LAND RIGHTS AND THE DIGITAL REVOLUTION IN INDIA: POTENTIAL AND PITFALLS

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SUMMARY

This policy brief explores the intersection of land rights and technology by analysing four government schemes, namely, Digital India Land Records Modernization Programme (DILRMP), Survey of Villages *Abadi* & Mapping with Improvised Technology in Village Areas (SVAMITVA), AgriStack, and JAGA Mission (Odisha). The authors discuss the potential for better provision of land rights and socioeconomic rights to beneficiaries through these schemes, while highlighting the pitfalls associated with technological interventions in land administration and related digital public goods, within the constitutional democratic framework of India.

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I. Introduction

Land rights are the fulcrum of many fundamental socio-economic rights worldwide. Land is the most important economic resource - almost 60% of the Indian population is dependent on land for their livelihood. Moreover, land is also a powerful resource tied to India's occupants' cultures and social practices. However, as a contested resource, there have been competing claims to land by the State, corporations, farmers, and marginalised communities such as *Adivasis*, *Dalits* and fisherfolk post-Independence. An estimated 7.7 million people in India are affected by conflict over 2.5 million hectares of land, threatening investments worth $200 billion.[1] Conflict over land is exacerbated by climate change, urbanisation and migration, and increasing state control over common lands — factors that contribute to the decrease in cultivable and habitable land.

Within the umbrella of Digital India, an overarching policy announced in 2015, there is a renewed push to experiment with and use this technology in land management and administration to reduce conflict and enhance productivity. In order to resolve these disputes and work towards public welfare in a timely and cost-efficient manner, since 2008, the Union and state governments have initiated several schemes. These schemes provide for computerisation of land records, use of drone technology to map boundaries, and provision of targeted benefits for those employed in agriculture. They include the following:

I.   Digital India Land Records Modernization Programme;
II. Survey of Villages *Abadi* & Mapping with Improvised Technology in Village Areas;
III. AgriStack; and
IV. JAGA Mission (Odisha)

Welfare schemes that solidify or increase beneficiaries' access to land titles/registration are more significant than ever before due to economic shock caused by the COVID-19 pandemic. Digitised land records can help beneficiaries in *1) accessing a range of services, 2) formalising their identity, and 3) indicating how many people are dependent on land*. Technology in India has emerged as a tool to democratise access to schemes in the past few decades. However, not all beneficiaries can access the benefits brought about by digital governance since India suffers from a vast digital divide exacerbated by factors such as gender, caste and tribe. Therefore, it is valuable to explore how these schemes individually and collectively can impact land rights in India through digital governance and what implications this might have for India's economic growth trajectory, and political and social stability.

The COVID-19 pandemic witnessed mass migration out of cities as people returned to their farmlands in rural India. Data collected on reverse migration by the Centre for Monitoring Indian Economy (CMIE)[2] was analysed under the heading of "migration from factories to farmlands", illustrating the gravity of reverse migration - a phenomenon seen only in times of abject crisis.[3] The Periodic Labour Force Survey (PLFS) reveals that 42.5% of the workforce was employed in agriculture in 2018-19, which increased to 45.6% in 2019-20.[4] Therefore, it is critical to use tools such as technology to help identify beneficiaries, especially in the stressed time of a pandemic. However, there is a growing distrust of state-mediated surveillance of citizens, which may outweigh the intended benefits of the scheme.

The Land Rights Initiative organised a panel discussion on "*Land and the Digital Revolution in India: Problem or Panacea?*" on 22nd November, 2021, at the India Land and Development Conference to analyse the potential and pitfalls of four

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[1] Wahi, N. (2019, June 10). *Understanding Land Conflict in India and Suggestions for Reform*. Centre for Policy Research. https://www.cprindia.org/policy-challenge/7872/regulation-and-resources.

[2] Consumer Pyramids Household Survey, 2021.

[3] Ethiraj, G. (2021, August 13). India's Labour Is Moving Back from Manufacturing to Farms. Indiaspend. https://www.indiaspend.com/indiaspend-interviews/low-productivity-manufacturing-jobs-labour-economist-farms-767408.

