BEST PRACTICES
in
Digital India Land Records Modernization Programme (DILRMP)

Department of Land Resources
Ministry of Rural Development
Government Of India
Best Practices in Digital India Land Records Modernization Programme (DILRMP)

31st July, 2020

Government of India
Ministry of Rural Development
Department of Land Resources
It gives me immense pleasure to note that Department of Land Resources (DoLR), Ministry of Rural Development is bringing out “Best Practices in Digital India Land Records Modernization Programme (DILRMP)”, based on the presentations made by the States during Regional and National workshops since inception of the programme.

The term “land records” means different things to different people. Land itself includes the space above it and the soil below it, and records include anything and everything that preserves part of the story—wherever found and in whatever form. Land records tell something of the boundaries, of the ownership, of what the property used to look like, or what improvements existed at some point in time. But interpretation goes much further than that. There are more court decisions relating to real property—boundaries and ownership—than almost anything else.

A good land records system is a necessity for any harmonious and progressive society. Over the years, significance of error-free, tamper proof and effortlessly accessible land records has been the focus in India.

I am sure that the booklet on best practices in DILRMP would provide useful inputs to identify areas for innovation and helping other States to imitate such innovative practices in order to arrive at a more comprehensive understanding of the realities on the ground. It would ultimately lead to improving land governance system, reduction in land disputes, prevention of benami transactions and comprehensive Integrated Land Information Management System in the country.

I convey my best wishes and congratulate the team at DoLR for this important endeavour which I am sure would prove to be of great value for the development of the nation.

(Narendra Singh Tomar)
MESSAGE

The Digital India Land Records Modernization Programme (DILRMP) has been conceptualized as a major system and Land Reform initiative that is concerned not merely with computerization, updating and maintenance of land records and validation of titles, but also as a programme that will add value and provide a comprehensive database for planning development, regulatory and disaster management activities by providing location-specific information, while providing citizen services based on land records data.

I am delighted to learn that Department of Land Resources has come up with a publication on "Best Practices in Digital India Land Records Modernization Programme (DILRMP)" which is a step in the direction of sharing experiences by the States who have taken up innovative steps, at times going beyond the minimum expectations under the DILRMP.

I am confident that this publication will immensely help the States in assimilating the best and most effective practices adopted by other states in the modernisation of the land records.

My accolades to the entire project team of Department of Land resources for the efforts in the successful completion of this national level pursuit.

Sadhvi Niranjan Jyoti

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MESSAGE

Department of Land Resources was implementing two Centrally Sponsored Schemes viz.: Computerisation of Land Records (CLR) & Strengthening of Revenue Administration and Updating of Land Records (SRA&ULR). Later, on 21.8.2008, the Cabinet approved merger of these schemes into a composite modified Scheme named Digital India Land Records Modernization Programme (DiLRMP).

The main aims of DiLRMP are to usher in a system of updated land records, automated and automatic mutation, integration between textual and spatial records, inter-connectivity between revenue and registration, to replace the present manual deeds registration and presumptive title system with that of Integrated Land Information Management System in the country.

This publication lists various ