity, being less able to afford the expeditors and intermediaries needed to navigate a computerised system, and Bhoomi's simplified digital forms tended to marginalise the unusual or informal tenure situations tenancy, inheritance, encroachment-adjacent possession disproportionately common among poorer landholders, by forcing complex legal realities into standardised data fields that had no place for them.³¹ These two critical strands, elite capture at the top of the land market, and exclusion or marginalisation at the bottom are not mutually exclusive, and together they complicate any simple narrative of Bhoomi as a straightforward transparency success.

4.4 Digitisation and the persistence of presumptive title after Bhoomi

Whatever view one takes of Bhoomi's net effect on corruption and equity, the doctrinal point established in Part II is unaffected by either narrative: a Bhoomi-issued RTC, however quickly retrieved and however tamper-evident its digital signature, remains only presumptive evidence under Section 133 of the Karnataka Land Revenue Act, and Karnataka courts have continued to say so in cases arising well after the system's launch.

³⁰Summary Paper of "Bhoomi: 'E-Governance', or an Anti-Politics Machine Necessary to Globalize Bangalore?" CASUM-m, <https://casumm.wordpress.com/wp-content/uploads/2008/09/bhoomi-ase-politics-summary2006.pdf> (last visited Aug. 29, 2026).

³¹The Bhoomi Program and Digital Divides, in OPEN GOVERNMENT DATA: THE BOOK (2014), <https://opengovdata.io/2014/the-bhoomi-program-digital-divides/>.

Narasamma, decided by the Supreme Court in 2009, concerned land in Uttarahalli, within Bangalore South Taluk one of the earliest and most thoroughly computerised parts of the Bhoomi rollout and turned on exactly the presumptive, rebuttable character of Record-of-Rights entries that this paper identifies as the persistent constraint on India's title-certainty problem. Karnataka land litigation touching RTC and khata entries has continued steadily in the years since, with the Karnataka High Court and Supreme Court repeatedly reaffirming, in cases entirely independent of any complaint about Bhoomi's technical operation, that an RTC or demand-register extract digital or otherwise cannot substitute for a document of title, most recently in a 2025 Supreme Court decision arising from a second appeal from the Karnataka High Court concerning a disputed khata transfer and an absent chain of title documents.³² In other words, twenty-five years of near-continuous computerisation have not altered, and were never designed to alter, the underlying legal proposition that an RTC extract however instantly and reliably it can now be produced is not proof of ownership. What has changed is only the cost and speed of producing the (still legally limited) document.

4.5 The next phase: e-Aasthi, ULPIN and Karnataka's push toward conclusive titling
Karnataka has not stood still since Bhoomi's initial rollout. Urban property records, historically outside Bhoomi's agricultural-land scope, are now managed through a separate system, e-Aasthi, with land converted from agricultural to non-agricultural use marked “Bu.Pa” in Bhoomi and tracked thereafter through the municipal system; the state has also embarked on scanning an estimated one hundred crore pages of legacy revenue records so that historical transactions predating computerisation remain accessible, and is participating in the national rollout of ULPIN as part of a stated ambition to move toward a genuinely conclusive land-titling system with a state-backed guarantee of accuracy.³³ Even so, contemporaneous user reports from early 2026 describe continuing server lag and reliability issues on the Bhoomi mobile application, a reminder that even a mature, award-

³²See *Vasavi Cooperative Housing Society Limited and Ors.* (Supreme Court of India, 2025 INSC 369), discussed in Judgement of 19 Mar. 2025, https://api.sci.gov.in/supremecourt/2015/27877/27877_2015_7_1501_60243_Judgement_19-Mar-2025.pdf (concerning a Karnataka second appeal on the evidentiary weight of khata and demand-register extracts absent title deeds).

³³Bhoomi App Karnataka Land Records: 2026 Guide to RTC & Mutation, RTCBHOOMI.IN (Feb. 9, 2026), <https://www.rtcbhoomi.in/bhoomi-app/> (describing e-Aasthi, the legacy-record scanning drive, and Karnataka's stated move toward conclusive land titling via ULPIN).

winning digitisation project remains an operationally imperfect layer sitting on top of an as-yet-unreformed underlying title system.³⁴ Karnataka's trajectory therefore illustrates, in miniature, the national picture described in Part II: digitisation infrastructure (ULPIN, e-Aasthi, legacy scanning) is being built out ahead of, and independently of, the legislative overhaul a state-level Conclusive Land Titling Act on the NITI Aayog model that would be required to give that infrastructure genuine, title-guaranteeing legal effect.

5. Structural Diagnosis: Restating the Digital Land Paradox

The Bhoomi case study allows the paper's central claim to be restated with more precision. Digitisation of land records in India, as practised over the past quarter-century, has reliably delivered three things: faster retrieval of existing records, a measure of transaction-level transparency that constrains the crudest forms of village-level rent-seeking, and (on the World Bank's reading of the evidence) a substantial reduction in the incidence of petty bribery for routine RTC issuance. It has not reliably delivered, and was never architecturally capable of delivering on its own, a fourth thing that is actually dispositive of India's land-litigation crisis: legal certainty as to who owns what. That fourth outcome depends on facts entirely external to the digitisation exercise the accuracy of the legacy paper record being digitised, the resolution of competing claims predating computerisation, and a statutory shift from a presumptive to a conclusive titling model none of which any Indian digitisation programme, Bhoomi included, was designed to address.