[4] *Periodic Labour Force Survey (PLFS) — Quarterly Bulletin [October-December 2020]*. (2021). Press Information Bureau.

schemes at the intersection of land and technology.[5] This policy brief takes the discussion forward by highlighting challenges in conceptualisation and implementation of each of the schemes – some unique to each scheme, and some that are common, that need attention from policymakers at both the central and state levels.

II. Schemes at the Intersection of Land and Technology

There are vast benefits that technology can offer a democracy such as India. However, technological intervention must only be allowed after adequate consultations with the beneficiaries of the schemes, especially marginalised sections such as women, *Adivasis* and *Dalits*. Such intervention should be done for the public good to avoid recreating existing inequalities, with individual privacy at the heart of designing new systems and an overall emphasis on generating a sustainable future for beneficiaries. In this section, we analyse the objectives of the four schemes mentioned above and highlight some concerns inherent in their planning and implementation that need attention from policymakers.

A. Digital India Land Records Modernization Programme (DILRMP)

The Government of India adopted the "Strengthening of Revenue Administration and Updating of Land Records Scheme" (SRA&ULR) in 1987-88. This scheme was implemented primarily to solve the problem of competing claims to land by various stakeholders - including citizens, the State, and corporations. The basis for the scheme was the 1989 study by the D.C. Wadhwa Committee that studied land management practices across countries and suggested to the government that conclusive titles would be the ideal system to counter the problem of double-selling of land. The committee also suggested using technology to ensure greater consonance between the *jamabandi* (physical registers maintained by the local government) and spatial maps (hitherto created manually).[6]

This scheme's modified and enhanced version was released in 2008 as "the "National Land Records Modernization Programme (NLRMP")". NLRMP was later revamped in 2016 under the Digital India Mission. The objective was to computerise land records, create cadastral maps, and update registration documents to move towards conclusive titling by providing comprehensive information on land records in India.[7] Over the years, several other programmes have also been linked to DILRMP. For example, the Union Government plans to create an *Aadhaar*-like unique identification for every land parcel in the country. This initiative is titled 'Unique Land Parcel Identification Number (ULPIN)', and pursuant to this, the government will assign a geo-referenced 14-digit alphanumeric unique ID for each land parcel surveyed in the country.[8] In January 2021, the government also approved a proposal to include the 'integration of *Aadhaar* Number with land records'. The following factors limit DILRMP's benefits for a wider population.

1. ***Differences across states:*** The National Council of Applied Economic Research (NCAER)'s Land Policy Initiative ranks states based on the extent of digitisation of land records and has documented how this process improved the land record's quality on the Land Records and Services Index 2021 (N-LRSI). Assam,

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[5] *22 Nov. Land and the Digital Revolution in India Problem or Panacea.* Organised by the Land Rights Initiative at the India Land and Development Conference (ILDC) '21. Panelists included Dr. Prerna Prabhakar, Associate Fellow, NCAER; Dr. Kaveri Ishwar Haritas, Associate Professor, Jindal School of Government & Public Policy; Ms. Anindita Mukherjee, Senior Researcher, Scaling City Institutions for India (SCI-FI), Centre for Policy Research; Ms. Trisha Pande, Research Associate, Land Rights Initiative, Centre for Policy Research and Ms. Vrinda Bhardwaj, Research Associate, Land Rights Initiative, Centre for Policy Research. Mr. Ramesh Sharma, National Coordinator, Ekta Parishad served as discussant for the panel, and Dr. Namita Wahi Founding Director, Land Rights Initiative, and Senior Fellow, Centre for Policy Research moderated the panel. (2021, November 29). [Video]. YouTube.

[6] Wadhwa, D. C. (1989). *Guaranteeing Title to Land: A Preliminary Study*. Economic and Political Weekly, 24(41), 2323–2334.

[7] Department of Land Resources. (2020). *Best Practices in Digital India Land Records Modernization Programme.* New Delhi: Ministry of Rural Development, Government of India.

[8] Chowdhury, S. (2021, May 18). *Without Addressing Legacy Issues, Can Digitising Land Records in India Be a Game Changer?* Retrieved from The Wire: https://thewire.in/rights/land-digitisation-ulpin-land-records-legacy-digital-india.

Chandigarh, Sikkim, Jammu and Kashmir, and Ladakh have scored the least on N-LRSI 2020-21.[9] Each state faces unique social and political challenges in the digitisation process, and their particular contexts can inhibit them from performing well.

