EVALUATION STUDY ON THE QUALITY OF LAND RECORDS IN NORTHEAST INDIA

Sponsored by

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Chapter 1

Introduction

1. Background

The quality of land records plays a pivotal role in ensuring clarity over land ownership, boundaries, and usage rights. Accurate and up-to-date land records provide legal security to landowners, reduce the potential for disputes, and serve as a foundation for formal land transactions. When land records are reliable, they promote transparency and trust in land dealings, which is crucial for fostering investments and economic development. Conversely, poor-quality records often lead to land disputes, lengthy legal battles, and hinder productive land use, creating barriers to both small landowners and large-scale investors. The well-maintained land records facilitate infrastructure development, agriculture, and urban planning with comprising environmental protection aspect. For example, in rural areas, accurate records support farmers by enabling access to credit and subsidies, as their land can be used as collateral, also can be used to avail benefit from the government scheme based on land record. In urban regions, proper documentation helps manage land use, zoning, and taxation, which are critical for sustainable urbanization and governance. The quality land records help in preventing land degradation, illegal encroachment, and deforestation by delineating protected areas and agricultural zones. It also plays a crucial role in disaster management by identifying vulnerable zones and ensuring the proper allocation of land for rehabilitation efforts.

Therefore, several global initiatives have been taken to improve the quality of land records, ensuring transparency, accessibility, and accuracy. The *Food and Agriculture Organization (FAO)* has developed the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) for improving governance of land tenure, including ensuring transparency and fairness in land transactions and records. By encouraging countries to update land records, streamline land ownership rights, and incorporate marginalized communities for improving governance of land tenure. The *World Bank* launched the Land Governance Assessment Framework (LGAF) to evaluate the quality of land governance in various countries which includes the quality and completeness of land records, dispute resolution mechanisms, and transparency in land transactions. The LGAF allows countries to identify gaps in their land governance structures and implement reforms to improve land record quality and land management, promoting economic growth and sustainable development. *The United Nations and the Global Land Tool Network (GLTN),* the Fit-For-Purpose Land Administration

(FFPLA) approach focuses on creating affordable, flexible, and sustainable land administration systems using satellite imagery, community mapping, and mobile technology to create or update land records, especially in areas with limited resources, reducing the cost and time required for formal land registration.

India's DILRMP aligns with several international commitments aimed at improving land governance and achieving sustainable development. Some key international frameworks include: - DILRMP supports Sustainable Development Goals (SDGs) Goal 1 (No Poverty) by improving access to land ownership and tenure security, especially for marginalized communities. It also contributes to SDG Goal 11 (Sustainable Cities and Communities) by promoting efficient land use planning, reducing urban sprawl, and enabling transparent urban development. By ensuring fair access to land and legal documentation, it indirectly supports several other goals, such as gender equality and reduced inequalities.

Digital India Land Records Modernization Programme (DILRMP) efforts to modernize land records and improve tenure security are in line with the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) guidelines provided by the FAO. The guidelines encourage transparent land management, equitable access to land resources, and the resolution of land disputes, all of which are major focus areas for the DILRMP. India's land modernization program contributes to the framework established by the World Bank to improve land governance quality. DILRMP aims to create a more robust, transparent, and accountable land administration system, which addresses several critical aspects of World Bank’s Land Governance Assessment Framework (LGAF), including data accessibility, land dispute resolution, and reducing tenure insecurity. Through DILRMP, India is not only modernizing its domestic land records system but also contributing to global efforts that emphasize transparency, equitable land distribution, and sustainable land use, helping the country meet both national and international development goals.

These initiatives aim to address challenges such as outdated records, unclear ownership, and lack of digital integration, which can hinder development. These initiatives demonstrate global recognition of the critical role that high-quality land records play in development. By improving land governance and administration, these efforts contribute to economic growth, poverty reduction, and environmental sustainability worldwide.

2. Evaluation Study on Quality of Land Records in North-eastern states

The quality of land records in the North Eastern states of India, presents a significant challenge due to the region's unique geographic, socio-political, and cultural contexts. These states—Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, and Nagaland—are characterized by hilly terrain, dense forests, and large tribal populations, which further complicates land governance and record-keeping.

Historically, much of the land in these states is governed by customary laws, especially in tribal areas, where community or clan ownership supersedes individual landholding systems. This makes the process of formalizing and digitizing land records a complex task, as many landholdings lack proper documentation, and formal titling is often absent. According to

official estimates, most of the North Eastern region remains largely outside the purview of modern land record systems.

Current Land Record Status:

- **Arunachal Pradesh** and **Nagaland** rely heavily on traditional methods of land ownership and have very limited formal documentation or cadastral maps, leading to a lack of transparency and difficulties in establishing land ownership.
- **Manipur** and **Mizoram** have made some efforts to digitize land records, but progress has been slow, and the records available are often incomplete or outdated.
- **Assam**, being the largest state in the region, has the most extensive land records. However, issues like poor maintenance, outdated data, and encroachments still plague the system.
- **Meghalaya** is unique as most of its land is governed by autonomous tribal councils, which complicates the incorporation of these records into the formal system.

In many of these states, traditional systems of land tenure, such as community ownership, exist alongside formal legal structures, creating a complex landscape for land management. For example, in Nagaland, land is mainly under community or customary ownership, making it challenging to reconcile customary practices with modern land registration systems. Similarly, in Meghalaya, large swaths of land are governed by clan or village-level authorities rather than state-backed legal frameworks.

However, many Indian states have moved towards digital land records through initiatives like the Digital India Land Records Modernization Programme (DILRMP), the North Eastern states have lagged in this transformation due to geographic, administrative, and political challenges. Assam is one of the few North Eastern states showing significant progress, while others are still in early phases of digital land records implementation.

Problems and Challenges:

1. **Customary and Communal Land Ownership**: A major challenge in modernizing land records in these states is the prevalence of customary landholding practices, where land is owned collectively by communities or clans. This system resists integration into formal titling mechanisms.
2. **Lack of Infrastructure and Resources**: The region suffers from a lack of infrastructure, both in terms of physical access and digital facilities, hampering efforts to update and digitize land records.
3. **Boundary Disputes and Incomplete Surveys**: The hilly terrain and remote locations make land surveys difficult. Furthermore, interstate boundary disputes, particularly in Assam, complicate land administration.
4. **Resistance from Indigenous Communities**: In some cases, local communities resist efforts to modernize land records, fearing it could lead to the erosion of traditional rights and practices.

5. **Legal and Institutional Gaps**: A lack of uniform legal frameworks across states and poorly defined institutional responsibilities contribute to the inefficiency of land administration.

Addressing these challenges is critical for ensuring land tenure security, promoting investment, and supporting sustainable development in the North Eastern region of India. Comprehensive digitization, legal reforms, and the integration of customary practices into modern frameworks will be essential steps toward improving the quality of land records in the North Eastern states.

3. Quality of Land Records in India

In India, land administration and management vary greatly due to differences in language, culture, regions, topography, nomenclature, and socio-economic factors. Given this diversity, ensuring the accurate digitization of land records, along with their real-time updates and public accessibility through easy, online platforms, becomes crucial. Although land management falls under the jurisdiction of States (as per Entry No. 18 and 45 of the State List in the 7th Schedule of the Constitution), the Government of India has consistently supported States and Union Territories through financial aid and technical assistance to facilitate the digitization of land records and make them publicly accessible. This collaborative effort is key to improving transparency and efficiency in land administration across the country.

In the 1980s, the Government of India initiated two key programs aimed at modernizing and computerizing land records. The first was the Strengthening of Revenue Administration and Updating of Land Records (SRA and ULR) in 1987-88, followed by the Computerisation of Land Records (CLR) in 1988-89. These efforts laid the foundation for comprehensive land record management. In 2008, the Department of Land Resources under the Ministry of Rural Development merged these initiatives into the flagship National Land Records Modernisation Programme (NLRMP). Originally a Centrally Sponsored Scheme with joint funding from both Central and State governments, the NLRMP was later restructured as a Central Sector Scheme, with the Government of India assuming full financial responsibility, providing 100% of the funding. This evolution marked a significant step in the modernization and digitization of land records across India. The primary objective of the National Land Records Modernisation Programme (NLRMP) was to create a modern and efficient land records management system, ensuring real-time updates and establishing conclusive proof of property ownership through a system of conclusive titling. The programme's key components included funding for the digitization of both textual and spatial land records, along with modernization of registration systems. In 2016, the programme was integrated into the broader 'Digital India' initiative, and rebranded as the 'Digital India Land Records Modernisation Programme (DILRMP).'

4. Digital India Land Records Modernization Programme

The ambitious initiative of government of India Digital India Land Records Modernization Programme (DILRMP) is aimed at modernizing and digitizing land records to ensure transparency, efficiency, and accessibility in land administration. The earlier National Land Records Modernization Programme (NILRMP), approved in 2008 as a centrally Sponsored

Scheme, has been revamped as the Digital India Land Records Modernization Programme (DILRMP) a Central Sector Scheme with 100% Central Government funding with effect from 1st April 2016. The scheme has been extended by Ministry of Finance from 2021-22 to 2025-26 with addition of two new components viz. Computerization of all Revenue Courts in the country & their integration with land records and consent based linking of Aadhaar number with Records of Rights (RoR).

The objective of DILRMP is to develop a modern, comprehensive and transparent land record management system with the aim to develop an Integrated Land Information Management System, which will inter-alia-

1. Improve real-time information on land.
2. Optimize use of land resources.
3. Benefit both landowners & prospectors.
4. Assist in policy & planning.
5. Reduce land disputes.
6. Check fraudulent transactions.
7. Obviate need of physical visits to Revenue/Registration offices.
8. Enable sharing of information with various organisations/agencies.

4.1 The Department of Land Resources, Ministry of Rural Development, Government of India is the nodal Ministry for overall policy, planning and implementation of the 'Digital India Land Records Modernisation Programme (DILRMP)'. The Digital India Land Records Modernization Programme (DILRMP) was launched in 2008 as a centrally sponsored Scheme and converted to a Central Sector scheme in 2016 with 100% funding from the Centre. The scheme has further been extended up to 2025-26. This is coterminous with the Fifteenth Finance Commission with the overall aim to place all information available in respect of a piece of land at one place and make them easily accessible to public through 'Integrated Land Information Management System (ILIMS)'. The objectives of DILRMP are to develop a modern, comprehensive and transparent land record management system which inter alia includes: (i) improve real-time information on land; (ii) optimise use of land resources, (iii) benefit both land owners and sharecroppers, (iv) assist in policy and planning; (v) reduce land disputes, (vi) check fraudulent/benami transactions, (vii) obviate need of physical visits to Revenue/Registration Offices, (viii) enable sharing of information with various organisations/agencies.

4.2 Major Components and Activities of DILRMP:

The programme has the following major components and activities:

S.No	Component	Activities
1.	Computerization of Land Records	(i) Computerization of Record of Rights; (ii) Digitization of cadastral maps;

		(iii) Integration of Record of Rights (textual) and (iv) Cadastral maps (spatial); (v) Data centres at state level.
2.	Computerization of Registration	(i) Computerization of Sub Registrar Offices (SROs); (ii) Connectivity between Sub-registrar offices and Tehsils (iii) Integration of registration and land records.
3.	Survey / Resurvey	Survey / resurvey and updating of survey & settlement records.
4.	Modern Record Rooms	Modern Record rooms / Land records management Centres at tehsil level.
5.	Training & Capacity building	Creation of DILRMP Cells at Administrative Training Institutes and / or the Survey / Revenue / Patwari Training Institutes of States
6.	Project Management Unit	To provide human resources and other infrastructure to provide support for the effective implementation of various components of DILRMP.
7.	Computerization of Revenue Court Management System	Computerization of all Revenue Courts in the country and their integration with Land records.
8.	Integration of Aadhaar number with the land record database on voluntary basis	To link Aadhaar number with Records of Rights (RoR).

4.3 Substantial progress has been made in the basic component of Computerisation of Land Records, including Record of Rights (RoR), Cadastral Maps, Computerisation of Registration, and Integration of SROs with Land Records. Besides these, several innovative initiatives have been undertaken under DILRMP.

4.4 Integrated Land Information Management System (ILIMS) is one among such innovative initiative. The ILIMS is being implemented under the Digital India Land Records Modernisation Programme (DILRMP) to improve real-time information on land, optimise use of land resources, benefit both land owners and prospectors, reduce disputes, check fraudulent/benami transactions, and enable timely credit supports to farmers. It provides online single-window access to all available, relevant information to give a fair comprehensive position of any plot of land-to-land owners, concerned officers/agencies, and interested persons/ entrepreneurs. Components include linking with banks, courts, circle rates, registry, Aadhaar number, etc.

4.5 Unique Land Parcel identification Number (ULPIN) is another innovative initiative under the DILRMP. The Unique Land Parcel Identification Number (ULPIN) system is a 14-digit unique ID for each land parcel based on geo-coordinates of vertices and a general boundary geometry. It is used to provide integrated land services to citizens. National Generic Document Registration System (NGDRS) is a common, generic and configurable application for registration departments, allowing states to create state specific instances and configure the software. Linkage of e-Court with Land Record/Registration Data base is yet another important innovative initiative under the DILRMP programme.

4.6 The DoLR has set the target for saturation of basic components of the programme such as: (i) Computerisation of record of rights; (ii) digitisation of cadastral maps; (iii) integration of record of rights (textual) and cadastral maps (spatial).

5. Terms of Reference (ToR)

The Evaluation Study is to be conducted in Six Northeastern states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, and Nagaland) to assess the following:

a) The quality of computerization /digitization of land records in terms of the following six components:
   i. Computerisation of Land Records (RoR)
   ii. Digitization of Cadastral Maps/FMBs
   iii. Computerisation of Registration
   iv. Process of mutation
   v. Revenue Court Management System
   vi. Village Survey to assess real time status

b) To conduct a State-wise gap analysis in term of reported achievements and desired outcomes of the program

c) Assessing Computerization of Land Records (CLR) in terms of progress across digitization of textual records, digitization of spatial records, computerization of registration process, integration between these three components and Web Enabled Land Records.

d) Assessing status of Real time mirror (RTM) in select villages to test the efficacy of real time integrated updation of textual and spatial records and the registration process. Any change in ownership, possession, classification, extent, encumbrances of a given land parcel should lead to record updation and ideally the on-ground situation should be 'mirrored' in the records.

e) Provide policy suggestions towards expeditious implementation of land records modernization initiatives in the country as a whole.

6. Scope of Service

As described in above para 4.2, there shall be three key activities in the evaluation:

a) Assessing computerization of Land Records (CLR) in terms of progress across digitization of textual records, digitization of spatial records, computerization of registration process, integration between these three components, training and capacity building and Web Enabled Land Records. Agency to collect information (as per Questionnaire Part I) already available with NIC/State Government.

b) Assessing status of Real time mirror (RTM) in select villages to test the efficacy of real time integrated updation of textual and spatial records and the registration process. Agency to select 50 land parcels from each of the two selected villages per State to conduct the survey (as per Questionnaire Part II) for these parcels and prepare Reports.

c) Based on above two activities, a detail report will be prepared

7. Details of Activities and Tasks

7.1. Assessment of Computerisation of Land Records Status

Assessment of State level status would be a state-wide assessment. Most of the information to be collected through Questionnaire Part I and is available at State level with State Governments, DoLR and NIC. This information would be collected from the States by Indian Institute of Public Administration (from MIS data of DILRMP site), for collation and report writing. The information collected by the agency would ideally be at the State level, Tehsil and SROs, where available. Interviews with the State level Officers will also be carried out by the agency to understand the processes and technology involved in the CLR initiatives. The collected information would help to ascertain the current status and process-related best practices and challenges with respect to the CLR would help to determine how DILRMP processes may be improved.

7.2. Assessment of the Real Time Mirror Status of Land Records

7.2.1. The assessment of the Real Time Mirror (RTM) Status would be undertaken by Indian Institute of Public Administration for a total of 100 land parcels in each State covering 50 land parcels within each of the two selected villages. The RTM Status would ascertain whether spatial and textual records are updated, at the time of transaction, succession and/or sub-division at the land parcel level, in real time. Agency would select appropriate sample of 50 parcels in each village using a stratified randomized selection process. Different ways of selection of land parcels are as follows;

a) One of the ways could be a spatially randomized selection of land parcels, using the most current version of the spatial records available for coverage of entire tehsil and different terrain types.

b) Alternately it can be a stratified random sampling picking up 50 random khasra numbers from selected villages

c) 50 land owners of 50 land parcels from villages.

7.2.2. The Indian Institute of Public Administration would check the updation and real-time status of textual and spatial records on the ground through interviews with owners, tenants, and any other involved institutions. Questionnaire Part II provides questions for this activity.

8. Deliverables: Outputs of Evaluation Exercise

8.1. Based on the Activities and Tasks listed in the Scope of Services, the study would highlight:

a) Current status of computerization at the tehsil level.

b) Status of records updation and real time mirror status of the records based on independent assessment of sample number of RoR entries.

c) Process changes to improve revenue utilization, records status and citizen access based on independent assessment of sample number of RoR entries.

d) Updated checklist of questions for scaling up impact assessment exercise to the state level, and suggestions for scale up of assessment to be more comprehensive taking into consideration the on-ground issues identified by agencies.

8.2 In terms of deliverables, agency would provide report based on final analysis of collected information, and suggestions towards process changes to be submitted.

Chapter 2

Data Source and Methodology

This chapter provides a comprehensive overview of the data sources and methodological framework for the "Evaluation Study of Quality of Land Records in Northeast India," which incorporates both qualitative and quantitative methods in connection with the evaluation of the DILRMP scheme funded by the Department of Land Resources, Government of India. This study aims to understand the components, current status, objectives, implementation mechanisms, and design across the six Northeastern states of India. The current study outlined the methods of data gathering, a systematic sampling design, and analytical methodologies, by employing structured questionnaires through SurveyCTO, expert interviews with officials, and comprehensive analysis with important stakeholders.

Additionally, it is intended to lay the groundwork for the study's results and conclusions. Important methodological approaches for reducing bias and increasing the accuracy of the results are discussed in the chapter including statistical weighting, development of land record service index, data cleaning, and analytical techniques. The robustness of the study's methodology ensures that the outcomes are both generalizable and insightful.

2.1 Sources of Data

The present study is based on both primary and secondary data. The primary data has been collected from land-owning households, through the SurveyCTO, and expert interviews with key stakeholders from the state as well as district land revenue authorities. Secondary data has been collected through a review of land-related documents, state gazette, district gazette, articles, books, and DoLR website. In addition, published and unpublished reports from the Directorate of Land Resources has also been included in this study. Qualitative information also collected during the household survey with in-depth interaction with the land owner as well as the land revenue experts from the concerned state. Furthermore, the focus group discussion (FGD) also conducted with land revenue administrative officers such as Tehsildar, Mandol, Kanungo, Patwari, community leaders, and local field investigators to gather information on the quality of land records and digitization process, land transactions, land demarcation, partition, and the extent of area classification.

2.2 Selection of Village

The present study was conducted in the five Northeast states of India, such as Arunachal Pradesh, Assam, Manipur, Mizoram, and Nagaland. It occupies a distinct geographical

position from a strategic point of view. The region is bordered by China in the north, Myanmar to the east, Bhutan to the northwest, and Bangladesh to the southwest. It is connected to mainland India via the narrow Siliguri Corridor and is often referred to as the 'Chicken's Neck' which underscores the region's relative isolation from the rest of the country. The geographical landscape of Northeast India is highly varied, characterized by a combination of mountain ranges, valleys, and alluvial plains. The Eastern Himalayas dominate the northern part of the region, particularly in Arunachal Pradesh and Sikkim, while the Patkai and Barail ranges extend through Nagaland, Manipur, and Mizoram. In contrast, the plains of Assam through which the Brahmaputra River flows, form a fertile alluvial basin that serves as a significant economic and ecological feature of the region. Northeast India is situated within one of the world's major biodiversity hotspots, hosting diverse ecosystems ranging from subtropical forests in the valleys to alpine habitats in higher altitudes. The region's climate varies accordingly, supporting rich flora and fauna. The geographical diversity coupled with its unique ethnic composition contributes to the region's ecological and cultural significance. To study diverse land use patterns as well as land revenue systems, the present study has selected two districts from each state and among each district, two Tehsils/village were selected for the study.