The Benjamin et al. critique adds a sharper edge to this diagnosis: it is not merely that digitisation *fails to fix* the underlying title problem, but that, under the specific institutional conditions of a booming, globalising land market like Bangalore's in the 2000s, a centralised, standardised digital record can become a more efficient tool for identifying, valuing and acquiring land than the fragmented paper system it replaced efficient, that is, for whichever party has the resources to act first and fastest on the newly transparent data, which is not necessarily the smallholder the reform was designed to protect. This is the deepest sense of the “paradox” in this paper's title: a transparency reform, layered onto a presumptive-title legal architecture that the reform does not itself alter, can widen rather

³⁴Bhoomi App Karnataka Land Records, supra note 26.

than narrow the gap between formally equal access to information and materially unequal capacity to act on it.

6. Toward Resolution: What Conclusive Titling Would Require

Closing the gap this paper identifies would require action on three fronts, none of which digitisation infrastructure alone can supply.

- Legislative reform enacting genuine conclusive titling. States would need to bring into force Conclusive Land Titling Acts on the NITI Aayog 2020 Draft Model Act template, establishing a true register of title, a state indemnity fund to compensate anyone who loses out through a registration error, and statutory limits on the scope for collateral civil litigation to reopen a conclusively registered title the mirror, curtain and insurance principles described in section 2.4, none of which the Registration Act or state land revenue acts currently supply.
- Ground-truthing before, not after, digitisation is treated as authoritative. SVAMITVA's drone-based resurvey of rural residential land and Karnataka's own Mojini cadastral resurvey programme point toward the right sequencing physically verifying boundaries and resolving latent disputes before a digital record is presented to citizens, banks and courts as reliable but this sequencing has often been reversed in practice, with legacy paper errors digitised first and ground-truthed, if at all, only much later.
- Distributive safeguards built into digitisation design, not added afterward. The Benjamin et al. findings on agent capture and elite land aggregation suggest that centralisation of land-record functions away from the village level carries real distributive risk that pure efficiency metrics (bribe incidence, processing time) do not capture; village- or panchayat-level access points, subsidised or free certified copies for smallholders, and active monitoring of land-transaction patterns following digitisation rollout would mitigate this risk without sacrificing the genuine transparency gains digitisation has delivered.
- Court and revenue-court capacity to absorb the disputes that ground-truthing will surface. Any serious move to reconcile decades of presumptive, sometimes

contradictory paper records will generate a wave of title-clarification litigation before it reduces the underlying stock of disputes; the DILRMP's own addition of revenue-court computerisation is a necessary complement to record digitisation, since a conclusive title register is only as credible as the dispute-resolution process that established it.

The experience of Andhra Pradesh provides an instructive recent illustration of the political difficulties attending the legislative component of this agenda. Andhra Pradesh was the first state to give full legislative effect to the NITI Aayog's model, enacting the Andhra Pradesh Land Titling Act 2022 (notified after Presidential assent in October 2023), which established a framework for conclusive, state-guaranteed title registration accompanied by a compulsory resurvey of all land in the state. Following a change of government in May 2024, however, the incoming assembly repealed the Act in July 2024, citing widespread public and professional resistance to the compulsory re-survey requirements, concerns about the qualifications of the officers designated to conduct surveys and chair appellate tribunals, and broader anxieties about displacement of existing title documents. The Andhra Pradesh episode demonstrates that even a technically well-designed conclusive-titling statute remains vulnerable to political reversal when the transition costs it imposes on existing titleholders are not adequately anticipated and managed in its design.³⁵

7. Conclusion

Bhoomi is, by any fair reading of the evidence, a genuine achievement in Indian public administration: it replaced a village-accountant system that the World Bank, NITI Aayog and Solomon Benjamin's own critical study all agree was opaque and corruption-prone, with a faster, more transparent, and on the balance of the evidence less petty-corrupt alternative. But Bhoomi was never asked to solve, and could not have solved, the deeper legal problem this paper has traced: that Indian land records, digitised or not, remain presumptive rather than conclusive evidence of title, sitting atop a Registration Act that

³⁵How Land Titling Act Based on NITI Aayog Model Set Off Slugfest Between Jagan & TDP's Naidu' The Print (1 March 2025) <<https://theprint.in/politics/how-land-titling-act-based-on-niti-aayog-model-set-off-slugfest-between-jagan-tdps-naidu/2077470/>> accessed 31 August 2026; 'Official: Land Titling Act Removed in AP' (Gulte, 23 July 2024) <<https://www.gulte.com/political-news/306411/official-land-titling-act-removed-in-ap>> accessed 31 August 2026.

records deeds rather than verifying ownership, and enforced by a court system so overwhelmed by land litigation that the average dispute takes two decades to resolve. Twenty-five years after Bhoomi's launch, Karnataka courts continue to hold, in cases entirely unconnected to any complaint about the Bhoomi system's technical operation, that an RTC extract is not proof of title the same legal position that applied to the paper record Bhoomi replaced. The digital land paradox, in the end, is not a paradox about technology at all. It is a reminder that digitising an unreliable record, however well the digitisation itself is executed, produces a faster and more transparent unreliable record and that title certainty, unlike record retrieval speed, is a legal achievement, not a technical one, that will only arrive in India when digitisation infrastructure is finally matched by the conclusive-titling legislation it has so far only gestured toward.

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