2. ***Aadhaar-based linking of other schemes:*** Several other programmes are being linked to DILRMP - for instance, the central government is planning to create an *Aadhaar*-like unique identification for every land parcel in the country. There are several cases across the country where people have faced problems with *Aadhaar* regarding mismatched IDs and biometric verification, which will ultimately lead to people being deprived of the benefits of various schemes. Linking *Aadhaar* with ULPIN can potentially create conditions for further alienation of marginalised sections of society.

3. ***Persisting land conflict:*** Although beneficial in many cases, there are instances where land conflict persists despite digitising land records, as beneficiaries find their names excluded from their land titles. Digitisation often fails to account for pastoral, community-owned land, which has been managed traditionally for centuries.

4. ***Digitising the entire process of updating Record of Rights (RORs):*** Based on a case study from Maharashtra, the change in RORs is not always done digitally – the process of registration, mutation or updation of boundaries remains undigitised, leading to higher time investments for citizens whom the scheme is intended to benefit.[10]

5. ***Gender:*** With a large proportion of the rural workforce being women, it is pertinent to note that the records include ownership of women and allow them to change (mutate) the land records individually without dependence on the male head of the family. Some laws including the Forest Rights Act, 2006 have mandated the principle of joint titling, but these provisions are absent in the guidelines of DILRMP.

B. Survey of Villages *Abadi* & Mapping with Improvised Technology in Village Areas (SVAMITVA)

The SVAMITVA scheme was implemented by the Prime Minister of India on 24th April 2020, on the occasion of National *Panchayat* Day, to survey and map village areas. As of October 2021, this scheme has covered 22 lakh rural homes. The scheme aims to establish distinctive land titles in rural *abadi* areas by issuing legal ownership cards such as Property Cards to facilitate village planning and mitigate land conflict. It seeks to update land records by mapping land using drone technology. Moreover, the scheme aims to facilitate using property as collateral for loans to promote credit facilities.[11] Some concerns involving the scheme include[12]-

1. ***Implementation:*** Even though the scheme propounds that revenue officials and Survey of India would correct errors, there is a lack of local level dispute resolution. The implementation is quick, but it takes months to resolve problems at the local level.

2. ***Community ownership:*** In villages, land is often owned jointly by the community. These traditional modes of ownership might be inconsistent with how modern technology maps ownership – to an individual or a household.

3. ***Surveillance:*** Demarcation of rural *abadi* areas through drone surveying followed by providing records of rights would allow the rural population to easily avail loans and other financial benefits, reducing their

[9] NCAER Land Records and Services Index (N-LRSI) 2021: Overview. (2021, March). National Council of Applied Economic Research. https://www.ncaer.org/publication_details.php?pID=345.

[10] Indira Gandhi Institute of Development Research. (2017, November). *Report on the Implementation of the DI-LRMP in the State of Maharashtra: A study by the Finance Research Group, Indira Gandhi Institute of Development Research.* https://ifrogs.org/PDF/maharashtra_combinedReport.pdf.

[11] Ministry of Panchayati Raj. (2020). Retrieved from SVAMITVA Scheme: https://svamitva.nic.in/svamitva/#.

[12] Haritas, K. (Forthcoming). *SVAMITVA: A socio-legal analysis.* Centre for Social and Economic Progress.

poverty level. However, this scheme raises concerns regarding technologically mediated surveillance of citizens.[13]

C. AgriStack

In 2018, NITI Aayog devised a National Strategy for Artificial Intelligence that elaborated on how artificial intelligence can enhance farmers' income and farm productivity and reduce wastage. It proposed the development of 'AgriStack' to create a set of common agricultural data standards and sharing mechanisms. On 13th April 2021, India signed a Memorandum of Understanding with Microsoft for digitising agriculture in India to create a 'Unified Farmer Service Interface' through its cloud computing services[14]. A pilot study for this programme will be conducted in a hundred selected villages in six states, namely, Uttar Pradesh, Madhya Pradesh, Gujarat, Haryana, Rajasthan, and Andhra Pradesh.

Pursuant to AgriStack, the Union Government and private companies will collaborate to develop open-sourced data. Moreover, the Department of Agriculture, Cooperation, and Farmers' Welfare is laying down "India Digital Ecosystem of Agriculture (IDEA")" for AgriStack, which seeks to build a National Digital Agriculture Ecosystem to enhance the efficiency and productivity of the agriculture sector and to improve farmers' welfare and income outcomes. Moreover, it aims to harness the power of digital services through a PPP model involving technology companies and provides all farmers with unique farmer IDs to avail services on the platform. Lastly, it links publicly available data in government silos with digitised land records.[15] AgriStack is still in its pilot phase and should only be implemented after addressing the following concerns[16].

1. *Exclusion*: Like IndiaStack, AgriStack makes a promise of digitally revolutionising India's massive agriculture sector by making India's government systems paperless. However, for AgriStack to succeed, India must first become a digitally literate nation across caste, class, tribe, and gender, which is far from the case at present.

2. *Aadhaar-based Access*: It is questionable to provide farmers with a Digital ID that could be linked to their *Aadhaar* and to assign a Unique Identification (UID). There is evidence of errors of exclusion when beneficiaries avail welfare schemes through centralised databases.[17]

3. *Privacy Violations:* Giving private companies access to farmers' personal information could violate the fundamental right to informational privacy under Article 21 of the Constitution, i.e., the fundamental right to life. Sharing data relating to farmers' details, land holdings, crops produced, and credit details with commercial entities will raise various privacy concerns and cause a grave violation of the right to privacy and, relatedly, the right to life.

4. *Lack of a Data Protection Law*: There is no stringent data protection law that establishes liability for any breach committed in association with data collected, used, and stored. Giving farmers' details to private entities without their consent raises serious questions regarding infringement of farmers' rights and lack of consultation with farmers' unions and organisations, further aggravating the issue.

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[13] *Ibid.*, 3.

[14] Bhardwaj, V. & Pande, T. (2021, September 26). *The Digitisation of Agriculture in India: How AgriStack Infringes Informational Privacy | OHRH*. Oxford Human Rights Hub. https://ohrh.law.ox.ac.uk/the-digitisation-of-agriculture-in-india-how-agristack-infringes-informational-privacy/.

[15] Department of Agriculture, Cooperation & Farmer Welfare Government of India. (2021, June 1). *Consultation Paper on IDEA-India Digital Ecosystem of Agriculture-Transforming Agriculture*. https://agricoop.nic.in/. https://agricoop.nic.in/consultationpaper.

[16] Saha, S. (2021, June 2). *Why Microsoft's role in digitising India's land records is worrying farmer groups*. Retrieved from Newslaundry: https://www.newslaundry.com/2021/06/02/why-microsofts-role-in-digitising-indias-land-records-is-worrying-farmer-groups.

[17] Khera, R. (2019). Aadhaar Failures: A Tragedy of Errors. *Economic and Political Weekly*.

D. Land Rights for the Urban Poor in Odisha - JAGA Mission

Odisha's JAGA Mission was launched to further the "Odisha Land Rights to Slum Dwellers Act, 2017" (OLRSDA). It aims to expand the land rights programme in Odisha and to transform existing slums into liveable habitats, providing them with all essential civic urban infrastructure. The JAGA mission increases access to essential services such as electricity, piped water, and sanitation.

The OLRSDA 2017 creates Urban Area Slum Redevelopment and Rehabilitation (UASRR) committees and involves Urban Local Bodies (ULB) in administering land. A UASRR committee is created for each urban area, which identifies the beneficiaries of the OLRSDA. The committee is headed by the District Collector and other prescribed members, and undertakes surveys and spatial mapping, fixes the physical boundary of slums, and prepares and publishes the list of slum dwellers who are eligible beneficiaries.[18] However, there are areas in Odisha where land contestation is higher, and the land titling programme can be of better use.[19] Therefore, some aspects to consider in the future include-

1. Holistic, Inclusive Development - Although the JAGA Mission recognises the need for property titles, it should also be forward-looking and anticipate job creation for the urban poor who inhabit the land they are given titles to. Rather than only government aid, the Mission can create a viable market in which beneficiaries can participate.[20] The Peruvian economist, Hernando De Soto, emphasised the ability to 'create' or 'produce' capital and explained that this process requires a necessary legal infrastructure, which forms the backbone of the property rights system[21]. Therefore, the Mission should be able to sustain the livelihoods of beneficiaries beyond providing services.