2.3 Criteria for Selection of Tehsil

In each district, two Tehsils and its SROs with 2 villages per SRO has been covered for the evaluation study of the quality of land records system. The criteria for selection of the Tehsils includes:

- Revenue village
- Relatively high prevalence of digitization of land records
- Relatively little land transaction intensity
- At least some intervention under DILRMP programme

2.4 Criteria for Selection of Villages

In every district, two sample villages under each Tehsil have been be selected based on the following criteria:

- Village with high density of land owners' population
- Village with high number of cadastral maps linked to RoR
- Village with high prevalence of digitization of land records

2.5 Sample Size

In each village, at least 100 respondent's responses were collected for evaluation of the quality of land records. There are total 1140 respondents have been interviewed across the 10 sample districts in 5 states of Northeast India (Table 2.1).

Table 2.1 Sampling Size of Northeast States under the Evaluation Study of Quality of Land Records

States (5)	Districts (10)	No. of Respondents Interviewed
Assam	Nagaon	102
	Kokrajhar	100

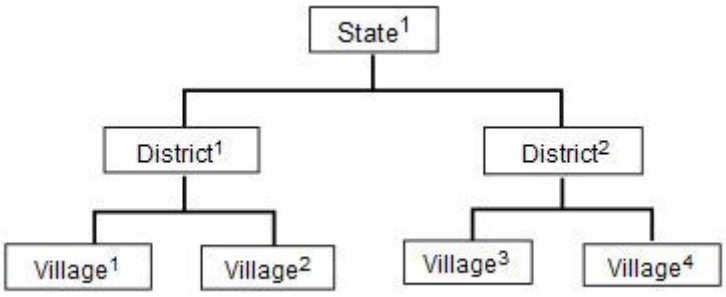
Arunachal Pradesh	Lower Subansiri	25
	East Siang	46
Manipur	Bishnupur	205
	Imphal West	164
Mizoram	Aizawl	200
	Champhai	88
Nagaland	Dimapur	112
	Chumoukedima	98
Total		**1140**

Notes: Parenthesis indicates the number of concerned states & districts

2.6 Selection of Sampling Process

The selection of sampling process for the present study was selected in multiple stages after having a discussion with subject-matter specialists and local land revenue administrative officers and also considering the high prevalence of digitization of land records in the sample regions. In the first stage, purposive sampling was used to choose two districts out of the total districts in the concerned states. Four important criteria were applied while choosing the sample districts such that first, the higher percentage of digitization of land records, and second, the sample region falls under the revenue village, third, witness of land transaction history, finally, there is some intervention of DILRMP programme. In the second stage, villages were chosen in each district, and in the third stage, a maximum of two villages was chosen in each district. In the fourth stage, land-owning households were chosen in each village to constitute the sample for the present study comprising 100 sample households in total. Such a sample was considered appropriate and a true representation of the population (figure 2.1).

Figure 2.1 Selection of Sample Area



Note: State[1] represents the concerned state, District[1] indicates sample district 1, District[2] indicates sample district 2, Village[1] represents sample district[1], Village[2] represents sample district[2], Village[3] represents the sample district[2], Village[4] represents the sample district[2]

2.7 Expert Interviews and Key Stakeholders

The current study was carried out in ten districts of Northeast states. During the field visit to these districts, the IIPA study team engaged with various stakeholders from the Department of Land Resources to assess the quality of land records under the Digital India Land Records

Modernisation Programme (DILRMP). At the state level, the stakeholders comprise the Department of Land Resources (DoLR) including the survey/resurvey team, Land Revenue Department, and National Informatic Centre (NIC) authorities. In addition, the team also interacts with the Deputy Secretary of Land Revenue (LR) in the selected states and the Nodal officer of the Project Management Unit (PMU), which plays a crucial role in canvasing and guiding the program implementation.

The IIPA team interacted with District Informatics Officers from the National Informatics Centre (NIC) at the district level, who are essential in overseeing the technical components of land record digitization. Numerous government officials, including the Deputy Commissioner, District Collectors, Additional District Collectors, Sub-Divisional Officers, and Tehsildars, Mondal, and Patwari offered perspectives on the administrative and operational obstacles and achievements of the program.

Furthermore, the interactions included external agencies, who are essential for the technical implementation of the digitization process in the concerned state such as scanning machines, computers, GIS software, and Drones for the survey and resurvey. It also includes modern record room, and the procedures for mutation and land registration.

Finally, in each district, at least two sample villages were chosen for the in-depth interview, and at least 100 sample land-owning respondents' responses taken into consideration for the evaluation of the quality of land records across five states of the Northeast. around 1140 sample respondents have been interviewed

2.8 Focus Group Discussion (FGD)/Community Interaction

Focus group discussions were conducted to seek suggestions to help improve the accuracy of the records as well as the efficacy of the land record digitalization at the grassroot level, level of awareness related to *Jamabandi, Dakchitha,* and unit of measurement are the focal point of the important discussion with the village people. Focus Group Discussions were held at the village level, with community leaders, revenue departments and registration offices in the 10 districts across 5 Northeast states.

2.9 Tools of Data Collection: Application of SurveyCTO Software

In order to capture the information related to the quality of land records at the village level, the current study utilised SurveyCTO software to capture the real-time data generation to collect data efficiently and accurately, ensuring high-quality and timely data entry. This technology enabled seamless data collection, storage, and analysis, enhancing the overall reliability and integrity of the study findings. The questions in SurveyCTO consist of different questions related to the quality of land records which fall under the six categories such as ownership, possession, land use-demarcation, partisan, land area in extent, land classification, encumbrance, and entitlement of government schemes. These questions are coded in multiple options from 0 to 5.

However, it is also evident that two different sets of questionnaires have been canvased to engage diverse stakeholders, including state land revenue administration, landowners and prospectors, and district officials were formulated to collect data.

- **SRO-Level Questionnaire**: It helped in the collection of data from the officials of the respective districts. Thus, giving a quantitative account of the impact of digitisation of land records. It also helped in assessing the service delivery improvements and challenges post-digitization.
- **Landowners and Prospectors-level Questionnaire**: The landowner/prospectors-level questionnaire gathered firsthand information on the ownership, registration, experiences, and benefits of land record digitisation, providing essential insights into the practical impact and effectiveness of the process of digitaization. This method captured real-world feedback, enhancing the study's relevance and accuracy.

2.10 Methodology: Real-Time Mirror Check Method

To comprehend the quality of land records, the present study involved land parcel surveys to perform a Real-Time Mirror (RTM) check a comparison of the on-ground status with the physical land records and also the cadastral map (CM), with an objective to examine the accuracy of quality of land records data. The RTM check was carried out for 10 districts in Northeast states. Within each of these districts, at least 100 land-owning households were selected, by using systematic random sampling to carry out village surveys in the concerned villages. In this survey, the objectives of the study with respect to the quality of land records consist of six categories such as ownership, possession, land use classification, land area in extent, encumbrances, and entitlement of government scheme.

During the Real-Time Mirror Check (RTM), the IIPA team along with Tehsildar, Mondal, and Patwari, Chainman bringing the cadastral map (CM), Dakchitha, Jamabandi (RoR) books, Mutation registrar, miscellaneous registrar etc. to the concerned village and carry out the village survey. By doing the Real-Time Mirror Check (RTM), it has been found that a huge variation exists between the on-ground situation and land records information i.e. cadastral map (CM) and textual records (RoR). The ownership variation was largely driven by cases of sale and succession not being recorded, while variation in land use was mainly on account of shift from agricultural land use to non-agriculture use. For encumbrances, it was observed that only mortgages were entered in records, and important information on land acquisition proceedings, revenue court cases, and land use restrictions were missing from the RoRs. The depicted land area variation flagged concerns around spatial land records accuracy.

2.11 Data Analysis Methods

The current study has used statistical techniques including frequency, percentage, cross-tabulation, and index for data analysis. The study has conducted comprehensive data analysis to summarize and interpret findings, ensuring a robust evaluation of the quality of land records in Northeast states. Data collected from both primary and secondary sources has been analysed through summarising, tabulation, comparison, calculations, and rational explanation. After, coding and decoding the data, the final data were presents in tabular forms, graphs and maps.

2.12 Limitations of the Study

This micro-level study has limitations in addressing all aspects of land record quality due to time constraints and the complexities of land issues in Northeast India. Conducted during the monsoon season, adverse weather conditions such as heavy rainfall, landslides, and floods hindered data collection. In Manipur, the district administration restricted access to hill regions due to ongoing political turmoil, further complicating the study. Additionally, the focus on individual landowners excludes landless individuals, narrowing the scope of research.

Chapter 3

History of Land Revenue Administration in North-east India

1. Introduction

The land revenue administration system in the Northeastern states of India—comprising Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, and Nagaland—has evolved through a rich and complex historical process. Shaped by indigenous traditions, colonial rule, and post-independence policies, this system reflects the region's unique socio-cultural and geographical diversity. Each state's approach to land tenure and revenue collection was influenced by its historical interaction with external powers and its indigenous governance structures. Before the advent of British colonial rule, the region's land revenue systems were largely informal, governed by tribal customs and collective land ownership practices. In states like Assam, the Ahom dynasty (1228–1826) introduced early forms of structured land revenue systems, particularly through the Paik system, which organized labor and taxes. The British colonial administration significantly altered these systems, particularly in Assam, where formal mechanisms for land revenue collection were implemented. The Bengal Permanent Settlement Act of 1793, for instance, had a profound impact on land ownership and revenue structures, particularly in Assam.

During British rule, states like Assam adopted systems such as the zamindari and ryotwari, which shifted land ownership dynamics and formalized tax collection procedures. The introduction of the Assam Land Revenue Regulation of 1886 marked a critical shift in land administration, establishing legal frameworks for land tenure, settlement, and taxation. However, other North-Eastern states such as Mizoram, Nagaland, and Meghalaya were largely exempt from such frameworks, due to their classification as "Excluded Areas" under the Government of India Act, 1935, which allowed indigenous governance systems to remain intact.

Post-independence reforms in land revenue administration aimed at balancing modern legal systems with the protection of traditional tribal land rights. The Sixth Schedule of the Indian Constitution (1950) was a landmark provision, granting significant autonomy to tribal areas in land management. This allowed states like Mizoram, Nagaland, and Meghalaya to retain their customary land tenure systems, with tribal councils playing a central role in land and revenue governance.

Assam, on the other hand, continued with a modified version of the colonial land revenue system but introduced several reforms post-independence to address land settlement and redistribution issues. The Assam Fixation of Ceiling on Land Holdings Act, 1956 and the Assam Land and Revenue Reassessment Act, 1976 were key measures aimed at equitable

land distribution and updating land records. Similar reforms were also seen in Manipur and Arunachal Pradesh, where efforts were made to modernize land revenue systems while respecting traditional land rights. In recent years, modern legal frameworks and reforms, such as the Mizoram (Land Revenue) Act of 2013 and the Nagaland Village and Area Councils Act of 1978, have been implemented to improve land record digitization, formalize ownership, and enhance transparency in settlement and revenue management. These acts aim to integrate modern land administration practices, such as land titling and digitization, with the traditional, communal landholding systems prevalent in many Northeastern states.

This chapter will explore the historical evolution of land revenue administration in these states, focusing on the interplay between indigenous practices, colonial policies, post-independence reforms, and modern legal frameworks. A comparative analysis will highlight how each state has navigated its unique challenges in managing land and revenue administration while balancing modernization with the preservation of tribal land rights.

2. Land Revenue Administration System

2.1 Arunachal Pradesh

The administration and consolidation of India's North-East Frontier, known as Arunachal Pradesh, evolved gradually through decades of strategic administrative control and development initiatives. This process, spearheaded by the British and later continued by the Indian Government, extended effectively up to the international boundary. This region's establishment of governmental control dates back to well before 1914, with various policies shaping its historical trajectory.

Before 1914, British policy on the northeast frontier was largely non-interventionist, allowing tribal self-governance while maintaining loose political control. The British regulated trade and law through measures like the Inner Line Regulation of 1873, to prevent exploitation of tribal areas. However, after the Abor Expedition (1911-12), British involvement deepened, and in 1914, the Assam Frontier Tracts Regulation established a formal administrative presence in the region. By 1919, the area was classified as "backward tracts" under special administrative provisions. After Indian independence, the region became the North-East Frontier Agency (NEFA) and later evolved into Arunachal Pradesh, achieving statehood in 1987.

In addition to increased British control post-1914, the frontier tracts were divided into administrative sections, with Political Officers overseeing governance. By the Government of India Acts of 1919 and 1935, the frontier areas were further categorized, allowing selective application of laws. After independence, NEFA's integration into India brought efforts in infrastructure and socio-economic development. The region underwent significant administrative changes, eventually becoming a Union Territory in 1972, and then achieving full statehood as Arunachal Pradesh in 1987. Despite ongoing challenges, development initiatives have continued, focusing on education, healthcare, and infrastructure.

Legal Framework, Act and Rules for Land Revenue Regulations

Arunachal Pradesh, formerly known as the North-East Frontier Agency (NEFA), was an integral part of Assam until 1972. The districts of Siang, Tirap, Subansiri, Kameng, and Lohit

were included under NEFA as part of Assam during this period. The following is a list of acts and regulations that have been put in place for Land Revenue Regulation in Arunachal Pradesh:

- **Balipara, Tirap, and Sadiya Frontier Tract, Jhum Land Regulation of 1947:** The 1947 Jhum Land Regulation aimed to control shifting cultivation in northeastern India, balancing environmental conservation with local agricultural practices while empowering the government to acquire land for public purposes.
- **The 1998 Business (Allocation) Rule:** It empowers the Directorate of Land Management, Itanagar, to oversee land management in Arunachal Pradesh, including land allotments, acquisitions, and records, as well as policy decisions on land rates and lease exemptions, while coordinating with various departments and organizations.
- **The Arunachal Pradesh (Land Settlement and Record Act, 2000):** This Act governs land and revenue administration by blending traditional land rights with modern reforms, defining key terms, regulating land allocation, usage, taxation, and resolving disputes, while also protecting landowners' and tenants' rights.
- **The Indian Stamp Act, 1899 (Arunachal Pradesh Amendment) Act, 2007** revised stamp duties in Arunachal Pradesh, increasing them for various legal instruments and updating Schedule I to reflect the state's current economic conditions.
- **The Arunachal Pradesh Land Settlement and Records Amendment Act, of 2009** modernized land administration by digitizing records, clarifying ownership rights, and protecting the customary land rights of indigenous tribal communities.
- **The Arunachal Pradesh Land Settlement and Records Rules, 2012,** effective from December 3, 2012, established land management procedures, defined key terms like ‘Lease’ and ‘Commercial Purpose’, and outlined processes for declaring pasturage land while replacing earlier rules from 1988 and 2002.
- **Arunachal Pradesh Land Settlement and Records Amendment Act, 2014:** This amendment focused on improving the settlement process and resolving conflicts related to land tenure and rights and the address administrative challenges.
- **Arunachal Pradesh Land Settlement and Records Amendment Act, 2017:** Under this amendment new procedures were introduced for land conversion and settlement, aiming to simplify the process and reduce bureaucratic hurdles.
- **Arunachal Pradesh Land Settlement and Records Amendment Act, 2020:** It was introduced to implement digital land record systems to ensure transparency and reduce manual errors.
- **Government Land Allotment Proposal Guidelines** (**13th July 2021,):** outline a set of mandatory checklists to prevent plot overlapping. Non-compliance with any item will result in the rejection of the proposal. The guidelines ensure systematic, verified, and regulation-compliant land allocation.

- **Arunachal Pradesh Land Settlement and Records Amendment Act, 2024:** It is introduced to streamline land dispute resolution mechanisms and improve land record accuracy. The focus has been on enhancing stakeholder involvement and ensuring that land records are updated regularly.
- **The Jhum Land Regulation Amendment Bill, 2024,** updates the original 1947 regulation to expedite land acquisition, ensure fair compensation, and redefine administrative roles, including establishing the 'Appellate Authority' while ensuring compensation aligns with the Land Acquisition Act.

2.2 Assam

The history of Assam's land revenue system began under the Ahom rule, where the king owned all land and subjects were granted land for services under the Khel and Paik systems. During Ahom rule in Assam, land and subjects were considered crown property, with land grants given in exchange for services under the Khel system. After British annexation, this system was replaced by the ryotwari land settlement, where individual ryots were given ownership titles. The British introduced various land policies, including the Assam Land and Revenue Regulation of 1886, which became foundational. Following India's independence, the Bodoland movement led to the 1993 and 2003 Bodo Accords. The latter established the Bodoland Territorial Council (BTC), granting greater autonomy to the Bodo people while preserving the rights of non-tribal communities.

After the British annexed Assam in 1826, they replaced this with the ryotwari system, where individual peasants were given ownership and taxed. They introduced the Waste Land Grant Rules to promote tea cultivation and the Assam Land and Revenue Regulation of 1886, which remains influential. The British introduced land policies to expand tea cultivation in Assam, replacing traditional systems with modern land revenue frameworks. Post-independence, land reforms focused on redistribution and protecting tribal rights, with special provisions under the Sixth Schedule for areas like Bodoland. The demand for Bodo autonomy intensified, leading to the first Bodo Accord in 1993, which created the Bodoland Autonomous Council. However, dissatisfaction with limited powers led to renewed demands, culminating in the 2003 Bodo Accord. This accord established the Bodoland Territorial Council (BTC) under the Sixth Schedule, granting the Bodo community greater self-governance, control over land rights, and representation while ensuring protections for non-tribal populations in the region.

Legal Framework, Act and Rules for Land Revenue Regulations

The following acts and regulations collectively form the legal framework for land revenue administration in Assam, addressing issues of land ownership, revenue collection, and the rights of landholders while adapting to the changing socio-economic landscape.

- **Assam Land Revenue Regulation, 1886:** This foundational regulation established the framework for land revenue administration in Assam, outlining procedures for land settlement, collection of revenue, and management of land records. It aimed to streamline the processes involved in land ownership and taxation.

- **Assam Land and Revenue Regulation, 1948:** This regulation updated the land revenue system post-independence, adapting colonial practices to the needs of an independent India. It focused on land settlement procedures and emphasized the rights of landholders, particularly in protecting tenant rights.
- **Assam Land Acquisition Act, 1894:** This act governs the process of acquiring land for public purposes, ensuring that landowners receive fair compensation. It outlines the procedures for land acquisition, appeals, and compensation assessment.
- **Assam Agricultural Land (Regulation of Requisition and Acquisition) Act, 1970:** This act was introduced to regulate the requisition and acquisition of agricultural land, ensuring the protection of farmers' rights and addressing issues related to land use and compensation.
- **The Assam Land Revenue (Settlement of Land) Act, 1980:** This act focuses on the settlement of land revenue matters, including the issuance of land pattas (land titles) and the resolution of disputes related to land ownership.
- **The Bodo Accord of 2003** led to the establishment of the Bodoland Territorial Council (BTC) and represented a significant development in the administrative and political landscape of Assam. This agreement aimed at addressing the aspirations of the Bodo people for greater autonomy while ensuring that the rights of non-tribal communities within the Bodoland Territorial Area Districts (BTAD) were preserved.
- **Assam Land Policy, 2019:** This policy aims to promote sustainable land management practices, enhance land governance, and ensure equitable distribution of land resources. It emphasizes the integration of traditional land practices with modern legal frameworks.
- **Assam Land Records Manual:** This manual provides guidelines for maintaining land records and outlines procedures for updating and digitizing land information. It aims to enhance transparency and accessibility of land data.

2.3 Manipur

In pre-colonial Manipur, land was managed by local chiefs and clan leaders, with the king exercising authority over land administration. After the British annexation in 1891, they introduced their own land revenue systems, combining British practices with local customs. Post-independence, the Manipur Land Revenue and Land Reforms Act of 1960 modernized land administration, aiming for equitable land distribution and efficient revenue collection. Recent efforts focus on digitizing land records and further improving land management and reform.

Following India's independence in 1947 and Manipur's merger with India in 1949, British colonial land administration practices were gradually integrated into the Indian system. The Manipur Land Revenue and Land Reforms Act of 1960 marked a significant milestone, aiming to streamline land tenure, resolve disputes, and promote equitable land reforms. In recent years, modernization efforts have focused on the digitization of land records,

improving land revenue management, and addressing challenges like land ownership and utilization. The government continues to refine land policies to meet contemporary needs.

Legal Framework, Act and Rules for Land Revenue Regulations

- **Manipur Land Revenue and Land Reforms Act, 1960:** This Act is the primary legislation for land revenue and land reforms in Manipur. It deals with the settlement of land, land revenue collection, land records maintenance, and land reforms aimed at promoting fair distribution of land and preventing exploitation.
- **Manipur Land Revenue and Land Reforms Rules, 1961:** These rules provide detailed procedures for implementing the Manipur Land Revenue and Land Reforms Act, 1960. They cover aspects such as the maintenance of land records, the process for land transactions, and dispute resolution
- **Manipur (Hill Areas) District Councils Act, 1971:** This Act provides for the administration of hill areas in Manipur through district councils. The councils have authority over land matters within their jurisdiction, which can include land management, development, and regulation in the hill districts.
- **Forest Conservation Act, 1980:** This central Act is relevant in Manipur as it regulates the diversion of forest land for non-forest purposes. It applies to all states and is crucial in managing land use, particularly in forested areas.
- **The Manipur Prevention of Socio-Economic Exploitation Act, 1983:** This Act includes provisions that can affect land revenue administration by addressing socio-economic exploitation related to land.
- **Manipur Land Revenue and Land Reforms Amendment Act, 2009:** This amendment Act updates various provisions of the original 1960 Act, including changes in land use regulations and land transaction processes.
- **The Manipur (Hill Areas) District Councils Amendment Act, 2011:** This Act amends the 1971 Act to enhance the powers and functions of the district councils in hill areas, including aspects related to land administration
- **Central Land Acquisition Act, 2013:** Although primarily a central legislation, the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act, 2013, applies to all states, including Manipur. It deals with the acquisition of land for public purposes and provides for compensation and resettlement
- **Manipur Conservation of Paddy Land and Wetland Act, 2014:** The Act seeks to conserve paddy lands and wetlands due to their critical role in agriculture, ecology, and water management. It aims to prevent their conversion into non-agricultural uses and to ensure their sustainable management.
- **The Manipur Land Revenue and Land Reforms Act (First Amendment) Rules, 2021:** This act amends the Manipur Land Revenue and Land Reforms Act to enhance

land revenue processes. It updates definitions, encourages digital record-keeping, and improves public access to land information for greater transparency.

- **The Manipur Conservation of Paddy Land and Wetland Act (Second Amendment) Act, 2021:** This act strengthens the original legislation for conserving paddy lands and wetlands in Manipur. It enhances conservation efforts with clearer definitions, stricter prohibitions on harmful activities, and improved regulations for land conversion and development.
- **The Manipur Conservation of Paddy Land and Wetland Act (Conversion of Paddy Land for Construction of Residential Building and Fees Rules), 2021:** This act regulates the conversion of paddy lands into residential areas by establishing a clear approval process. It requires detailed proposals, including plans and justifications, along with criteria such as environmental impact assessments and the availability of alternative paddy lands for cultivation.
- **Manipur Land Revenue and Land Reforms Act (Seventh Amendment Rules), 2022:** This act updates the management of land revenue and reforms in Manipur by clarifying definitions related to land transactions and records. It establishes a legal framework for using digital platforms to record and process land transactions, including online applications and electronic records.
- **Sale Deed Registration Amendment Act, 2023:** This act establishes a legal framework for electronic sale deed records, enhancing accessibility, streamlining document verification, and clarifying the responsibilities of registrars in property transactions.

2.4 Meghalaya

Meghalaya was founded on January 21, 1972, by separating two districts from Assam: the United Khasi and Jaintia Hills and the Garo Hills. In 1970, Meghalaya was granted semiautonomous status before achieving full statehood. Approximately 95% of the land in Meghalaya is community-owned. The two legislative bodies, the Autonomous State of Meghalaya (1971) and the United Khasi and Jaintia Hills Autonomous District Council (1952) were established specifically to safeguard and maintain the customs and laws of the indigenous tribes residing in the Meghalaya areas. The land revenue administration system in Meghalaya is rooted in customary practices, where land is primarily managed by tribal communities and local chiefs. Following British annexation in the 19th century, the British respected these customs, avoiding formal land revenue systems. Post-independence, Meghalaya was placed under the Sixth Schedule of the Indian Constitution, granting Autonomous District Councils (ADCs) authority over land administration. Despite statehood in 1972, land ownership remains communal, with informal transactions common. The application of various land revenue and management acts faced unique challenges due to the region's distinct landholding and governance systems. The state's tribal communities, primarily the Khasi, Jaintia, and Garo, have traditionally managed land through customary laws and community practices. These communities generally own land collectively, and their

rights are protected under the Sixth Schedule of the Indian Constitution, which grants special autonomy to tribal areas in the north-eastern states.

Legal Framework, Act and Rules for Land Revenue Regulations

- **The Land Acquisition Act of 1894** provided a legal framework for the government to acquire private land for public purposes, compensating landowners; however, it faced resistance due to tribal landholding patterns and concerns over traditional rights. Major amendments in 1984 introduced time limits for acquisition proceedings and established the Land Acquisition Advisory Board to assess the socioeconomic impacts of such acquisitions, though its recommendations are advisory.
- **The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act of 2013 replaced the 1894 Act**, offering fairer compensation, requiring community consent for acquisitions, and emphasizing rehabilitation, transparency, and social impact assessments, while navigating Meghalaya's complex interplay of state laws and customary practices.
- **The Meghalaya Land Transfer of Land Regulation Act, 1971** prohibits the transfer of land between tribal and non-tribal individuals to protect tribal land rights, with certain exceptions for public religious sites and tribal development schemes, and was amended in 1991 to clarify these provisions.
- **The Meghalaya Land Survey and Records Preparation Act, of 1980** aims to formalize land ownership and management in the state through systematic surveys and documentation, addressing the challenges posed by the lack of official records and customary land tenure. It was amended in 1991 to allow District Councils to implement its provisions with state support, enhancing transparency and dispute resolution.

  The Administration of Elaka Act, 1991 provides a legal framework for managing "Elakas," traditional administrative units in Meghalaya, defining the powers and responsibilities of indigenous tribal authorities while ensuring coordination with Autonomous District Councils (ADCs).
- **Traditional Classification of Land in Khasi Hills, Meghalaya**

In the Khasi Hills, landed property is classified under two main heads - Ri Raid and Ri Kynti. The Ri Raid (Ri meaning land and Raid meaning community) is generally community-owned land or ‘public’ land wherein no individual has proprietary right/s over it.

S.no	Type of Ri-Raid Land	Type of Ownership
1.	Ri Shnong	The land is part of the village; villagers use these lands for cultivation but possess only non-transferable occupancy rights.
2.	Ri Lyngdoh	Land that has been set aside for the support of the Lyngdohs or priests of the State
3.	Bam Syiem	Land set apart for the clans of the ruling chiefs/Syiem

4.	Ri Bamlang	Community land set aside for use by the community
5.	Ri Leh Mukotduma	Land acquired through litigation (Mukotduma)
6.	Ri Aiti Mon Sngewbha or Ri Nongmei-Nongpa	Land that has been donated or gifted willingly (Aiti Mon Sngewbha) by the owners for use by the public
7.	Ri Raphlang-Ri Bamduh	A barren land that any citizen has the right to use
8.	Ri Diengsai-diengjin	A forest area that is covered with vegetation between the uplands and low-lying areas of the lands
9.	Ri Samla	A land acquired by an unmarried person (Samla) who has the right to dispose of it as he/she likes
10	Ri Umsnam	Land acquired through wars

S.No	**Type of Ryi Kyunti Lands**	**Type of Ownership**
1.	Ri Nongtymmen	Inherited from generation to generation; land of ancestry.
2.	Ri Maw	Acquired through purchase or by the right of apportionment
3.	Ri Seng and Ri Khai	Undivided family-owned land
4.	Ri Khurid	Land acquired with full ownership rights, including transferability and inheritance.
5.	Ri Bitor	Land acquired on receipt of a ceremonial bottle of liquor
6.	Ri Dakhol	Land obtained by the right of occupation
7.	Ri Shyieng	A portion of land is given to the family's or clan's youngest daughter for meeting the expenses of religious rites and ceremonies.
8.	Ri Phniang	A part of the land of Ri Nongtymmen is given to a female member or custodian for performing religious ceremonies or caretaking in times of trouble.
9.	Ri Lapduh	The land of a family or clan that has become extinct is kept as Ri Raid or Ri Bam Syiem.
10.	Ri Lyngdoh	The land that belongs to the Lyngdoh or the priestly clan
11.	Ri Syiem	The land set apart for the maintenance of the Syiem's clan
12.	Ri Shiak	Land that the husband and wife have acquired is given to the Kur (clan).
13.	Law Ri Kynti	Forests belong to private individuals or a particular clan or a group of clans. These forests are raised or inherited by them

2.5 Mizoram

The history of land revenue administration in Mizoram reflects a gradual shift from traditional chieftainship to a more structured governmental framework, focusing on land rights and revenue management. The Lushais, now known as Mizos, migrated from Burma between 1600 and 1700 A.D. and lived as independent tribes until the British annexed their territory on September 6, 1895. Under the Mizo chiefs, land was considered state property, managed through a system of chieftainship. The British established a land settlement policy in 1898, recognizing the chiefs' rights while maintaining minimal interference in local affairs. After India's independence, Mizoram became an Autonomous District under the Sixth Schedule, and the chieftainship was abolished in 1954 through the Assam-Lushai District (Acquisition of Chief's Rights) Act. This marked a significant land reform, transferring land management to the Mizo District Council. Mizoram became a Union Territory in 1972 and achieved statehood in 1987, with the Department of Land Revenue & Settlement established to oversee land documentation, surveying, and revenue collection.

Legal Framework, Act and Rules for Land Revenue Regulations

- **The Mizo District (House-Sites) Act, 1953:** This Act was meant to regulate the house-sites and shop-sites. Further, it dealt only with allotment and issue of patta. This Act has now been repealed by "The Mizoram (Land Revenue) Act, 2013.
- **The Mizo District Revenue Assessment Regulation, 1953:** The Mizo District (Revenue Assessment) Regulation, 1953 is an old regulation enacted when the District Council was first established. The Act was simple. It imposes taxes on man and land. This Act has now been repealed by "The Mizoram (Land Revenue) Act, 2013.
- **The Mizo District (land and Revenue) Act, 1956:** This Act dealt with the recognition of rights on land and settlement and assessment of revenue on such and by the District Council. It applied mainly to non-agricultural lands, but certain provisions apply to all land. This Act has now been repealed by "The Mizoram (Land Revenue) Act, 2013.
- **The Mizo District (Agricultural Land) Act, 1963:** This act was amended post-statehood to address the evolving agricultural practices in the state, including the transition from jhum to more settled forms of agriculture. It regulates the allocation and use of agricultural land. Under this act, the Administrator and authorized officers had the power to allot and vacant land for farming. This Act was also repealed under the Mizoram (Land Revenue) Act, 2013.
- **The Mizo District (Transfer of Land) Act, 1963:** The Mizo District Council passed the Mizo District (Transfer of Land) Act in 1963 (since repealed) on a model of the U.K.J Hills (Transfer of Land) Act, 1953. The Act prohibited the transfer of land from a tribal to a non-tribal and from a non-tribal to another non-tribal, except with previous permission of the State Government.

- **The Mizoram (Land Survey and Settlement Operation) Act, 2003**, provides a framework for systematic land surveys and settlements, empowering the government to conduct surveys, resolve disputes, and maintain legally binding land records.
- **The Mizoram (Urban and Rural Planning) Act, 2005,** regulates land use and development in urban and rural areas, establishing guidelines for zoning, infrastructure, public participation, and sustainable growth.
- **The Mizoram (Land Survey Settlement and Operation) Act of 2009** establishes a legal framework for conducting land surveys, setting boundaries, and preparing accurate land records, including provisions for dispute resolution and regular updates.
- **The Mizoram (Land Revenue) Act, 2013** governs land assessment, taxation, and revenue collection while regulating land allotment, tenure, and rights over agricultural and non-agricultural land. It streamlines land revenue administration, with provisions for appeals, dispute resolution, and transfer of ownership, consolidating previous laws in the state. The act has also gone through certain amendments that have played a prominent role in formulating the present-day land revenue act that is abide by in Mizoram.
    - **Amendments in the Mizoram (Land Revenue) Act, 2013:** The 2nd Amendment Rules 2019 under the Mizoram (Land Revenue) Act, 2013, update land revenue management regulations to enhance administration, streamline revenue collection, and clarify Government Land Bank registration procedures.
    - **Amendment Rules 2019**: Addition regarding Government Land Allotment & Land Committee that will supervise land allotment (changed Advisory board to Land Committee) & Deletion also happened (Power of the Government for allotment of land)
    - **Amendment 2020:** Certain terminology changed in the Act, such as Household substituted with Family;
    - **Amendment 2023:** Government allotment or settlement of any category of land; fix the rate of land value per hectare or square meter for different grades of land.
- **The Mizoram Agricultural Land Leasing Act, 2021:** This act aims to improve agricultural efficiency and equity and to provide access to land for the landless and semi-landless poor. It also recognizes farmers who cultivate land on lease and provides them with access to loans, insurance, and other support services.
- **Sixth Schedule and Autonomous District Councils**: Mizoram, as a tribal-majority state under the Sixth Schedule of the Indian Constitution, grants significant autonomy to its three Autonomous District Councils (ADCs)—Lai, Mara, and Chakma—which manage land and resources and legislate on land allotment, revenue collection, and customary practices.

- **Article 371G** This provision is essential for Mizoram, allowing the state to uphold its unique cultural practices while adhering to the Indian Constitution. It recognizes local customs in land ownership and legal matters, granting Mizoram's Legislative Assembly the power to determine the applicability of central laws, thereby balancing national integration with regional autonomy.

2.6 Nagaland

The State of Nagaland Act of 1962 established Nagaland as a separate state within the Indian Union, before which it was part of Assam. This act aimed to address the Naga people's demands for greater autonomy and self-governance, granting them a legislative assembly and a Governor appointed by the President of India. The Act also recognized the unique cultural and administrative frameworks of Nagaland, ensuring that the Naga identity was preserved while integrating into the Indian Union. It outlined the distribution of powers between the state and central government, aiming to balance regional autonomy with national unity.

In terms of land administration, Nagaland has developed a legal framework that acknowledges the significance of traditional land ownership practices rooted in tribal customs. Over the years, various legislative measures have been implemented to regulate land use, ownership, and acquisition while respecting customary land tenure systems. This approach reflects Nagaland's socio-political landscape, which necessitates a careful blend of traditional practices and modern legal principles in land governance.

Legal Framework, Act and Rules for Land Revenue Regulations

Over the years, Nagaland has implemented various legislative measures and other related laws, to regulate land use, ownership, and acquisition while respecting the customary land tenure systems that have been in place for centuries.

- **The Nagaland Land (Requisition and Acquisition) Act, of 1965** allows the government to requisition and acquire land for public purposes, ensuring fair compensation for landowners and outlining procedures for both requisition and acquisition. It emphasizes public interest and establishes a legal framework for addressing compensation disputes.
- **The Nagaland Land (Requisition and Acquisition) Rules, 1968** provide detailed procedures for implementing the 1965 Act, ensuring transparent and fair land requisition and acquisition processes while safeguarding landowners' rights and outlining compensation assessments and dispute resolution mechanisms.
- **The Nagaland Land (Requisition and Acquisition) First Amendment Act, 1969 refines the 1965 Act** by enhancing compensation mechanisms, clarifying requisition processes, and strengthening landowner protections to facilitate smoother and fairer land acquisitions for public purposes.
- **The Nagaland Eviction of Persons in Unauthorized Occupation of Public Land Act, 1971**, empowers the government to reclaim public land from unauthorized occupants through a structured eviction process, with subsequent amendments introducing stricter penalties and streamlined procedures for effective enforcement.

The 1973 memorandum regulates land allotment in Nagaland, allowing indigenous inhabitants priority access, especially in Dimapur, while prohibiting non-indigenous allotments unless exceptional Cabinet approval is granted, emphasizing the public purpose and financial transparency to protect indigenous rights.

- **The Nagaland Land and Revenue Regulation (Amendment) Act, 1978,** updated land and revenue administration by refining ownership, use, and tax collection processes, enhancing indigenous land rights, and incorporating traditional practices, with further amendments in 2002 to modernize these systems while respecting customary landholding.
- **The Nagaland Stamp (Prevention of Undervaluation of Instruments) Rules, 2015,** ensure accurate property valuation for stamp duty, preventing undervaluation and securing state revenue while promoting transparency in property transactions.
- **The Minimum Circle Rate** in Dimapur Mauza is a government-fixed baseline for property transactions to standardize values, prevent undervaluation, and ensure fair taxation.
- In Nagaland, the **Registration Act of 1908** outlines a fee structure for document registration, comprising primary registration fees based on document value and miscellaneous fees for administrative costs.
- **The Indian Stamp Duty (Nagaland Amendment) Act of 1989** modifies stamp duty provisions to streamline assessment and collection processes in Nagaland, aligning them with local economic and administrative needs.
- **The Indian Stamp (Nagaland Third Amendment) Act of 2004** updates stamp duty regulations in Nagaland, revising rates and procedures to better align with local economic and administrative needs.
- **The Nagaland Village and Area Council Act, of 1978** establishes a framework for the governance and administration of villages and area councils in Nagaland, empowering local self-governments to manage community affairs, land use, and resource allocation while promoting indigenous customs and practices. The Act aims to enhance local governance and facilitate the participation of villagers in decision-making processes.

Chapter 4

Evaluation Study of Quality of Land Records in Northeast India:

Empirical Results

1.1 Introduction

When analyzing village-level data related to land revenue and settlement administration from the northeastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, and Nagaland, it is essential to recognize the region's distinctive legal and customary land frameworks. These states are characterized by a dual system of land governance, where formal revenue mechanisms coexist with traditional community-based landholding patterns, especially among indigenous and tribal populations. The complexity of these land tenure systems significantly impacts land administration, revenue collection, and settlement processes, which vary widely from one state to another, and even among districts within a state.

The data collected at the village level provides crucial insights into land ownership patterns, the process of land settlement, and the assessment and collection of land revenue. It also highlights the administrative challenges in areas where customary practices dominate, leading to potential gaps in formal land registration and tax collection. By examining this data, we can identify inconsistencies in the application of land laws, the efficacy of settlement and cadastral surveys, and the accessibility of land records for villagers. This analysis is key to understanding the broader implications for agricultural productivity, rural development, and local governance. Furthermore, it informs policy discussions around land reforms, equitable resource distribution, and enhancing the capacity of revenue departments to manage land more effectively in this unique socio-cultural and legal context.

In this section, we will be analyzing the data collected from the surveys conducted in the above-mentioned states with an in-depth assessment of the quality of land records maintained in the respective states.

2. State-wise Data Analysis

2.1 Arunachal Pradesh

The data was collected from villages of Lower Subansiri and East Siang District. Lower Subansiri, East Siang, and Papum Pare districts are integral parts of Arunachal Pradesh, each boasting unique geographic and cultural features. Lower Subansiri District, the oldest in Arunachal Pradesh, spans 3,460 square kilometers with mountainous terrain ranging from 1,000 to 1,600 meters. As of the 2001 Census, its population was 55,726, mainly comprising

the Apatani and Nyishi tribes. It is divided into two sub-divisions, Ziro and Raga, and three blocks, with land management historically governed by the Jhum Land Regulation, 1947.

East Siang District covers 6,512 square kilometers in the Eastern Himalayas, with the Siang River shaping its landscape. The district is predominantly rural, home to the Adi tribe, and practices both shifting and permanent farming under traditional land systems. The Sadiya Frontier Tract Jhum Land Regulation, 1947, safeguards customary land rights, though limited land records hinder access to some government schemes. Pashighat is its administrative center, overseeing 15 sub-districts, 2 towns, and 151 villages.

The following table presents a distribution of a study sample that focuses on various communities across different villages in the districts of East Siang and Lower Subansiri.