2. Flexibility - The land granted to beneficiaries is non-transferable - it cannot be leased or gifted. The property is inheritable but not mortgageable. Whilst this might be useful in preventing misuse of the land title by preventing it from being sold to non-beneficiaries, it impedes the financial inclusion of beneficiaries, especially during times of crisis.

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[18] The Odisha Land Rights to Slum Dwellers Act, 2017.

[19] Das, A. & Mukherjee, A. (2020, November). *Land Title versus Land Tenure for the urban Poor in India: Are We missing the Woods for the Trees?* NCAER India Land Forum. https://www.ncaer.org/ILF2020/Abstracts/Day3Session5AparnaDas.pdf.

[20] Moyo, D., & Ferguson, N. (2010). *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa* (Reprint ed.). Farrar, Straus and Giroux.

[21] de Soto, H. (2003). *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (Reprint ed.). Basic Books.

S.No	SCHEME	CONCERNS
1	*DILRMP*	▪ Disparity across states in terms of implementation ▪ Persisting land conflict ▪ Undigitised aspects in the ROR system ▪ Linking with other schemes through a Unique ID ▪ Lack of gender inclusivity
2	*SVAMITVA*	▪ Discrepancy in records and resulting conflict can persist with the use of technology ▪ Time to resolve problems is higher than implementation ▪ Traditional modes of community ownership could be inconsistent with new ways of surveying rural land ▪ Risk of technology-mediated drone surveillance
3	*AgriStack*	▪ No prior consultation with farmers ▪ Exclusion of technologically illiterate - majority population ▪ Infringement of Right to Informational Privacy
4	*JAGA Mission*	▪ Should have provisions for job creation and setting up viable financial markets for beneficiaries to support their livelihood ▪ Non-transferable nature of the property could limit beneficiaries' choices

III.   Conclusion and Recommendations

With the digital revolution, there is an international push to adopt policies that leverage existing and emerging technology. With a rapidly growing population, an agricultural sector that faces a financial crisis, and pandemic-induced shocks to the economy, India can benefit from schemes such as DILRMP, SVAMITVA, AgriStack and the JAGA Mission.

- There are benefits to involving private sector organisations to aid Union and state level schemes and public goods. The implementation of large-scale welfare projects can be done in partnership with private actors who are proficient with using the technology required - and depending on the State's resources, these schemes can be planned and rolled out in a phased manner. The harms of such public-private partnerships arise when the intended beneficiaries are not consulted, and they do not feel a sense of agency in the context of public welfare programs which are designed as socioeconomic resources.

- Odisha's JAGA Mission indicates that with political will, it is possible to empower the urban poor to avail access to services such as electricity, drinking water, and sanitation, along with having property titles to the land beneficiaries occupy.

- With the digitisation of land records under DILRMP and SVAMITVA, there are several allied benefits in allowing citizens to access formal banking systems and avail themselves of loans. It reduces the burden on the Department of Land Resources, Ministry of Rural Development by saving them paperwork, reducing land conflict and enhancing transparency. On the flip side, there is criticism because states from the Northeastern part of India - specifically, Mizoram, Nagaland, Meghalaya and Arunachal Pradesh- have not digitised land records compared to states such as Madhya Pradesh, Odisha, Maharashtra, Chhattisgarh

and Tamil Nadu.[22] These states need special attention as their challenges are unique, as is the history of their development.

- With digital public goods such as AgriStack, there remain concerns around "state mediated surveillance" due to the involvement of private technology companies and what vested interests they might have. Recently, the Union government repealed farm laws as a result of the farmers' protest which was the largest protest in India's history[23]. AgriStack runs the risk of facing similar dissent, due to the involvement of private companies which could have vested interests in what farmers produce and how they sell it. Farmers' collectives have expressed concern over their data being collected and their Fundamental Right to Privacy under Article 21 of the Constitution, being infringed. The concerns also include the risk of state-mediated surveillance, especially in the absence of a data protection law.

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[22] *Ibid., 9.*
[23] Singh, S. J. (2021, February 12). The Farmers' Protests Are a Turning Point for India's Democracy—and the World Can No Longer Ignore That. Time. https://time.com/5938041/india-farmer-protests-democracy/.