Table 1: Study Sample Distribution

District	Tehsil	Gram Panchayat	Villages	Community	Study Sample	
					N	%
East Siang	Pashighat	Sibo	Sibo	ST	46	64.8
Lower Subansiri	Ziro	Hong	Hong	ST	18	25.4
		Hija	Hija	ST	1	1.4
	Old Ziro	Hari	Hari	ST	1	1.4
		Dutta	Dutta	ST	5	7.0
Total					71	100.0

The study involves 71 participants, with the majority (64.8%) coming from the village of Sibo in East Siang's Pashighat Tehsil, all belonging to the Scheduled Tribe (ST) community. In Lower Subansiri district, the sample is spread across the Ziro and Old Ziro Tehsils. Within Ziro Tehsil, the largest sample (25.4%) is from the Hong village, also entirely consisting of ST community members. Additionally, small portions of the sample come from Hija village (1.4%) in Ziro and the villages of Hari (1.4%) and Dutta (7.0%) in Old Ziro, all also from the ST community.

A total of 664 Land Possession Certificates (LPCs) have been issued in the Lower Subansiri district, according to the District Land Officer. In March 2024, the district was split, creating the new Key Panyor district under the Arunachal Pradesh (Re-Organisation of Districts) (Amendment) Bill, 2024, following demands from the All Yachuli Student Union. The cabinet also approved initiatives for Bichom, including funding for an Eklavya Model Residential School, issuance of LPCs to Nyishi individuals in the Aka area, and the preparation of a Detailed Project Report (DPR).

Following Table 2 showcases the percentage distribution of land ownership by social category and landholding size in East Siang and Lower Subansiri districts.

Table 2: Percentage Distribution of Land Ownership based on Social Category and size of Land Holding

District	Category	Less than 1 hectare		1-2 hectare		2-3 hectare		3-4 hectares e		Above 4 hectares		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
East Siang	UR	0	0	0	0	0	0	0	0	0	0	0	0
	OBC	0	0	0	0	0	0	0	0	0	0	0	0

	SC	0	0	0	0	0	0	0	0	0	0	0	0
	ST	10	21.8	9	19.5	2	4.4	0	0	0	0	21	45.6
Lower Subansiri	UR	0	0	0	0	0	0	0	0	0	0	0	0
	OBC	0	0	0	0	0	0	0	0	0	0	0	0
	SC	0	0	0	0	0	0	0	0	0	0	0	0
	ST	18	72.0	3	12	2	8.0	0	0	2	0	25	54.4
Total		28	60.9	12	26.1	4	8.69	0	0	2	4.4	46	100

As observed in the above Table 2 East Siang, all landowners belong to the ST category, with 21.8% classified as marginal landholders, 19.5% as small, and 4.4% as medium. In Lower Subansiri, 72% are marginal landholders, while 12% are small, 8% are medium, and 4% are large, holding over 4 hectares. Across both districts, 60.9% of ST landowners hold less than 1 hectare, and only 4.4% are large landholders. The landholding pattern in Arunachal Pradesh reflects significant disparities, influenced by the region's unique geography and traditional ownership practices, with most landowners being marginal, while a small group holds large tracts of land. This uneven distribution highlights the need for land reforms that address economic inequalities and respect tribal customs.

Table 3: Status of Percentage Distribution of Agricultural Land Holding and Size of Agricultural Land

District	Agriculture Land Holding				Size of Agriculture Land									
	Yes		No		<1.00 hectare		1.00-2.00 hectare		2.00-3.00 hectare		3.00-4.00 hectare		4.00 hectare and above	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	21	29.6	25	35.2	10	21.7	9	19.6	2	4.30	0	0	0	0
Lower Subansiri	25	35.2	0	0	18	39.1	3	6.5	2	4.30	0	0	2	4.30
Total	46	64.8	25	35.2	28	60.9	12	26.1	4	8.70	0	0	2	4.30

Table 3 represents that In East Siang, 29.6% of respondents own agricultural land, with most being marginal or small landholders. In Lower Subansiri, 35.2% own land, with a higher proportion of marginal landholders (39.1%) and some large landholders (4.3%). Across both districts, 64.8% of respondents own agricultural land, with the majority (60.9%) holding less than 1 hectare. Only 4.3% of landholders own more than 4 hectares, indicating that most agricultural landowners hold small parcels of land.

Table 4 showcases the distribution of homestead land ownership and the size of homestead land (in square meters) across East Siang and Lower Subansiri districts

Table 4: Percentage Distribution of Holding Homestead Land

District	Homestead Land				Size of Homestead (Square-meter)									
	Yes		No		>300		300-600		600-800		800-1000		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	46	64.8	0	0	1	1.41	25	35.2	16	22.5	4	5.63	46	64.8
Lower Subansiri	25	35.2	0	0	3	4.23	19	26.8	2	2.8	1	1.41	25	35.2
Total	71	100	0	0	4	5.63	44	62.0	18	25.4	5	7.04	71	100

In both East Siang and Lower Subansiri, 100% of landowners own homestead land. Across both districts, the majority (62%) own land between 300-600 square meters, 25.4% hold 600-800 square meters, and 7.04% own 800-1000 square meters. A smaller portion (5.63%) own land exceeding 1000 square meters.

Table 5 displays the percentage distribution of the Land Possession certificate (LPC) constructed and the year of construction across two districts, East Siang and Lower Subansiri.

Table 5: Percentage Distribution of LPC Constructed and Year of Construction

District	LPC constructed				Year of LPC Constructed					
	Yes		No		Before 2016		After 2016		Total	
	N	%	N	%	N	%	N	%	N	%
East Siang	46	64.8	0	0	7	9.86	39	54.93	46	64.79
Lower Subansiri	25	35.2	0	0	7	9.86	18	25.35	25	35.21
Total	71	100	0	0	14	19.72	57	80.28	71	100.0

In East Siang and Lower Subansiri, all respondents have constructed Land Possession Certificates (LPCs). In East Siang, 9.86% were built before 2016, while 54.93% were constructed afterward. In Lower Subansiri, 9.86% were constructed before 2016, and 25.35% after. Overall, 100% of respondents across both districts have LPCs, with 19.72% built before 2016 and 80.28% after, indicating a rise in LPC construction post-2016.

Table 6 illustrates the percentage distribution of cadastral map construction and the year of construction across East Siang and Lower Subansiri districts.

Table 6: Percentage Distribution of Cadastral Map Constructed and Year of Construction

District	Cadastral Map Constructed				Year of Cadastral Map Constructed			
	Yes		No		Before 2016		After 2016	
	N	%	N	%	N	%	N	%
East Siang	0	0	46	64.8	0	0	0	0
Lower Subansiri	0	0	25	35.2	0	0	0	0
Total	0	0	71	100	0	0	0	0

In East Siang district and Lower Subansiri districts, there is no cadastral maps have been constructed. Overall, across both districts, none of the respondents (0%) have a cadastral map constructed.

Table 7: Difference between Spatial Records and Textual Land Records

District	**Difference between spatial and textual Records**				**If yes then how much (in %)**									
	Yes		**No**		**0-10**		**10-20**		**20-50**		**50-80**		**Above 80**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	2	2.8	44	62.0	1	20	0	0	1	20	0	0	0	0
Lower Subansiri	3	4.2	22	31.0	1	20	2	0	0	0	0	0	0	0
Total	5	7.0	66	93.0	2	40	2	40	0	0	0	0	0	0

In East Siang, 2.8% of respondents reported discrepancies between spatial and textual records, with variations in the 0-10% and 20-50% ranges, while 62% noted no differences. In Lower Subansiri, 4.2% identified discrepancies, primarily within the 0-10% and 10-20% ranges, while 31% reported consistency. Overall, 7% of respondents across both districts observed discrepancies, with most falling within the 0- 20% range. The majority, however, reported no significant differences between the records. Addressing these inconsistencies would enhance the reliability of land records.

Table 8 presents the status of on-ground partition and demarcation of land records across the districts of East Siang and Lower Subansiri.

Table 8: Status of On-Ground Partition and Demarcation of Land Record

District	Whether on-ground Partition and Demarcation happened or not				If yes then when							
	Yes		No		>6 months ago,		6-12 months		<12 months		others	
	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	34	47.9	12	16.9	0	0	10	14.1	32	45.1	4	5.6
Lower Subansiri	6	8.5	19	26.8	0	0	0	0	0		25	32.2
Total	40	56.3	31	43.7	0	0	10	14.1	32	45.1	29	40.8

In East Siang, 47.9% of respondents reported that partition and demarcation have occurred, while 16.9% said they have not. Among those confirming the process, 14.1% noted demarcation occurred 6-12 months ago, and 45.1% within the last year. In Lower Subansiri, only 8.5% confirmed partition and demarcation, with 26.8% indicating none has taken place. No demarcation occurred in the last 6-12 months, but 32.2% reported it happened earlier. Overall, 56.3% of respondents across both districts confirmed that partition and demarcation occurred, with 40.8% stating it happened years ago.

Table 9 presents the status of land ownership across the districts of East Siang and Lower Subansiri, categorized into four types: individual, joint, multiple, and community ownership, along with a ‘Don't Know’ category.

Table 9: Status of Type of Land Ownership

District	Individual Ownership		Joint Ownership		Multiple Ownership		Community Ownership		Don’t Know	
	N	%	N	%	N	%	N	%	N	%
East Siang	46	64.8	0	0	0	0	0	0	0	0
Lower Subansiri	25	35.2	0	0	0	0	0	0	0	0
Total	71	100	0	0	0	0	0	0	0	0

In East Siang, 64.8% of respondents reported having individual ownership of land, while in Lower Subansiri, this figure was 35.2%. Notably, no respondents in either district reported joint, multiple, or community ownership of land. Overall, across both districts, 100% of

respondents indicated individual ownership of land, with no reports of joint, multiple, or community ownership.

Table 10 presents the status of the Updation of the Land Possession Certificates (LPC) across the districts of East Siang and Lower Subansiri.

Table 10: Status of Updation of Record of Right (LPC)

District	Updation of LPC				If no, since how long ago							
	Yes		No		<6 month		6-12 months		More than 12 months ago,		others	
	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	42	59.2	4	5.6	0	0	0	0	4	5.6	0	0
Lower Subansiri	0	0	25	35.2	0	0	0	0	3	4.7	22	32.0
Total	42	59.2	29	40.8	0	0	0	0	7	9.8	22	32.0

In East Siang, 59.2% of respondents reported that the Land Possession Certificate (LPC) has been updated, while 40.8% indicated it has not. Among those with no updates, 5.6% noted it has been over 12 months since the last update. In Lower Subansiri, no respondents reported LPC updates, but 4.7% mentioned the last update occurred over 12 months ago. Overall, 59.2% of respondents across both districts reported LPC updates, with no updates in the last 6-12 months and a small percentage indicating the last update was more than a year ago.

Table 11 provides an overview of the possession of non-agricultural land, including houses and flats, across the districts of East Siang and Lower Subansiri.

Table 11: Possession of Non-Agriculture Land (including house/flats)

District	Owner of Non-Agriculture Land				If yes, Land Holding Size									
	Yes		No		> 1.00 hectare		1.00-2.00 hectare		2.00-3.00 hectare		3.00-4.00 hectare		4.00 hectare and above	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
East Siang	46	64.8	0	0	46	64.8	0	0	0	0	0	0	0	0
Lower Subansiri	22	31.0	3	4.2	24	33.8	0	0	0	0	0	0	1	1.4
Total	68	95.8	3	4.2	70	98.6	0	0	0	0	0	0	1	1.4

In East Siang, all the respondents reported owning non-agricultural land. Among those who own non-agricultural land, 64.8% have land holdings of less than 1 hectare. In Lower Subansiri, 31% of respondents reported owning non-agricultural land, while 4.2% confirmed that they do not own such land. Of those who own non-agricultural land, 33.8% have holdings of less than 1 hectare, with no individuals reporting holdings in the higher ranges, except for 1.4% who have holdings above 4 hectares.

Table 12: Status of Land Ownership (indicating whether any built-up area coinciding with the Land Records)

District	**Land Ownership details coinciding with any built-up area**			
	Yes		**No**	
	N	%	N	%
East Siang	46	64.8	0	0
Lower Subansiri	21	29.6	4	5.64
Total	67	94.4	4	5.64

Overall, across both districts, 70.4% of respondents affirm that their land ownership details coincide with built-up areas, while 29.6% indicated that they do not. This highlights a significant difference in the correlation between land records and built-up areas, particularly in Lower Subansiri.

Table 13 evaluates whether there is a difference between on-ground status and land record status concerning the classification of land parcels across the districts of East Siang and Lower Subansiri.

Table 13: Difference between on-ground status and land record status concerning the classification of land parcels

District	Type of Response			
	Yes		No	
	N	%	N	%
East Siang	0	0	46	64.8
Lower Subansiri	0	0	25	35.2
Total	0	0	71	100

Across both districts, none of the respondents (0%) reported the difference between on-ground status and land record status regarding the classification of land parcels. Table 14 examines the on-ground use of land across the districts of East Siang and Lower Subansiri, categorizing the responses based on land use patterns. It differentiates between agricultural use, non-agricultural use, and others.

Table 14: On-ground Use of Land

District	If yes, Land Use Pattern					
	Agriculture use		Non-agricultural use		Others	
	N	%	N	%	N	%
East Siang	1	1.4	43	63.4	0	0.0
Lower Subansiri	3	4.2	13	18.3	9	12.7
Total	4	5.6	58	81.7	9	12.7

In East Siang, only 1.4% of respondents reported land use for agricultural purposes, while 63.4% indicated non-agricultural use. In Lower Subansiri, 4.2% reported agricultural land use, and 18.3% noted non-agricultural use, with 12.7% identifying other categories. Overall, across both districts, 5.6% of respondents reported agricultural land use, 81.7% indicated non-agricultural use, and 12.7% fell under "others," demonstrating a predominant trend towards non-agricultural land use in the region.

Table 15 reflects data on how well Land Possession Certificates (LPCs) are capturing the use of non-agricultural land in two districts: East Siang and Lower Subansiri.

Table 15: Whether LPC capturing use of Non-Agricultural Land

District	LPC capturing non-agriculture land use				If yes (Extent in Ha)					
	Yes		No		0-1		1-2		2-3	
	N	%	N	%	N	%	N	%	N	%
East Siang	46	64.8	0	0	0	0	0	0	0	0
Lower Subansiri	23	32.4	2	2.8	8	61.5	4	30.8	1	7.7
Total	69	97.02	2	2.8	8	61.5	4	30.8	1	7.7

Out of the total responses, 46 (64.8%) stated that LPCs capture non-agricultural land use, and none indicated that LPCs fail to capture this. 23 respondents (32.4%) noted that LPCs capture non-agricultural land use, while 2 respondents (2.8%) mentioned that they do not. Table 16 evaluates the status of differences between the on-ground spatial records and textual records concerning land locations in the districts of East Siang and Lower Subansiri.

Table 16: Difference in on-ground spatial record and textual record in terms of location

District	On-ground status of Spatial Record				If there is a difference, then the error in LPC %	
	Yes		No			
	N	N	N	%	N	%
East Siang	46	64.8	0	0	7	9.85
Lower Subansiri	25	35.2	0	0	0	0
Total	71	100	0	0	7	9.85

In East Siang and Lower Subansiri, no respondents were indicating a difference in either the on-ground spatial records or the textual records, suggesting a uniformity between the two types of records. However, 9.85% of respondents provided data indicating some form of error in LPC, although it does not specify the nature of it.

Table 17 assesses the status of encumbrances on land in the districts of East Siang and Lower Subansiri. It categorizes responses based on whether encumbrances exist if they are mentioned in the Land Possession Certificates (LPC), and whether any encumbrances are incorrectly mentioned.

Table 17: Status of encumbrance on land

District	Encumbrance on land		Are those mentioned in LPC		Any wrongly Mentioned Encumbrance	
	Yes	No	Yes	No	Yes	No
East Siang	0	46	0	0	0	0
Lower Subansiri	2	23	1	1	0	2
Total	2	69	1	1	0	2

Overall, across both districts, 2.8% of respondents reported encumbrances on land, with 97.2% confirming no encumbrances exist. Among the few encumbrances noted in Lower Subansiri, half were mentioned in the LPC, highlighting a generally accurate representation of land encumbrances in the records.

Table 18 examines the benefits availed from government schemes in the districts of East Siang and Lower Subansiri, specifically focusing on the Pradhan Mantri Awas Yojana (PMAY).

Table 18: Whether you have availed any benefit from the govt. scheme

District	Availed any Benefit from the Govt. Scheme		If yes, specify the scheme name PMAY (Pradhan Manti Awas Yojna)
	Yes	No	
East Siang	1	45	PMAY
Lower Subansiri	1	24	PMAY
Total	2	69	PMAY

In East Siang, only 2.2% (1 out of 46) of respondents reported having availed benefits from government schemes. Whereas the sole scheme mentioned is PMAY. In Lower Subansiri, 4.0% (1 out of 25) of respondents also reported availing benefits from PMAY, while 96.0% (24 out of 25) stated they have not benefited from any government scheme. Overall, across both districts, only 2.8% of respondents availed benefits from government schemes, specifically PMAY, indicating limited access or participation in government initiatives aimed at assisting. The data suggests a need for increased awareness or outreach regarding available schemes in these regions.

2.2 Assam

This section presents a village-level analysis based on real-time mirror checks as a methodological approach, focusing on two villages: Karyani in Nagaon and Sukanjhora in Kokrajhar. The analysis is structured around six key indicators: ownership, partition, land use patterns, discrepancies between on-ground status and land records, encumbrances, and access to government schemes.

Table 19: Percentage Distribution of Land Ownership based on Social Category (Including Homestead land)

	UR		OBC		SC		ST		Total
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Nagaon	48	47.06	50	49.02	4	3.92	0	0	102
Kokrajhar	0	0	7	7	0	0	93	93	100
Total	48	23.76	57	28.21	5	2.47	93	46.03	202

Table 19 shows the percentage distribution of land ownership based on social categories in Nagaon, where out of 102 respondents, 48 (47.08%) are unreserved, 50 (49.02%) belong to Other Backward Classes (OBC), and 4 (3.92%) are Scheduled Castes (SC). The majority of respondents are male, with women holding a minor share in land ownership, reflecting traditional gender roles. Although women may be listed as landowners, actual control and decision-making often remain with male family members. Land is sometimes transferred to women for easier transactions, especially when men migrate for work.

The study reveals that the status of operational land holdings has been significantly confined to marginal land holding, that is, below 1 hectare. It has been found that the land is usually fragmented and divided into smaller parts within the families leading to smaller operational land holdings. This trend has been observed in both Nagaon and Kokrajhar districts.

Table 20: Social Category Wise classification of Operational Land holding, Nagaon district, Assam

		Marginal (Below 1 ha)		**Small (1-2 ha)**		**Semi Medium (2-3 ha)**		**Medium (4-10)**		**Large (above 10 ha)**	
District	Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Nagaon	**UR**	30	43.48	0	0.00	0	0.00	11	50.00	0	0.00
	OBC	37	53.62	0	0.00	0	0.00	9	40.91	0	0.00
	SC	2	2.90	0	0.00	0	0.00	2	9.09	0	0.00
	ST	0	0	0	0.00	0	0.00	0	0.00	0	0.00
	Total	69	100	0	0.00	0	0.00	22	100	0	0.00

In Nagaon, majority of the Operational Land holdings constitute of marginal (below 1ha) and medium (4-10 ha) landholding with marginal holdings being the most prevalent. Table 20 presents the Social Category wise classification of Operation land holdings in Nagaon. The table shows that OBC (53.62%) owns majority of Marginal Landholding followed by Unreserved Landowners (43.48%) and Schedule Caste (2.90%).

Table 21: Social Category Wise classification of Operational Land holding, Kokrajhar district, Assam

		Marginal (Below 1 ha)		Small (1-2 ha)		Semi Medium (2-3 ha)		Medium (4-10)		Large (above 10 ha)	
District	Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Kokrajhar	**UR**	0	0	0	0.00	0	0.00	0	0.0	0	0.00
	OBC	6	8.96	0	0.00	1	100	0	0.00	0	0.00
	SC	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	ST	61	91.04	0	0.00	14	0.00	4	100	1	100
	Total	**67**	**100**	**0**	**0.00**	**15**	**100**	**4**	**100**	**1**	**100**

Table 21 presents the social category wise classification of Operational Land holding in Kokrajhar district of Assam. In Kokrajhar, around 67% (N=67) of the respondents owns marginal land holdings (below 1 ha.). Among these 67 respondents 91.04% land holders belong to SC category, while only 8.96% of the respondents belong to the OBC category. 15% of the land holdings fall under the semi-medium category while 4% of land belongs to the medium operation land holding category and only 1 land parcel belonged to large operational land holding.

Table 22: Percentage distribution of Holding Homestead Land in Assam

	Homestead Land				Size of Homestead									
Districts	**Yes**		**No**		**Less than 1.00 hectare**		**1.00-2.00 hectare**		**2.00-3.00 hectare**		**3.00-4.00 hectare**		**4.00 hectare and above**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Nagaon	102	100.00	0	0.00	97	95.08	0	0.00	0	0.00	4	3.92	1	0.98
Kokrajhar	100	100.00	0	0.00	89	89.00	0	0.00	2	2.00	0	0	0	0.00
Total	202	100.00	0	0.00	161	79.70	0	0.00	2	2.00	4	1.98	1	0.50

Table 22 data on homestead land ownership and the size distribution of homestead land in Nagaon and Kokrajhar districts. In both districts, 100% of respondents own homestead land. All 102 respondents in Nagaon and 100 respondents in Kokrajhar reported ownership of homestead land. Also, in both district there is predominance of small homestead landholdings (below 1ha) in both Nagaon and Kokrajhar.

Table 23: Percentage Distribution of RoR constructed and Year of Construction

	RoR constructed				Year of RoR Constructed			
	Yes		**No**		**Before 2016**		**After 2016**	
	N	%	N	%	N	%	N	%
Nagaon	102	100.00	0	0	64	62.75	38	37.25
Kokrajhar	100	100.00	0	0	90	90.00	10	10.00
Total	202	100.00	0	0	154	76.23	48	23.76

Table 23 represent the construction of RoR and year of construction. The table indicates that, in both districts, RoR is constructed for each land parcels. In Nagaon, 62.75%(N=64) of land parcels were constructed before 2016 while 37.25% (N=38) were constructed after 2016. In Kokrajhar, 90% (N=90) of RoR was constructed before 2016 while only 10% (N=10) was constructed after 2016.

Table 24: Percentage Distribution and Year of Cadastral map Construction

	Cadastral map constructed				Year of cadastral map Constructed			
	Yes		No		Before 2016		After 2016	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Nagaon	102	100.00	0	0	102	100.00	0	0.00
Kokrajhar	100	100.00	0	0	100	100.00	0	0.00
Total	**202**	**100.00**	**0**	**0**	**202**	**100.00**	**0**	**0.00**

In Nagaon, the Cadastral Map was last surveyed in 1968, and in Kokrajhar in 2008, with updates on partitions not reflected on the original maps but documented in land records. All cadastral maps, primarily showing unpartitioned land parcels, were constructed before 2016.

Table 25: Status of type of Ownership, Assam

District	**Individual**		**Joint Ownership**	
	N	%	N	%
Nagaon	17	16.67	85	83.33
Kokrajhar	81	81.00	19	19.00
Total	98	48.51	104	51.49

Out of 102 land parcels 85(83.33%) land parcel had joint ownership and only 17(16.67%) land parcels have individual ownerships. The presence of joint ownership is the result of inheritance law where land is passed down through generations without being formally divided, leading to multiple family members sharing ownership rights of the same land parcel.

Table 26: Possession of Non-Agricultural Land (including house and flats)

	Owner of Non-Agriculture Land				Size of Homestead									
	Yes		No		Less than 1.00 hectare		1.00-2.00 hectare		2.00-3.00 hectare		3.00-4.00 hectare		4.00 hectare and above	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Nagaon	102	100.00	0	0.00	72	70.59	0	0.00	0	0.00	4	3.92	1	0.98
Kokrajhar	100	100.00	0	0.00	89	89.00	0	0.00	0	0.00	0	0	0	0.00
Total	202	100.00	0	0.00	161	79.70	0	0.00	0	0.00	4	1.98	1	0.50

Table 26 represents the possession of non-agricultural landholding including houses and flats. In both the districts, majority of non-agricultural lands fall under the small landholding owing to 70.59% in Nagaon and 89% in Kokrajhar. In Nagaon however, larger non-agricultural land parcels were also found where 3.92% belonged to 3.4 hectare and 0.98% of land parcels was above 4 hectares.

Table 27: Difference in on ground status and Land Record Status in terms of ownership Details

District	**Difference in On-Ground Status and Land Record Status**			
	Yes		No	
	N	%	N	%
Nagaon	24	23.53	78	76.47
Kokrajhar	24	24.00	76	76.00
Total	48	23.76	154	76.24

In Nagaon, the extent of variation between on ground and RoR was 23.53% (24 out of 102 land parcels). Similarly, in Kokrajhar the extent of variation was 24% (24 out of 100 Land parcels). In both the districts the extent of variation is quite similar. Though in both the districts the ownership details are fairly updated, however, there could a scope of improvement if residents are informed regarding the importance of ownership updation in land records.

Table 28: Status of Updation of Partition and Demarcation of Land Record Action

District	Partition and Demarcation Happened						Updation in Textual record				Updation in Spatial Records			
	Yes		No		Total		Yes		No		Yes		No	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Nagaon	47	46.08	55	53.92	102	50.5	29	61.70	18	38.29	29	23.43	73	71.5
Kokrajhar	48	48	52	52	100	49.5	38	79.16	10	20.83	38	38.00	62	62.00
Total	95	47.02	107	52.97	202	100	67	70.52	28	29.47	67	33.16	135	66.83

Table 28 shows that In Nagaon, out of 102 land parcels, 47 (46.08%) underwent partition or demarcation. Among these, 29 parcels (61.70%) had updated partition in both textual records, while 18 parcels (38.29%) did not have updated records. Similarly, In Kokrajhar, out of 100 land parcels, 48 (48%) underwent partition or demarcation. Of these, 38 parcels (79.16%) had updates in textual land records, while 10 parcels (20.83%) did not have the records updated.

Table 29: Status of Encumbrance (Homestead and Agricultural land), Assam

District	Encumbrance on land				Are those mentioned in RoR		Any wrongly mentioned Encumbrance	
	Yes		No		Yes	No	Yes	No
	N	%	N	%				
Nagaon	1	0.97	101	99.02	0	1	0	102
Kokrajhar	4	4	96	96	4	0	0	100
Total	5	2.47	197	97.52	4	1	0	202

Table 29 indicates that land encumbrances in both Assam districts are minimal, with only 2.47% of respondents reporting indebtedness, primarily through personal loans from family and friends. In Nagaon, there was only one case of encumbrance related to a legal dispute not documented in the Record of Rights (RoR). In Kokrajhar, four cases were identified.

Table 30: Govt. schemes availed

District	Availed any Benefit from the Govt. Scheme				If yes, specify the scheme name
	Yes		No		
	N	%	N	%	
Nagaon	33	32.35	68	66.67	PM Kishan
Kokrajhar	31	31.00	69	69.00	PM Kishan
Total	64	31.68	137	67.82	

Table 30 represents the percentage distribution of respondents who have availed government schemes on land. It has been observed that 32.35% of respondents in Nagaon and 31% respondents in Kokrajhar have availed the PM Kishan scheme on agricultural land. This reflects that agriculture remains the backbone of economic activities and livelihood sustenance in both the districts.

2.3 Manipur

The evaluation study of quality of land records in the surveyed villages in Manipur reflects diverse trends in the ownership, possession, extent, classification, encumbrance status of land including agricultural as well as homestead land owned by respondents i.e. land owners across the selected study area of Bishnupur and Imphal West districts in Manipur.

Table 31: Study Sample of Manipur

District	Tehsil	Gram Panchayat	Villages	Study Sample
Bishnupur	Nambol, Oinam and Ningthoukong.	Nambol, Oinam and Ningthoukong.	Khongkam, Chirai and Thinungei.	205
Imphal West	Central-II, Mayang Imphal and Konthoujam.	Central-II, Mayang Imphal and Konthoujam	Sorokhaibam, Chingamathak and Khajiri.	164
Total	6	6	6	369

Table 31 depicts the study are including; tehsil, gram panchayat and villages that were covered while conducting the study in the state of Manipur.

Table 32: Social Category-wise Distribution of Land Ownership in Manipur (Including Homestead Land)

District	UR		OBC		SC		ST		Total	
	N	%	N	%	N	%	N	%	N	%
Bishnupur	117	52.94	84	58.33	4	100	0	0.00	205	55.56
Imphal West	104	47.06	60	41.67	0	0.00	0	0.00	164	44.44
Total	221	100.00	144	100.00	4	100.00	0	0.00	369	100.00

Overall, the data indicates that land ownership in the study areas of both the districts is predominantly held by UR and OBC groups, highlighting socio-economic disparities among different social categories, particularly the lack of representation for SC and ST groups.

Table 33: Distribution of Respondents Possessing Agricultural Land Holding

District	Yes		No		Total	
	N	%	N	%	N	%
Bishnupur	73	53.28	132	56.90	205	55.56
Imphal West	64	46.72	100	43.10	164	44.44
Total	137	100	232	100	369	100

Out of 369 respondents interviewed, all are landowners with homestead land; however, only 137 own both agricultural and homestead land, while 232 own only homestead land (Table 2). This trend indicates a decline in agricultural land ownership, raising concerns about the agricultural sector's potential, socio-economic stability, and food security for households that may depend on alternative livelihoods.

Table 34: Social Category-wise Classification of Operational Land Holding in Manipur

District	Social Category	Marginal (Below 1 ha)		Small (1 -2 ha)		Semi-medium (2-4 ha)		Medium (4-10 ha)		Large (Above 10 ha)	
		N	%	N	%	N	%	N	%	N	%
Bishnupur	UR	37	58.73	4	44.44	1	100	0	0.00	0	0.00
	OBC	25	39.68	5	55.56	0	0.00	0	0.00	0	0.00
	SC	1	1.59	0	0.00	0	0.00	0	0.00	0	0.00
	ST	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Total	63	100	9	100	1	100	0	0.00	0	0.00
Imphal West	UR	26	48.15	7	77.78	1	100	0	0.00	0	0.00
	OBC	28	51.85	2	22.22	0	0.00	0	0.00	0	0.00
	SC	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	ST	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	Total	54	100	9	100	1	100	0	0.00	0	0.00

The data underscores a significant prevalence of marginal land holdings across social categories namely UR and OBC, revealing limited access to larger land parcels as well as almost negligible representation of SC and ST land owners even for the marginal land ownership. This highlights the challenges faced by marginal landholders (UR and OBC) and more importantly, SC and ST people, in achieving economic stability emphasizing the need for policies that support marginal farmers as well as the deprived social category i.e. SC and ST.

Table 35: Distribution of respondents having ownership of homestead land in terms of area of homestead land

District	Below 1 ha		1 -2 ha		2-4 ha		4-10 ha		Above 10 ha		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Bishnupur	201	55.52	4	57.14	0	0.00	0	0.00	0	0.00	205	55.56
Imphal West	161	44.48	3	42.86	0	0.00	0	0.00	0	0.00	164	44.44
Total	362	100	7	100	0	0.00	0	0.00	0	0.00	369	100

There are no respondents in either district who report not owning homestead land, highlighting a complete presence of ownership among the surveyed individuals. This suggests that homestead land ownership is almost universal in the sample, reflecting the importance of such land for housing in the region. Moreover, homestead land ownership in terms of the extent of land shows that 98.1% of the land owners have below than 1 hectare of homestead land. Notably, there are no respondents owning more than 2 hectare of homestead lands.

Table 36: Construction of Textual Land Records and Year of Construction ROR

District	Yes		No		Total		Before 2016		After 2016	
	N	%	N	%	N	%	N	%	N	%
Bishnupur	205	55.56	0	0.00	205	55.56	141	66.82	64	40.51
Imphal West	164	44.44	0	0.00	164	44.44	70	33.18	94	59.49

Total	369	100	0	0.00	369	100	211	100	158	100

All the land owners have their textual land records. However, out of total 369 surveyed land owners, 211 have done the computerisation of their ROR before 2016 and 158 land owners constructed their computerised ROR after 2016 (Table 6). This reflects the fact that computerisation of textual records of land in the study area have been done to the significant extent.

Table 37: Spatial Records and Year of construction of Spatial Records

District	Yes		No		Total		Before 2016		After 2016	
	N	%	N	%	N	%	N	%	N	%
Bishnupur	205	55.56	0	0.00	205	55.56	205	55.56	0	0.00
Imphal West	164	44.44	0	0.00	164	44.44	164	44.44	0	0.00
Total	369	100	0	0.00	369	100	369	100	0	0.00

Table 37 shows that all landowners have cadastral maps constructed, but since the last survey was in 1986, all spatial records were created before 2016, reflecting non-partitioned land parcels from that time. Changes in land size due to partition have not been updated in the digital cadastral maps, resulting in discrepancies between spatial and textual records for only 25 landowners in the study area.

Table 38: Distribution of Respondents by their Land Partition and Demarcation Happened to the Land Parcel

District	Yes		No		Total	
	N	%	N	%	N	%
Bishnupur	118	57.28	87	53.37	205	55.56
Imphal West	88	42.72	76	46.63	164	44.44
Total	206	100	163	100	369	100

The data reveals insights into land partition and demarcation among land owners in the study area of Bishnupur and Imphal West districts. In the study area of Bishnupur, 57.28% of respondents reported that partition of their land has been done, while 53.37% were found to be in the "No" category. Conversely, in the study area of Imphal West, a lower percentage, 42.72%, acknowledged partition, with 46.63% indicating the respondents in the “No" category.

Table 39: Whether Record of Right (RoR) Format able to capture Non-Agricultural Land Uses in Detail (e.g. in- Built Up Areas, Ownership of Flats or Individual Floors)

District	Owner of Non-Agricultural Land						Whether RoR Format capturing Non-agricultural land uses in detail (e.g. in- built up areas, ownership of flats or individual floors)					
	Yes		No		Total		Yes		No		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Bishnupur	205	55.56	0	0.0	205	55.56	205	55.56	0	0.0	205	55.56
Imphal West	164	44.44	0	0.0	164	44.44	164	44.44	0	0.0	164	44.44
Total	369	100	0	0.0	369	100	369	100	0	0.0	369	100
Distribution of Respondents by the Size of Non-Agricultural Land Holding												
District	**Below 1ha**		**1-2 ha**		**2-4 ha**		**4-10 ha**		**10 ha above**		**Total**	

	N	%	N	%	N	%	N	%	N	%	N	%
Bishnupur	201	55.52	4	57.14	0	0.00	0	0.00	0	0.00	205	55.56
Imphal West	161	44.48	3	42.86	0	0.00	0	0.00	0	0.00	164	44.44
Total	362	100	7	100	0	0.00	0	0.00	0	0.0	369	100.0

The study area includes 369 landholders with non-agricultural holdings in the form of homestead land. The Record of Rights (RoR) provides information only on homestead land, while agricultural land is classified into three categories based on yield: Anganphou, Phourel, and Taothabi. In Bishnupur, 201 landholders own less than 1 hectare of non-agricultural land, with 4 owning between 1 and 2 hectares. In Imphal West, 161 landholders have less than 1 hectare, and 3 hold non-agricultural land between 1 and 2 hectares.

Table 40: Distribution of Respondent by their type of Land Ownership

District	**Individual**		**Joint Ownership**		**Multiple Ownership**		**Community Ownership**	
	N	%	N	%	N	%	N	%
Bishnupur	150	58.59	55	48.67	0	0.00	0	0.00
Imphal West	106	41.41	58	51.33	0	0.00	0	0.00
Total	256	100	113	100	0	0.00	0	0.00

The distribution of land ownership in the study area indicates a strong preference for individual and joint ownership. In Bishnupur, out of 205 landowners, 150 have individual ownership and 55 hold joint ownership. Similarly, in Imphal West, 106 out of 164 landowners have individual ownership, while 58 have joint ownership (Table 14). Notably, there were no reports of multiple or community ownership in either district, highlighting a concentration of land ownership in individual or joint formats.

Table 41: Status of Updation in Record of Right (RoR)

District	**Updation of RoR**					
	Yes		**No**		**Total**	
	N	%	N	%	N	%
Bishnupur	203	55.92	2	33.33	205	55.56
Imphal West	160	44.08	4	66.67	164	44.44
Total	363	100	6	100	369	100

The data on the status of updation in the Record of Rights (RoR) indicates a significant prevalence of updated records of rights among the land owners. In the study area of Bishnupur, out of 205 land owners, 203 have updated their RoR while only 2 land owners have not done updation in their RoR. Conversely, in the study area of Imphal West, out of 164 land owners, 160 have updated their RoR while only 4 land owners were found to have un-updated RoR of their land holdings.

Table 42: Classification of land parcel mentioned in the Record of Right (RoR)

District	**Classification of Land Parcel mentioned in RoR**				**If yes, classification is mentioned in Record of right (RoR)**							
	Yes		No		Agriculture		Non-agricultural		Others		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Bishnupur	205	55.56	0	0.00	73	53.28	205	55.56	0	0.00	205	55.56
Imphal West	164	44.44	0	0.00	64	46.72	164	44.44	0	0.00	164	44.44
Total	369	100	0	0.00	137	100	369	100	0	0.00	369	100.0

The classification of land parcels in the Record of Rights (RoR) reveals the two broader categories of land parcel i.e. agricultural land and homestead land. In the agricultural land class, land has been categorised into three categories according to the yield, namely, Anganphou, Phourel and Taothabi. In case of non-agricultural land, RoR shows only homestead land as non-agricultural land.

Table 43: Status of On-ground use of Land Parcel and the One Stated in ROR

District	Whether there is difference in on-ground use of land parcel and the one stated in ROR				Whether RoR format updated in terms of Non-Agricultural Land Use in Details			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Bishnupur	0	0.00	205	55.56	205	55.56	0	0.00
Imphal West	0	0.00	164	44.44	164	44.44	0	0.00
Total	0	0.00	369	100.0	369	100.0	0	0.00

Table 43 indicates that there are no discrepancies between the on-ground land use and the Record of Rights (RoR) for all 369 landholders in Bishnupur and Imphal West. All landowners (100%) confirmed that the documented land use matches the actual use, reflecting strong transparency and effective record-keeping practices in these districts.

Table 44: Distribution of Respondents on their status of Indebtedness (Agricultural and Homestead Land

District	Yes		No		Total	
	N	%	N	%	N	%
Bishnupur	15	75.00	190	54.44	205	55.56
Imphal West	5	25.00	159	45.56	164	44.44
Total	20	100	349	100	369	100

Table 44 presents the indebtedness status of respondents in Bishnupur and Imphal West districts of Manipur regarding agricultural and homestead land. In Bishnupur, 15 out of 205 respondents (7.5%) reported being indebted, while 190 (54.44%) were not. In contrast, only 5 respondents (25%) in Imphal West indicated indebtedness, with 159 (45.56%) confirming they were not. This highlights a significantly higher level of indebtedness in Bishnupur, potentially linked to economic conditions and reliance on agriculture, while Imphal West's lower levels may reflect urbanization and more diversified livelihoods.

Table 45: Distribution of Respondents by the status of encumbrance mentioned in RoR

District	Yes		No		Total	
	N	%	N	%	N	%
Bishnupur	15	75.00	190	54.44	205	55.56
Imphal West	5	25.00	159	45.55	164	44.44
Total	20	100	349	100	369	100

Table 45 shows the status of encumbrances in the Records of Rights (RoR) among landowners in Bishnupur and Imphal West, Manipur. In Bishnupur, 15 out of 205 respondents (7.3%) reported encumbrances, while 190 (54.44%) indicated none. In Imphal

West, 5 landowners noted encumbrances in their RoR, with 159 (45.56%) stating they had none. Overall, 20 of the 369 landowners across both districts have encumbrances in the form of mortgages with banks and cooperatives.

Table 46: Distribution of Respondents by Type of Govt. Schemes Availed in the Study area

District	PMAY-G		PM-KISHAN		Not Availed any Schemes		Total	
	N	%	N	%	N	%	N	%
Bishnupur	10	66.67	8	66.67	187	54.68	205	55.56
Imphal West	5	33.33	4	33.33	155	45.32	164	44.44
Total	15	100	12	100	342	100	369	100

Table 46 details the government scheme benefits among landowners in Bishnupur and Imphal West. In Bishnupur, 10 respondents availed the Prime Minister Awas Yojana-Gramin (PMAY-G) and 8 the PM-KISAN scheme, while a majority of 187 reported not using any schemes. In Imphal West, 5 respondents benefited from PMAY-G and 4 from PM-KISAN, with 155 indicating no participation in government schemes. This highlights the need for increased awareness of available government programs among landholders.

2.4 Mizoram

Socio-Demographic Profile of Respondents in the Study Area

To carry out the survey, a sample size of 200 and 90 land parcels was selected for detailed assessment within Tacchip and Zotlang villages respectively. The selection of the village was based on a combination of factors to ensure a comprehensive and representative analysis. The village's population size was considered to ensure that the sample was representative of the local community's landholding patterns. The population density was evaluated to determine the pressure on land and the complexity of land management in the village. From a socio-demographic perspective of the two districts, it was observed that almost 100% (N=200) of respondents from the Aizawl district belonged to the ST category, and 98.88% (89; N=90) also belonged to the ST category in the Champhai district with only 1.12% (1; N=90) respondent from the general category.

The following table portrays the variation in the percentage of agricultural and homestead land observed in the sample villages of the respective study areas; Aizawl and Champhai.

Table 47: Distribution of Respondents Owning Agricultural Land and Homestead Land (Aizawl and Champhai)

District	Agricultural Land				Homestead Land				Total	
	Yes		No		Yes		No			
	N	%	N	%	N	%	N	%	N	%
Aizawl (Tachhip)	61	30.50	139	69.5	176	88.00	24	12.00	200	100.0
Champhai (Zotlang)	16	17.78	74	82.22	87	96.67	3	3.33	90	100.0
Total	77	26.55	213	73.45	263	90.69	27	9.31	290	100.0

Table 47 depicts that Agricultural land ownership is significantly lower in Champhai (17.78%) compared to Aizawl (30.5%). This suggests that agricultural land ownership is less common in Champhai, potentially due to differences in the local economy, terrain, or population density. Homestead land ownership is notably high in both districts, but Champhai has a higher percentage (96.67%) than Aizawl (88%). This implies that, despite low agricultural land ownership, respondents in Champhai are more likely to own the land on which their homes are built. High homestead land ownership across both villages shows a strong sense of housing stability, especially in Champhai. The data suggests that respondents in both Aizawl and Champhai have relatively high homestead land ownership levels, reflecting housing stability. However, the low agricultural land ownership may indicate challenges related to agricultural expansion, access to arable land, or shifts toward non-agricultural sectors in these regions.

Table 48 presents the distribution of Record of Right (RoR) constructions in two districts, Aizawl and Champhai, along with the timeline of when these RoRs were constructed (before or after 2016). In both Aizawl and Champhai, 100% of the respondents have constructed RoRs, indicating complete RoR coverage in both districts.

Table 48: Distribution of Record of Right (RoR) Constructed and Year of Construction

District	RoR constructed						Year of RoR Constructed					
	Yes		No		Total		Before 2016		After 2016		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl	200	100.0	0	0.0	200	100.0	2	1.0	198	99.0	200	100.0
Champhai	90	100.0	0	0.0	90	100.0	53	58.89	37	41.11	90	100.0
Total	290	100.0	0	0.0	290	100.0	55	18.97	235	81.03	290	100.0

In Aizawl, the overwhelming majority (99%) of RoRs were constructed after 2016, while only 1% (2 out of 200) were constructed before 2016. In Champhai, 58.89% (53 out of 90) of RoRs were constructed before 2016, while 41.11% (37 out of 90) were constructed after 2016. 81.03% of RoRs were constructed after 2016, indicating a recent surge in land record formalization efforts. 18.97% of RoRs were constructed before 2016, showing a smaller portion of older records. Both districts have achieved 100% RoR coverage, with most records constructed after 2016, suggesting that recent government initiatives have played a significant role in the formalization and modernization of land records, particularly in Aizawl. Champhai, on the other hand, appears to have had a stronger earlier focus on RoR construction, with a balanced distribution of older and newer records.

Table 49 below details the status of cadastral maps (spatial land records) constructed in two districts, Aizawl and Champhai, and provides a breakdown of when these maps were constructed (before or after 2016). In Aizawl, 89.5% (179; N=200) have constructed cadastral maps, while 10.5% (21 respondents) have not. In Champhai, a higher percentage—96.67% (87; N=90)—have constructed cadastral maps, with only 3.33% (3 respondents) lacking one. Overall, across both districts, 91.72% (266; N=290) have constructed cadastral maps, while 8.28% (24 respondents) do not have one.

Table 49: Distribution of Spatial Record (Map) Constructed and Year of Construction

District	Cadastral Map Constructed						Year of Cadastral Map Constructed					
	Yes		No		Total		Before 2016		After 2016		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl	179	89.50	21	10.50	200	100	21	10.50	179	89.50	200	100
Champhai	87	96.67	3	3.33	90	100	45	50.00	45	50.00	90	100
Total	266	91.72	24	8.28	290	100	66	22.76	224	77.24	290	100

Table 50 assesses whether the Record of Right (RoR) format in two districts, Aizawl and Champhai, can capture non-agricultural land uses in detail, such as ownership of built-up areas, flats, or individual floors. It also examines the size of non-agricultural land holdings in each district.

Table 50: Whether the Record of Rights (RoR) Format is able to capture Non-Agricultural Land Uses in Detail (e.g. built up Areas, Ownership of Flats, or Individual Floors)

District	Owner of Non-Agriculture Land						Whether RoR Format capturing Non-agricultural land uses in detail (e.g. in- built-up areas, ownership of flats or individual floors)					
	Yes		No		Total		Yes		No		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl	72	36.00	128	64.00	200	100	72	36.00	128	64.00	200	100

Champhai	20	22.22	70	77.78	90	100	20	22.22	70	77.78	90	100
Total	92	31.72	198	68.28	290	100	92	31.72	198	68.28	290	100
If yes, Specify the Size of Non-Agriculture Land												
District	**Less than 1.00 hectare**		**1.00-2.00 hectare**		**2.00-3.00 hectare**		**3.00-4.00 hectare**		**4.00 hectare and above**		**Total**	
	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl	72	36.00	0	0.0	0	0.0	0	0.0	0	0.0	72	36.00
Champhai	20	22.22	0	0.0	0	0.0	0	0.0	0	0.0	20	22.22
Total	92	31.72	0	0.0	0	0.0	0	0.0	0	0.0	92	31.72

In Aizawl, 36% (72; N=200) own non-agricultural land, while 64% (128 respondents) do not own any. In Champhai, a smaller percentage—22.22% (20; N=90)—own non-agricultural land, with the majority (77.78%, or 70 respondents) lacking such ownership. Overall, across both districts, 31.72% (92; N= 290) own non-agricultural land, while 68.28% (198 respondents) do not. The RoR format captures non-agricultural land uses for 31.72% (92 out of 290 respondents) and fails to capture these details for 68.28% of respondents (198 respondents). Overall, 31.72% (92 out of 290 respondents) own non-agricultural land, and in every case, these plots are less than 1 hectare in size. The majority of respondents (68.28%) across both districts report that the RoR format does not capture non-agricultural land uses in sufficient detail, suggesting a limitation in how these records are being maintained. The size of non-agricultural land holdings is consistently less than 1 hectare for all respondents who own such land, indicating that non-agricultural land holdings are relatively small in both districts.

Table 51 provides insights into the types of land ownership in two districts, Aizawl and Champhai, categorizing them into individual ownership, joint ownership, multiple ownership, and community ownership.

Table 51: Type of Ownership of Land

Districts	Individual		Joint Ownership		Multiple Ownership		Community Ownership		Total	
	N	%	N	%	N	%	N	%	N	%
Aizawl	199	98.88	1	1.12	0	0.0	0	0.0	200	100
Champhai	90	100.00	0	0.0	0	0.0	0	0.0	90	100
Total	289	99.65	1	0.35	0	0.0	0	0.0	290	100

It can be observed that Individual ownership is by far the most common type of land ownership, with 99.65% of respondents owning land individually across both districts. Joint ownership is rare, accounting for only 0.35% of the total sample, and is seen only in Aizawl. There is no evidence of multiple or community ownership in either district, suggesting that collective forms of land ownership are not practiced in these areas.

Table 52 compares the on-ground use of land parcels with the details recorded in the Record of Rights (RoR) in the districts of Aizawl and Champhai. It also assesses whether the RoR format has been updated to reflect non-agricultural land use details.

Table 52: Status of On-ground use of land Parcel and the One Stated in RoR

District	**Difference identified between the on-ground use of the land parcel and the one stated in ROR**				**Whether RoR format updated in terms of Non-Agricultural Land Use in Details**			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Aizawl	6	3.00	194	97.00	6	3.00	194	97.00

Champhai	7	7.78	83	92.22	7	7.78	83	92.22
Total	13	4.48	277	95.52	13	4.48	277	95.52

A small percentage of respondents (4.48% overall) identified a discrepancy between the on-ground use of the land and what is stated in the RoR. This suggests that the vast majority of RoR records accurately reflect the current land use, although there are minor cases of mismatches. While 4.48% overall reported that the RoR format had been updated to capture non-agricultural land use in detail. The majority of respondents (95.52%) across both districts indicated that the RoR format remains outdated, particularly in terms of capturing non-agricultural uses like built-up areas, ownership of flats, or individual floors.

Table 53 examines the presence of encumbrances (such as loans, liens, litigation, mortgages, and court orders) on respondents' land in the districts of Aizawl and Champhai. In both the districts encumbrances are mentioned as mortgage deeds if any. It also assesses whether these encumbrances are mentioned in the Record of Rights (RoR) and identifies the specific types of encumbrances recorded.

Table 53: Encumbrances mentioned on RoR

Encumbrance mentioned on respondent's land												
	Yes				No				Total			
Aizawl	6		3.00		194		97.00		200		100.0	
Champhai	14		15.56		76		84.44		90		100.0	
Total	20		6.90		270		93.10		290		100.0	
Are those mentioned in RoR?												
	Yes				No				Total			
Aizawl	6		100.0		0		0.0		6		100.0	
Champhai	14		100.0		0		0.0		14		100.0	
Total	20		100.0		0		0.0		20		100.0	
If yes, specify the Encumbrances mentioned in RoR												
	Loan		Lien		Litigation		Mortgages		Court order		Total	
Aizawl	3	50.00	0	0.0	0	0.0	3	50.00	0	0.0	6	100.0
Champhai	8	57.14	0	0.0	0	0.0	6	42.86	0	0.0	14	100.0
Total	11	55.00	0	0.0	0	0.0	9	45.00	0	0.0	20	100.0

Encumbrances are more common in Champhai (15.56%) compared to Aizawl (3%), but they are relatively uncommon overall, with only 6.90% of respondents having encumbrances on their land. In all cases where encumbrances exist, they are recorded in the RoR, indicating that the RoR system is effective at documenting encumbrances. The most common types of encumbrances are loans (55% of cases) and mortgages (45% of cases). There are no instances of liens, litigation, or court orders being reported as encumbrances.

Table 54: Government Schemes availed by respondents based on their land record

District	Availed any benefit from the govt. scheme						If yes, specify the scheme name							
	Yes		No		Total		PMAY		SEDP		AAY		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl (N=200)	8	100.0	0	0.0	8	100.0	0	0.00	4	50.00	4	50.00	8	100.0
Champhai (N=90)	15	100.0	0	0.0	15	100.0	15	100.00	0	0.00	0	0.00	15	100.0
Total	23	100.0	0	0.0	23	100.0	15	65.22	4	17.39	4	17.39	23	100.0

Abbreviation: PMAY (Pradhan Mantri Awas Yojna), SEDP (Socio-Economic Development Policy), AAY (Antyodaya Anna Yojana)

Table 54 specifies the various government schemes that the respondents have availed based on their land records provided to them by the state. Government schemes like PMAY (Pradhan Mantri Awas Yojna), SEDP (Socio-Economic Development Policy), and AAY (Antyodaya Anna Yojana) have a

direct impact on the livelihood and welfare of citizens. Here's an exploration of the potential socioeconomic impacts of these schemes, particularly in the context of the Aizawl and Champhai districts, based on the data provided.

2.5 Nagaland

The evaluation study on land record quality in Nagaland focused on Dimapur and Chumukedima, two key revenue districts selected for an in-depth field study. These districts, comprising 19 revenue villages (13 in Dimapur and 6 in Chumukedima), were chosen for their established Records of Rights (RoR) for landholders. The study involved stakeholder interactions and assessments of the Real-Time Mirror (RTM) status of land records, aiming to provide insights into land ownership complexities and challenges faced by landholders. This understanding is essential for improving land record management and addressing local issues effectively.

State	District	Panchayat/ Village	Tribe(s)	Sample Size
Nagaland	Chumukedima	Model 5th Mile	Ao, Angami, Lotha	98
	Dimapur	Aoyimti	Ao, lotha, Konyak, Sumi	112

Table 55: Districts, Villages and Sample Size in the Study Area for Evaluation Study

Table 55 outlines the districts and villages selected for the evaluation study, along with the total number of samples collected from landowners in Nagaland.

Table 56: Distribution of Land Ownership based on Social Category in Nagaland (in %)

District	UR		OBC		SC		ST		Total	
	N	%	N	%	N	%	N	%	N	%
Chumukedima	0	0.0	0	0.0	0	0.0	98	100	98	100
Dimapur	0	0.0	0	0.0	0	0.0	112	100	112	100
Total	0	0.0	0	0.0	0	0.0	210	100	210	100

Since the entire state is primarily inhabited by sixteen key tribal groups, the majority of the residents of the state are categorised under the category of Scheduled Tribe under the Indian Constitution. As mentioned earlier, our study area which included Aoyimti and 5th Mile Model village are both inhabited by different tribal communities. We witnessed significant concentration of the Ao tribe in the Aoyimti village; exemplified by the decorative mural paintings, language and the overall culture of the village. Whereas, in the 5th Mile Mode village, the residents belong to various tribes, exemplifying a heterogeneous mixture in the population of the village.

Table 57: Distribution of Respondents Owning Agricultural Land

District	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	0	0.0	98	100	98	100
Dimapur	0	0.0	112	100	112	100
Total	0	0.0	210	100	210	100

In both Aoyimti Village and the 5th Mile Model Village, agricultural land ownership follows the broader framework of land ownership, which is shaped by customary laws, local practices, and tribal governance. In both the villages, agricultural land is often held by families or clans. Therefore, the data gathered shows no agricultural land holding by individuals in both the villages, which is reflective of the lack of government land record documents and not of the lack of agricultural practices altogether.

Table 58: Distribution of Respondents as per Social Group and Size of Homestead Land Owned

Status of Owning Homestead Land													
District		**Yes**				**No**				**Total**			
		N		%		N		%		N		%	
Chumukedima		98		100		0		0.0		98		100	
Dimapur		112		100		0		0.0		112		100	
Total		210		100		0		0.0		210		100	
Social Group wise Size of Homestead Land Owned													
District	**Category**	**Marginal (Below 1.00 ha)**		**Small (1.00-2.00 ha)**		**Semi-Medium (2.00-4.00 ha)**		**Medium (4.00-10.00 ha)**		**Large (10 ha and above)**		**Total**	
		N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	UR	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	OBC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	SC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	ST	90	91.84	0	0.0	7	7.14	1	1.02	0	0.0	98	100
Dimapur	UR	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	OBC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	SC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	ST	112	100	0	0.0	0	0.0	0	0.0	0	0.0	112	100
Total		202	96.19	0	0.0	7	3.33	1	0.48	0	0.0	210	100.0

The above table explicitly showcases us a detailed picture of the status of owning homestead land in the two districts (villages). All the respondents possess a land record document for homestead land. Since the majority of the homestead land is for residential purposes, more than 95% of such land is less than 1.00 ha (hectare) reflecting the use of this particular land parcel. Homestead land, as recognized in official records, serves as both a place of residence and for limited agricultural activities. This can include gardening, small-scale farming, or keeping livestock.

Table 59: Distribution of Record of Right (RoR) Constructed and Year of Construction

District	**RoR constructed**						**Year of RoR Constructed**					
	Yes		No		Total		Before 2016		After 2016		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	98	100	0	0.0	98	100	56	57.14	42	42.86	98	100
Dimapur	112	100	0	0.0	112	100	63	56.25	49	43.75	112	100
Total	210	100.0	0	0.0	210	100.0	119	56.67	91	43.33	210	100.0

The above table reflects an organized and steady process of RoR construction in Chumukedima and Dimapur. The majority of RoRs were constructed before 2016, but the continued efforts after 2016 demonstrate a sustained effort to maintain and update property rights documentation. The updated Red Book is an example of these sustained efforts, as

reflected in the table, around 43.33% (RoRs constructed after 2016) predominantly constitutes of these red books. The divide between the percentage of RoR constructed before and after 2016 is almost equitable in both the districts which is again reflective of the consistent and continuous efforts being undertaken in both the districts.

Table 60: Status of Partition and Demarcation of Land and its updation in Land Record

District	Whether Partition and Demarcation Happened to the Land Parcel						Updation of Demarcation Happened in Textual Records					
	Yes		No		Total		Yes		No		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	18	18.37	80	81.63	98	100	15	83.33	3	16.67	18	100
Dimapur	53	47.32	59	52.68	112	100	50	94.34	3	5.66	53	100
Total	71	33.81	139	66.19	210	100	65	91.55	6	8.45	71	100

The above table highlights the status of partition and demarcation of land parcels in the districts of Chumukedima and Dimapur. Partition and demarcation of land parcels are essential processes in land administration that involve the division of land and the marking of boundaries for individual ownership or usage. These processes help clarify property rights, prevent disputes, and facilitate land transactions. Overall, across both districts, 33.81% (71 out of 210) of land parcels have been partitioned and demarcated, while 66.19% (139 out of 210) have not. This indicates that a higher percentage of land parcels in Dimapur have undergone partition and demarcation compared to Chumukedima, reflecting a regional difference in land management practices.

Maps are essential tools in processes like partition, demarcation, and land dispute resolution, as they help reduce ambiguities about boundaries and ensure accurate land management.

Table 61: Distribution of Spatial Record (Map) Constructed and Year of Construction

District	Cadastral Map Constructed						Year of Cadastral Map Constructed					
	Yes		No		Total		Before 2016		After 2016		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	8	8.16	90	91.84	98	100	3	37.50	5	62.50	8	100
Dimapur	27	24.11	85	75.89	112	100	7	25.93	20	74.07	27	100
Total	35	16.67	175	83.33	210	100	10	28.57	25	71.43	35	100

Because the historical context, the land records were never recorded physically. The most that village councils had was their own record of rights surveyed by the council headman and other members, therefore presence of spatial record was even scarcer. Cadastral map was only with those residents who had an updated land record (The Red Book). Otherwise, there was just one cadastral map for the entire village kept by the council and the record branch, LRSO office of the concerned district. As visible through data, Dimapur has a higher percentage of Cadastral Maps constructed because of the immediate requirements of the red book.

Table 62: Difference between Spatial Records and Textual Records in Terms of Extent (area)

Districts	Whether there is Difference in Textual and Spatial Records					
	Yes		No		Total	
	N	%	N	%	N	%

Chumukedima	0	0	98	100.00	98	100
Dimapur	8	7.14	104	92.86	112	100
Total	8	3.81	202	96.19	210	100

Across both districts, out of a total of 210 respondents, 96.19% (202 people) reported no difference between their textual and spatial records. Only 3.81% (8 people) indicated that there was a difference in the two types of records, all of whom were from Dimapur.

Table 63: Whether Record of Right (RoR) Format able to capture Non-Agricultural Land Uses in Detail (e.g. in- Built Up Areas, Ownership of Flats or Individual Floors).

District	**Owner of Non-Agriculture Land**						**Whether RoR Format capturing Non-agricultural land uses in detail (e.g. in- built up areas, ownership of flats or individual floors)**					
	Yes		No		Total		Yes		No		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	98	100	0	0	98	100	98	100	0	0	98	100
Dimapur	112	100	0	0	112	100	112	100	0	0	112	100
Total	210	100	0	0	210	100	210	100	0	0	210	100
If yes, Specify the Size of Non-Agriculture Land												
District	**Less than 1.00 hectare**		**1.00-2.00 hectare**		**2.00-3.00 hectare**		**3.00-4.00 hectare**		**4.00 hectare and above**		**Total**	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	90	91.84	0	0	7	7.14	1	1.02	0	0	98	100
Dimapur	112	100.00	0	0	0	0.00	0	0.00	0	0	112	100
Total	202	96.19	0	0	7	3.33	1	0.48	0	0	210	100

The table matches Table 63, showing all landowners categorized as non-agricultural due to a lack of agricultural records in government documentation. While Records of Rights (RoRs) broadly capture non-agricultural uses, local practices should be considered when comparing them to other states. Notably, 96.19% of non-agricultural land holdings are under 1 hectare, mainly for residential use, with some land for sustenance. Factors like land transactions and historical community ownership lead to similar land sizes across villages, except for larger plots designated for community spaces like halls, churches, and schools.

Table 64: Status of On-Ground Land Ownership Details, Including any Built-Up Area

District	**Whether there is any difference in On-Ground ownership Details and Details in Land Record**					
	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	0	0	98	100	98	100
Dimapur	0	0	112	100	112	100
Total	0	0	210	100	210	100

Across both districts, none of the 210 respondents (0%) reported any discrepancies between the actual land ownership (including built-up areas) and the details in the land records. The data shows that land records in both Chumukedima and Dimapur are entirely accurate, with no differences reported

between on-ground ownership and recorded details. This highlights a high level of accuracy and consistency in the land record system across both districts.

District	Individual		Joint Ownership		Multiple Ownership		Community Ownership		Total	
	N	%	N	%	N	%	N	%	N	%
Chumukedima	96	97.96	0	0	0	0	2	2.04	98	100
Dimapur	110	98.21	2	1.79	2	1.79	0	0.00	112	100
Total	206	98.10	2	0.95	2	0.95	2	0.95	210	100

Table 65: Type of ownership on land

Whilst it comes to the type of ownership on land, we observed that primarily the type of ownership is Individual in both the villages, as reflected in the above table as well. Across both the districts, 98% respondents had individual ownership of land. 2 cases each of multiple ownership and community ownership was recorded in the districts of Dimapur and Chumukedima respectively. The ownership of land is primarily individual because of several contributing factors. Young working professionals, Government workers, Retired Army personnel have all been purchasing the land as individuals, secondly, land inherited is also reflective of individual ownership.

Table 66: Status of Updation in Record of Right (RoR)

District	**Updation of RoR**					
	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	93	94.90	5	5.10	98	100
Dimapur	112	100.00	0	0.00	112	100
Total	205	97.62	5	2.38	210	100

Across both districts, 97.62% of all respondents (205 out of 210) reported that their RoR had been updated, while 2.38% (5 out of 210) indicated that their records were not updated. The results show a high level of RoR updates overall, with Dimapur having complete RoR updates, while a small portion of landowners in Chumukedima are still awaiting updates to their records. This data reflects efficient record-keeping in both districts, with Dimapur leading in complete RoR updates and Chumukedima showing a minor gap in the process.

Table 67: Classification of land parcel mentioned in the Record of Right (RoR)

District	**Classification of Land Parcel mentioned in RoR**				**If yes, which type of classification is mentioned in record of right (RoR)**							
	Yes		No		Agriculture		Non-agricultural		Others		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Chumukedima	98	100	0	0	0	0	98	100	0	0.00	98	100
Dimapur	112	100	0	0	0	0	112	100.00	0	0.00	112	10
Total	210	100	0	0	0	0	210	100	0	0.00	210	100

Across both districts, all 210 respondents (100%) indicated that their land parcels are classified in the RoR. None of the land parcels are classified as agricultural or in the "other"

category. All 210 land parcels (100%) are classified as non-agricultural. This data highlights that in both Chumukedima and Dimapur, all land parcels are classified in the RoR, and they are exclusively classified as non-agricultural, with no agricultural or other types of land classification recorded.

The below table compares the on-ground use of land parcels with the usage stated in the Record of Rights (RoR) and assesses whether the RoR format has been updated to include non-agricultural land use details for Chumukedima and Dimapur districts.

Table 68: Status of On-ground use of land Parcel and the One Stated in ROR

District	**Whether there is difference in on-ground use of land parcel and the one stated in ROR**				**Whether RoR format updated in terms of Non-Agricultural Land Use in Details**			
	Yes		No		Yes		No	
	N	%	N	%	N	%	N	%
Chumukedima	0	0	98	100	98	100	0	0
Dimapur	0	0	112	100	112	100	0	0
Total	0	0	210	100	210	100	0	0

Across both districts, all 210 respondents (100%) reported no differences between the actual on-ground use of their land parcels and the usage stated in the RoR. Additionally, all 210 respondents (100%) confirmed that the RoR format has been fully updated to capture non-agricultural land use details. The RoR format is fully updated in both districts to reflect non-agricultural land use, ensuring accuracy in land documentation.

Table 69: Difference between the on-ground location and that marked in the revenue maps

District	**Yes**		**No**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Chumukedima	1	1.02	97	98.98	98	100
Dimapur	0	0.00	112	100.00	112	100
Total	1	0.48	209	99.52	210	100

As the table above reflects quite evidently, 99% of the respondent's on ground location and the information provided on the revenue maps is in sync. The measurements in both the revenue map (kept by the LRSO Office) and the on-ground location of the respondent's land parcel were similar and no such discrepancy was observed barring one case in Chumukedima, where the on-ground location and measurement recorded in revenue map was different. Revenue maps was constructed in the Dimapur cadastral area during the late 1960s and early 1970s. Therefore, all the minor changes and alterations are not captured in the revenue map, however broader land boundaries are still intact in both the villages.

Table 70: Difference between the two, the percentage of error for selected land parcels

District	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	1	1.02	97	1.02	98	100
Dimapur	0	0.00	112	0.00	112	100
Total	1	0.48	209	0.48	210	100

Across both districts, only 0.48% of respondents (1 out of 210) acknowledged a difference between the recorded information and actual conditions of the land parcels, while 99.52%

(209 out of 210) confirmed that there are no differences. This data highlights that discrepancies in land records are extremely rare, particularly in Dimapur, where no differences were reported. In Chumukedima, only a single instance of error was noted, indicating a high level of accuracy in land records overall.

Table 71: Status of Encumbrance on Land

Whether you have Encumbrance on your land						
District	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	5	5.10	93	94.90	98	100
Dimapur	13	11.61	99	88.39	112	100
Total	18	8.57	192	91.43	210	100
Are those mentioned in RoR						
	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	5	100	0	0	5	100
Dimapur	13	100	0	0	13	100
Total	18	100	0	0	18	100

Out of the total sample size. 18 respondents said that they do have encumbrance on their land and all of their encumbrance is mentioned in RoR. They are also mentioned in the Jama bandi Register with a remark on the margins of the physical copy. Encouraged by the commercial activities in the Dimapur area, village residents within the vicinity of the city have started availing loans and other forms of encumbrance(s) for their land. Therefore, the percentage of encumbrance on land is almost twice in Dimapur as that of Chumukedima.

Table 72: Availed any benefit from the govt. scheme based on land record

District	**Availed any benefit from the govt. scheme**					
	Yes		No		Total	
	N	%	N	%	N	%
Chumukedima	2	2.04	96	97.96	98	100
Dimapur	6	5.36	106	94.64	112	100
Total	8	3.81	202	96.19	210	100
If yes, specify the scheme name						
PMAY		AB PM- JAY		CM Health Scheme	Total	
N	%	N	%	N	%	N	%
2	100	0	0	0	0	2	100
0	0	2	33.33	4	66.67	6	100
2	25	2	25.00	4	50.00	8	100

The percentage of people who have availed any benefit from the govt. scheme is around 4%. Respondents have availed benefit from both the central government schemes and the state government schemes. We came across people who have been able to build their houses primarily through Pradhan MantrI Awaas Yojana-(Gramin) (PMAY-G). A well-established land record document is needed to avail such benefits, one of the probable reasoning behind the less number of PMAY(G) beneficiaries in Dimapur is due to several residents being government officials, retired government employees, overall the majority of the respondents belonged to MIG (Middle – Income Group). Other than PMAY (G), Heath schemes like

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY), Chief Minister Health Insurance (CMHIS) are also helping the beneficiaries.

Chapter 5

Conclusion and Policy Recommendation

This chapter tries to discuss the concluding part of the report, synthesize the key findings, summarise, and suggest better policy recommendations for the quality of land records in the Northeast states of India. It also discusses the component-wise quality of land records in detail by reviewing the existing land revenue administrative legislation in the concerned states. In addition, this chapter also tries to elaborate the indicator/sub-indicator-wise evaluation of the quality of land records, scope of work, methodology, and *empirical* results. The focus is primarily on the quality of land records and land revenue administration and its impact on ease of living among citizens, ownership, ease in registration and mutation, land use classification, ease in doing business, and ease in access to credit and availing benefits from Government Schemes.

5.1 Background

The quality of land records plays a pivotal role in ensuring clarity over land ownership, boundaries, and usage rights. Accurate and up-to-date land records provide legal security to landowners, reduce the potential for disputes, and serve as a foundation for formal land transactions. When land records are reliable, they promote transparency and trust in land dealings, which is crucial for fostering investments and economic development. The well-maintained land records facilitate infrastructure development, agriculture, and urban planning with comprising environmental protection aspect. For example, in rural areas, accurate records support farmers by enabling access to credit and subsidies, as their land can be used as collateral, also can be used to avail benefit from the government scheme based on land record. In urban regions, proper documentation helps manage land use, zoning, and taxation, which are critical for sustainable urbanization and governance. The quality land records help in preventing land degradation, illegal encroachment, and deforestation by delineating protected areas and agricultural zones. It also plays a crucial role in disaster management by identifying vulnerable zones and ensuring the proper allocation of land for rehabilitation efforts.

Digital India Land Records Modernization Programme (DILRMP) efforts to modernize land records and improve tenure security are in line with the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) guidelines provided by the FAO. The guidelines encourage transparent land management, equitable access to land resources, and the resolution of land disputes, all of which are major focus areas for the DILRMP. India's land modernization program contributes to the framework established by the World Bank to improve land governance quality. DILRMP aims to create a more robust, transparent, and accountable land administration system, which addresses several critical aspects of World

Bank's Land Governance Assessment Framework (LGAF), including data accessibility, land dispute resolution, and reducing tenure insecurity. Through DILRMP, India is not only modernizing its domestic land records system but also contributing to global efforts that emphasize transparency, equitable land distribution, and sustainable land use, helping the country meet both national and international development goals.

These initiatives aim to address challenges such as outdated records, unclear ownership, and lack of digital integration, which can hinder development. These initiatives demonstrate global recognition of the critical role that high-quality land records play in development. By improving land governance and administration, these efforts contribute to economic growth, poverty reduction, and environmental sustainability worldwide.

Objectives

To examine the quality of land records modernization, six components has been taken into consideration such as status of Computerization of Land Records (RoR), Digitization of Cadastral Maps/FMBs, Linkage of RoR with Cadastral maps, Computerisation of Registration, Integration of Registration (SRO) with Land Records (Revenue Office), Modern Record Room. Based on the six components, the present study tries to examine the following objectives;

- To conduct a State-wise gap analysis in terms of reported achievements and desired outcomes of the program.
- To assess the computerization of Land Records (CLR) in terms of progress across digitization of textual records, digitization of spatial records, computerization of registration process, integration between these three components and Web Enabled Land Records.
- To assess the status of Real-time mirror (RTM) in select villages to test the efficacy of real-time integrated updation of textual and spatial records and the registration process. Any change in ownership, possession, classification, extent, encumbrances of a given land parcel should lead to record updation and ideally, the on-ground situation should be 'mirrored' in the records.
- Provide policy suggestions towards expeditious implementation of land records modernization initiatives in the country as a

By addressing the above objectives, the present study used both secondary and primary data. The primary data was collected from at least 100 sample respondents from each village, the village survey was carried out with the help of SurveyCTO software to capture the real-time data generation to collect data efficiently and accurately, In addition, Focus Group Discussion (FGD)/Community interaction and key stakeholder interviews were conducted separately with land revenue officials to understand the quality of land records and its significance in details. Further, to comprehend the quality of land records, the present study involved land parcel surveys to perform a Real-Time Mirror (RTM) check a comparison of the on-ground status with the physical land records and also the cadastral map (CM), with an objective to examine the accuracy of quality of land records data at the village level consist of six categories such as ownership, possession, land use classification, land area in extent, encumbrances, and entitlement of government scheme. During the Real-Time Mirror Check

(RTM), the IIPA team along with tehsildar, Mondal, and Patwari, Chainman brings the cadastral map (CM), Dakchitha, Jamabandi (RoR) books, Mutation registrar, miscellaneous registrar etc. bring to the concerned village and carry out the village survey.

In discussing the objectives, the present report was divided into *six chapters*. The *first chapter* dealt with the introductory part of the DILRMP and discusses the major components from computerization to the integration of land records through the aadhar number. It also comprehends the indicators/sub-indicators used for assessing the impact of the Digital India Land Records Modernisation Programme (DILRMP) in the Northeast states of India. It also provides a summary and details of the physical and financial progress of DILRMP across the northeast states in India and a glimpse about the utilization of funds in various components. In addition, it also highlights the targets and achievements under the DILRMP, Integrated Land Information Management System, ULPIN, including the objective-wise indicator evaluation study of quality of study. Moving on to the *second chapter*, the data and methodology employed for the impact evaluation study. It also discusses the selection of the study sample and sample district, data collected from 10 districts across five Northeast states in India. This includes insights into both primary and secondary databases utilized, tools of data collection, and qualitative data collection through Focus Group Discussion (FGD), and community interaction, to get the real picture of the quality of land records the Real-Time Mirror (RTM) check.

The *third chapter* delves into the history of the land revenue administration system in the study area. It explains the history of the existing land revenue system, development of land record computerization and digitalization. Status of Land record constructed/ digitize under DILRMP in the north-eastern state. In addition, it also discuss the importance of the Record of Rights, Cadastral map, Registration, Mutation, Revenue Court Management System.

In *fourth chapter* outlines the empirical findings of the quality of land records in Northeast India Evaluation Study of Quality of Land Record in Northeast India. The empirical findings of the evaluation study assessing the efficacy and effects of land record computerization programs has been discussed at length in this chapter. It also focuses on the impact of digitization on various aspects of land management, such as the promotion of citizens' ease of living, ease of registration, ease of mutation, ease of doing business, service delivery and accessibility, and environmental impact, as well as its broader implications. Chapter *five* Innovations in Land Record Management in the selected States in North-east India: A Comparative Analysis with respondents' feedback on project implementation, drawn from field findings, ground realities, and observations. It also includes empirical findings, case studies and best practices documented from the sixty-eight districts, showcasing successful approaches in various parameters including physical, social, legal, institutional, and technological innovations. It has brought out the success stories and role models from field inspections for inspiration to others. Lastly, the concluding chapter summarizes the study's broad findings and offers area-specific recommendations.

State-wise key findings

Arunachal Pradesh

Traditional Land Management and Ownersh ip Patterns

Arunachal Pradesh's land records are predominantly based on traditional tribal customs. Village authorities, including Gaonburas (village heads), Bulyangs (village council members), and Zila Parishad (district council) members, play significant roles in managing land records and overseeing land transactions. The customary land ownership can be categorized into private, collective, and mixed ownership. Among tribes like the Apatani, land is privately owned, while shifting cultivation (jhum) is often managed under collective ownership.

Roles of Local Authorities in Land Management

Local tribal authorities such as village councils and elders are central to resolving disputes, allocating land, and maintaining community cohesion. These practices, while effective in their context, have limited formal documentation, making integration into modern land management challenging.

Records of Rights (RoR) and Land Possession Certificates (LPCs)

Arunachal Pradesh has constructed a total of 28,370 Records of Rights (RoRs). East Siang leads with 27,049 RoRs, while Papum Pare and Lower Subansiri have constructed 657 and 664 RoRs respectively. Land Possession Certificates (LPCs) are issued to certify land possession, though they do not guarantee ownership rights. The issuance of LPCs increased significantly after 2016, with 80.3% of respondents having received LPCs post-2016, suggesting recent efforts to formalize landholdings. Lower Subansiri and East Siang have a significant number of LPC holders, reflecting progress in land documentation.

Cadastral Maps

Cadastral mapping remains underdeveloped in Arunachal Pradesh. Papum Pare has constructed only one cadastral map, Lower Subansiri 15, and East Siang 70. Importantly, digitization and geo-referencing of these maps have not yet begun. This lack of comprehensive spatial records hinders efficient land management and the implementation of the DILRMP.

Mutation and Registration Process

The mutation and registration processes in Arunachal Pradesh are still manually handled, as digitization efforts are in the initial stages. Similarly, the Revenue Court Management System (RCMS) for land dispute resolution remains non-automated, resulting in longer processing times for land-related issues.

Discrepancies between Spatial and Textual Records

The study revealed minimal discrepancies between spatial and textual records across Lower Subansiri and East Siang. About 7% of respondents noted discrepancies, mainly within the 0-20% range, indicating minor differences between the recorded information and on-ground reality.

Measurement Error in Land Parcels

Lower Subansiri saw 4.22% of respondents report discrepancies in land parcel measurements, with differences ranging between 1 to 4 kilometers. These discrepancies likely result from outdated or inaccurate measurement techniques, emphasizing the need for updated cadastral maps.

On-Ground Ownership and Land Record Status

No significant discrepancies were found between on-ground ownership and land record status, with all respondents confirming that their ownership details were accurately reflected in the land records. This suggests that traditional methods of managing land records have largely succeeded in maintaining consistency.

Status of Partition and Demarcation

Partition and demarcation is one of the important components in terms of the quality of land records and modernization. It was found that the considerable variability across districts. East Siang reported a more advanced state of partition and demarcation, with 56.3% of respondents confirming the completion of these processes, compared to only 8.5% in Lower Subansiri.

Land Use Changes and Consolidation

There have been no significant changes in land use, such as the conversion or diversion of agricultural or forest land. Most respondents in East Siang and Lower Subansiri reported that non-agricultural land use 63.4% in East Siang and 18.3% in Lower Subansiri reflecting a trend toward non-agricultural usage. No instances of land consolidation (joint or multiple ownership) were recorded, as all respondents reported individual ownership.

Village Level key findings

In Arunachal Pradesh, it is found that all landowners across the districts belong to Scheduled Tribes (ST), with no representation from the Unreserved (UR), Other Backward Classes (OBC), or Scheduled Castes (SC). This reflects the demographic composition of the state, where STs form the predominant community.

Size of Landholding and Patterns

In the study area, it was found that most landowners in Arunachal Pradesh are marginal or small landholders. A significant portion 61 % holds less than 1 hectare, while none of the respondents owned more than 4 hectares of land. This indicates limited large-scale agricultural activity and emphasizes the need for support for smallholders in terms of agricultural resources and formal land rights.

Land Ownership vs. Built-Up Areas

In both districts, approximately 70.4% of respondents confirmed that their land ownership details coincided with built-up areas, suggesting a high level of accuracy in records. However, 29.6% indicated discrepancies between the land records and the on-ground situation, highlighting the need for regular updates and verification.

Encumbrance Status

In the study area, it was found that only 2.8% of respondents, in Lower Subansiri, reported encumbrances on their land. Of these, half were documented in the LPCs, while the other half were removed after repayment of loans taken against the land. This reflects a generally

accurate representation of land encumbrances in the records, though the rarity of such cases indicates a low level of land-based economic activities involving mortgages or loans.

Access to Government Schemes

Participation in government schemes, such as Pradhan Mantri Awas Yojana (PMAY), was notably low, with only 2.8% of respondents across both districts benefiting. Aadhar and PAN cards were the key documents required for accessing these schemes, indicating potential barriers for individuals who may not possess these identification documents.

Challenges in Land Record Management/Limitations of the Study

Despite the introduction of DILRMP, the computerization of land records has not effectively improved the process of accessing land-related services, according to respondents. Lack of cadastral maps, unique parcel identification, and an integrated land information system contributes to the challenges in implementing digital land record services.

Limited Digitization Absence of digitized Records of Rights (RoRs) and cadastral maps hampers the efficiency and transparency of land management. Only a few cadastral maps have been constructed across the districts.

Reliance on Customary Practices: Although effective within local communities, customary practices lack formal recognition. This limits access to government services and prevents participation in schemes like PMAY. Most land transactions are managed by local tribal authorities without formal records, leading to challenges in formal documentation. **Geographical and Environmental Challenges**: The state's mountainous terrain, coupled with heavy monsoon rains and dependence on neighbouring states for skilled manpower, significantly complicates land surveys, record maintenance, and digitization efforts. In Lower Subansiri, unpredictable weather and heavy rainfall further exacerbate these challenges.

Lack of Awareness: A significant issue is the lack of awareness among landowners about land records and the Digital India Land Records Modernization Programme (DILRMP). Fear of potential taxation discourages many from creating Land Possession Certificates (LPCs) and establishing formal records.

Traditional Land Transfer and Demarcation: Land and property rights are often passed down orally, and demarcation is done using traditional markers. Due to the absence of perceived risks, local populations often see no need for LPCs. Disputes over land are usually resolved through community mediation or taken to court.

Lengthy LPC Issuance Process: The process of obtaining an LPC or land allotment is lengthy and slow, sometimes taking years to complete, contributing to delays and inefficiencies in the system.In addition, it was also found that there is institutional shortcomings in the implementation of DILRMP.

Vendor Delays: The vendor responsible for implementing DILRMP in Arunachal Pradesh has been issued multiple notices, but progress remains under development.

Shortage of Technical Equipment: Essential tools such as DGPS, GPS, DMS servers, and scanners are either absent or insufficient, limiting the ability to conduct precise surveys.

Critical software like GIS, ArcGIS, and AutoCAD, necessary for mapping and digital management, is also unavailable.

Inadequate Record Storage: The absence of modern record rooms at both district and circle levels results in the manual storage of land records, which poses significant risks to their preservation, especially for older records that are already fragile.

Staff Shortages and Lack of Training: The Department of Land Management faces a severe manpower shortage, often requiring staff to hold multiple roles, which impacts the quality of work. Moreover, many professionals lack training in the use of modern surveying tools, software, and digital record management systems. Despite the introduction of DILRMP, manual surveying techniques like measuring tapes and handmade drawings are still commonly used.

Recommendations for Improvement

Following are the recommendations for the improvement of the quality of land records in the study area

Enhance Digitalization Efforts: Prioritize the digitization of all land records and the construction of cadastral maps, including assigning unique parcel identification numbers and integrating records into a web-based system.

Capacity Building and Awareness Campaigns: Implement training programs for local authorities and awareness campaigns for landowners on the benefits of formal land documentation to encourage the adoption of modern land management practices.

Regular Surveys and Updates: Conduct regular surveys and updates of both spatial and textual records to minimize discrepancies and improve accuracy, thus enhancing the reliability of land records.

Assam: Key Findings

This study focuses on the quality of land records in two districts of Assam: Nagaon, governed by state laws, and Kokrajhar, which falls under the autonomous Bodoland Territorial Council (BTC). While both districts follow the Assam Land and Revenue Regulation Act, 1886, Kokrajhar operates with distinct BTC governance over land administration, and manual land records have been largely replaced by digital systems, except in Barak Valley.

Status of RoR: In Assam, land records are maintained manually and digitally, including the Jamabandi Register, Chitha Book, Mutation Register, and cadastral maps, and are fully computerized and accessible via the "Dharitree" portal, where updates are processed through online applications verified by revenue authorities. As of August 16, 2024, Assam has 8.58 million land parcels and 6.7 million fully digitized Records of Rights (RoRs), measured in Bigha-Katha-Lessa units, with Aadhaar and phone numbers linked to RoRs through the Mission Basundhara initiative, allowing for SMS alerts and 284,600 corrections made in FY 2023-2024.

Cadastral Maps: Since 1958, Assam has conducted district-wise cadastral surveys, producing 24,901 cadastral maps, 91.74% of which have been digitized. The state introduced

the Unique Land Parcel Identification Number (ULPIN), assigning it to over 6.2 million land parcels, serving as an 'Aadhaar for land.' Landowners can request land parcel subdivisions through the ARTPS-Sewa Setu portal, and these updates are reflected in the cadastral maps.

Registration: Assam has 77 fully computerized Sub-Registrar Offices (SROs), with 89.62% integrated into the Revenue Offices and land record database; in FY 2023-2024, 149,430 land properties were registered through the NGDRS-Assam portal, capturing essential details like PAN and Aadhaar, and offering services such as digital mutations and encumbrance certificates, though various functionalities, like checking litigations and completing registrations during network failures, are limited.

Mutation: In Assam, citizens can apply for land mutation through the Integrated Land Record Management System (ILRMS), with 98.47% of mutation applications disposed of in FY 2023-2024, and features like auto-mutation and downloadable certified copies available online.

Revenue Court Management System: In Assam, revenue-related disputes are managed under the Assam Land and Revenue Regulation Act of 1886 (amended 1962), with local issues handled by Circle Officers, appeals by Sub-Divisional Officers, and major disputes by Deputy Commissioners, while unresolved cases may go to Civil Courts. Currently, documentation is maintained manually, as the E-Revenue Court System has not been implemented.

Prior to the questions pertaining to various components of land records modernization, it was also carried out the village level survey by using the Real-Time Mirror check (RTM). Real-time check was conducted at village level where Karyani Village in Nagaon and Sukanjhora Village in Kokrajhar has been selected.

RoR: The Records of Rights (RoR) for land parcels are fully computerized, with 62.75% of parcels in Nagaon constructed before 2016 and 90% in Kokrajhar. Cadastral maps were last surveyed in Nagaon in 1968 and in Kokrajhar in 2008.

While no discrepancies exist between on-ground observations and textual land records in terms of location and area, variations do arise in spatial records. Due to the fragility of cadastral map paper, updates for partitions or boundary changes are recorded separately, leaving current spatial records to reflect unpartitioned land parcels based on the last survey from the 1960s.

Land use Classification: In both Nagaon and Kokrajhar, most homestead landholdings are below 1 hectare, with marginal operational land ownership at 67% in both districts, and discrepancies between on-ground measurements and Records of Rights (RoR) were 23.53% in Nagaon and 24% in Kokrajhar. These variations in ownership details are primarily due to unrecorded successions and sale deeds.

- In the study sample, 18.32% of landowners possess only agricultural land, 10.89% only homestead land, and 70.30% both, with low variations in land use against Records of Rights (RoR) at 14% in Nagaon and 4% in Kokrajhar. Nagaon's agricultural land is often converted to non-agricultural use due to family expansion,

while Kokrajhar sees few non-agricultural land repurposed for integrated farming, combining crops and livestock to support local livelihoods.

- In Nagaon, 46.08% of land parcels were partitioned, with 61.7% having updated records, while in Kokrajhar, 48% were partitioned and 79.16% updated. The spatial records still reflect data from the 1960s due to ongoing updates, with non-updation attributed to informal family partitions and high costs, especially in rural areas.
- Encumbrances in the study area are minimal, at 0.97% in Nagaon and 4% in Kokrajhar, with no inaccuracies in the Records of Rights (RoR), although personal loans and mortgages are commonly transacted among family and acquaintances.
- Government schemes are usually availed for agricultural land with PM Kishan being the most prevalent one in both the districts. 32.35% and 31% of the respondents have availed PM Kishan in Nagaon and Kokrajhar respectively.
- Though computerisation has eased the process of obtaining the land related services, the respondents conveyed that getting accustomed to the use of technology is taking time for them. However, they informed that the transliteration facility in the website has eased up the process for them to a great extent.

Manipur-Key Findings:

The evaluation study of quality of land records in the surveyed villages in Manipur reflects diverse trends in the ownership, possession, extent, classification, encumbrance status of land including agricultural as well as homestead land owned by respondents i.e. land owners across the selected study area of Bishnupur and Imphal West districts in Manipur.

Key Finding in Mizoram

RoR: As of 16th August 2024, the total Record of Rights (RoR) in the state of Mizoram amounts to 3,20,810. The Department of Land Revenue & Settlement, Government of Mizoram, has launched an online portal named e-RAM (eram.mizoram.nic.in) to enable individual landowners to access their RoRs digitally.

Cadastral Maps: At present, the state has geo-referenced 3,20,810 land parcels. During our visit, we found out that the concerned departments had access to georeferenced information on GIS-enabled maps. Interestingly, 3,948 land parcels have been assigned ULPIN in Mizoram state. Computerisation of Cadastral Map is available only at the Department level

Registration: The registration process is carried out at the Settlement Office (SO) level, with each step being handled by different sections, each led by the respective authority in charge. The registration process in the state of Mizoram is currently operated in hybrid mode. In the financial year 2023-24, 8,349 registrations have been successfully completed in the state.

Mutation: The process of Mutation in Mizoram follows the same procedures as Registration but with a different application. The e-RAM portal also allows the applicant to check the mutation status by logging into their details. During the financial year 2023-24, 6150 mutation cases have been received in the state, out of which 99.85 % (6141) have been disposed of successfully. The e-Ram portal also provides the facility to check the partition status via logging into the portal using their district, Revenue Sub-Division, and Revenue Circle.

Revenue Court Management System: The state has not yet started the Revenue Court Management system, but the Settlement Officer performs the duties in case of any land-related conflict resolution. If parties are dissatisfied, then they can appeal his judgement to the secretary of the Land Revenue & Settlement Department.

Encumbrance: In the case of encumbrance, the state has a dedicated stamp that is pressed on the General Register and guard file, denoting that the Land Pass has been mortgaged. Similarly, the same process is done in the case of the release of a mortgage, specifying its release. During our field visit, we observed a significantly low (less than 1%) percentage of mortgages.

Unique Payment System of Land Tax

In the state of Mizoram, the Department of Land Revenue & Settlement, Government of Mizoram, offers an online portal for payment of Land Taxes (landtax.mizoram.gov.in). The Land Tax portal hosts two types of payment of taxes, first Land tax and the other Zoramchhiah. Land Tax depends on the grading of land. 'Zoramchhiah,' where "Zoram" means land and "Chhiah" means tax, collectively translating to 'Land Tax.' It applies to persons living within the state. Landowners must log in using their Ration Card number and mobile number to pay their taxes. Currently, the rate for Zoramchhiah is set at only 50 Rupees.

Nagaland-Key Findings:

Record of Rights: As of August 16, 2024, a total of **1, 10,210** Records of Rights (RoRs) have been constructed in the state, with 30,150 in Dimapur and 555 in Chumukedima. However, the average number of landholders per RoR remains uniform across both districts, indicating that individual ownership is the predominant pattern.

- There is no digitization of RoRs; all records are manually maintained. This limits accessibility and hinders the potential for online services like correction, registration, and alerts.
- The process for managing mortgages in RoRs is similar across both districts, but the system is not integrated with banks, restricting the use of land as collateral in financial transactions.

Cadastral Map: The first and only cadastral survey in the state was conducted in the Dimapur area in 1969-1972. Since then, no further cadastral surveys have been carried out. Digitization of survey-resurvey work and Cadastral map is in progress.

Registration: The registration process is entirely manual. The total number of SROs in the state is 47. However, registration is allowed in all the Deputy Commissioner’s offices.

Mutation: The application for mutation is fully manual. For FY 2023-2024, out of 303 applications received for mutation, 246 (81%) have been disposed of. There is no auto-trigger mechanism or online application. The average processing time for mutations in Dimapur is two months.

Revenue Court Management System: The revenue-related cases are handled in the civil court and the entire procedure is carried out manually. There is no linkage between e-courts and land record databases.

In Nagaland, the Land Record and Survey Department in Nagaland recently initiated the survey-resurvey process in Longleng and Kiphire districts. This process includes all seven components of the Digital India Land Record Modernization Programme (DILRMP), aimed at modernizing land records.

RoR and Maps: The majority of landholders in the village have had RoRs constructed, primarily for homestead lands. Around 33% (N=71 individuals) out of 210 land owners have done the partition and demarcation and 2.85% (N=6) have not updated the land record. Maps have been created exclusively for landowners who possess the "Red Book" (Patta), comprising of 35 out of 210 landholders. Among these, only 1 individual has not updated their map following partition and demarcation.

Extent/Area: Only 1 (0.48) land parcel out of 210 was found with differences in on-ground and textual land records in terms of area and location.

Ownership in Land Records: The ownership is mainly individual (98.1%). No differences have been found between on-ground and textual records in terms of ownership details.

Classification of Land Records: Classification of land parcel is mentioned in the RoR. Homestead Land was found to be the most prominent form of land classification (99/52%) since agricultural land is usually community or clan-owned. No difference (0%) was found in on-ground use of land parcel and one stated in RoR.

Encumbrance: Out of 210 landowners, 18 (8.57%) have encumbrances, such as loans (55.56%) or mortgages (44.44%), recorded on their land, and these are accurately reflected in the RoRs and Jamabandi Register. No instances of incorrectly listed encumbrances were found.

Government Scheme: The percentage of people who have availed any benefit from the govt. scheme is around 4%. Respondents have availed benefits from both the central government schemes and the state government schemes (PMAY(G), AB PM-JAY, CHIEF MINISTER HEALTH INSURANCE (CMHIS).

Conclusions and Policy Implications

Based on interactions with landowners and prospectors who have utilized various land-related services, including obtaining copies of the record of rights, registering and mutating land records, and accessing government scheme benefits requiring land-related information, the study has proposed several recommendations. These suggestions focus on improving digital literacy among stakeholders, streamlining land registration procedures, refining physical records management practices, harnessing advanced mapping technologies, ensuring robust cybersecurity measures, and establishing effective feedback mechanisms.

Key Bottlenecks and Challenges

The quality of the land records system across Northeast states of India holds great potential for enhancing transparency, efficiency, and accessibility. However, each state faces unique challenges and key bottlenecks while addressing the quality of land records modernization that should be addressed to fully realize these benefits.

- In Assam pace of land records modernization is up to date and satisfactory. However, in the ground level, autonomous district councils like Kokrajhar face key challenges during the implementation process, primary issues include inadequate internet access and low digital literacy among tribal communities, necessitating extensive awareness campaigns.
- Construction of land records in Arunachal Pradesh faces significant challenges, primarily due to the state's reliance on customary laws governing land management across various tribes. Additionally, the state's inner-line permit system and its designation as a largely forest-protected area make land transactions relatively uncommon. As a result, there is little perceived need to formalize land records, leading to a lack of accessible textual and spatial data for public use
- While in Arunachal Pradesh, despite the introduction of DILRMP, the computerization of land records has not effectively improved the process of accessing land-related services, according to respondents. The lack of cadastral maps, unique parcel identification, and an integrated land information system contributes to the challenges in implementing digital land record services. The absence of digitized Records of Rights (RoRs) and cadastral maps hampers the efficiency and transparency of land management. Only a few cadastral maps have been constructed across the districts. In addition, heavy reliance on customary practices is one the drawbacks of the quality of land records modernization.
- In Arunachal Pradesh, faces the shortage of skilled manpower and trained personnel, coupled with the lack of essential technical equipment such as DGPS, GPS, DMS servers, and scanners. In addition to the absence of critical software tools like GIS, ArcGIS, and AutoCAD creates a worse situation for land record modernization.
- Arunachal Pradesh, being a hilly region, relies heavily on West Bengal and Assam for technical support and skilled manpower. Most engineers and skilled professionals are sourced from Kolkata or Guwahati, making it difficult to engage them during the seven-month monsoon season. Full-fledged work can only be accomplished in rural areas for about three months a year, intensifying the challenges of mobilizing manpower during the prolonged period of rainfall.
- In Manipur, due to the ongoing political turmoil in the state has faced the obstacle to conducting surveys/resurvey across the state. However, the state already started the surveys/resurvey in the valley regions of Manipur. Although the pace of modernization is slow in the case of quality of land records. It also found that lack of skilled personnel, hampering the effectiveness of training programs for government officials. Poor infrastructure at the SDC and limited internet connectivity in rural areas make it difficult to educate landowners.

- Initially setting up of infrastructure and non-availability of adequate power supply was the major challenge in Manipur, where all activity related to data entry, verification and validation was supported by NIC District Centre with the help of Mandols (village record keeper). The lack of human resources and better training facilities and workshops at the revenue circle officials or district level were not adequate to address the gap of modernization of land records.
- Lack of the required infrastructure and skilled technical staff for maintaining the land records at the tehsil level, has delayed the process of updation and computerisation of land records in the state.
- Mere computerisation and digitization of textual and spatial land records and even their integration with the Sub-registrar office will not be able to bring any change in the functioning of the land record management system, as both Tehsildar and village Mandols/revenue inspectors maintain a host of other interrelated land record and register that have direct bearing with mutation proceedings which needs constant updation.
- In the case of Nagaland, the existence of the unique land ownership pattern has resulted in the surveyor being met with suspicion and resistance from the villagers. Due to customary law and traditional ways of land transaction textual and spatial records are not present in the state.
- The department of land records lacks the manpower and technical ability to conduct survey/resurvey and digitization of land records.
- Traditionally Nagaland is a communitarian society, where the clan/chieftain plays a crucial role in maintaining the day-to-day function of the village including the land record management. Thus, people are more trustworthy of the village council rather than the state machinery.
- In Nagaland, it was also found that the majority of the residents face difficulties in accessing government land records because of complex procedural delays and lack of public awareness among the people. Thus, people are compelled to seek legal assistance and in turn, fees charged by the advocate is beyond one's means.
- It is observed from Nagaland, that both the administration and village council has issued dual RoR for the same land parcel. For this, it is quite impossible to distinguish the right ownership of land, and therefore, banking officials face difficulties while providing mortgages or loans to respondents.

Recommendations for further research or implementation

- In Arunachal Pradesh, there is a need to conduct public awareness campaigns to educate landowners about the importance and scope of formal land documentation and the benefits of obtaining Land Possession Certificates (LPCs).
- The state has to come up with comprehensive training programs for land-related revenue staff right from the grassroots level to the district revenue office to implement various components of DILRMP

- Prioritize the digitization of all land records, including Records of Rights (RoRs) and cadastral maps. Assign unique parcel identification numbers (UPI) to improve record-keeping and management.
- Implement Modern Surveying Techniques, and invest in essential technical equipment such as DGPS, GPS, DMS servers, and scanners to enable accurate land surveys. Purchase critical software tools like GIS, ArcGIS, and AutoCAD to facilitate accurate mapping and digital management of land records.
- In the case of Manipur, there is a need to conduct a re-survey as the last survey was done in 1986, that too in only some villages of the Imphal West district in the state. Re-surveys should now be completed in all the districts of the state within a span of five to six years.
- There is a need to integrate the departments dealing with land, such as survey and land records, and registration department at village/tehsil/district and state level, which could facilitate simultaneous updating of land records caused by mutation, sale of property, partition, exchange, gifts etc. This may also help in the faster updating of land records as well as cadastral maps to reflect ground realities, which can be useful to the landholders.
- There is also a need to revamp infrastructure for keeping the land records at the tehsil level. Modern record room development at the tehsil, as well as district level, can be one of the important initiatives in this regard. There is a need to conduct a survey/resurvey across the Northeast states and integration of RoR with the land revenue.
- The Capacity Building and training from the lower to upper staff need to be maximized. The concerned department should identify officers and Staffs who should be responsible for the modernization of the land records programme.
- There is a need to train survey and revenue officials, including village-level functionaries, for the up-gradation of their skills in the computerisation of land records. Moreover, an initiative in the form of an error-free monthly updated maintenance of computerized land information, as in the case of registration of sale and purchase of land at the village level can also be taken into consideration.
- There is also a need for an online system for the public to enter cases regarding land disputes in their respective revenue courts. Moreover, registration software should also be linked to the RCMS software so as to enable the pushing of land registration to auto-mutation.
- The state should construct a monitoring and evolution team consists of both administrators and technical experts who can advise the nodal department on each and every aspect of the quality of land record modernization.
- In Nagaland, the unique land use pattern is not just a huddle but also an opportunity for the state to implement and integrate both customary and government land record systems to streamline the land records modernization.

- The state should create a public awareness at the grass-root level, to understand the significance of land records in the era of modernization. It would also reduce the gap between state machinery and people, which can lead to wider acceptance of government land records systems.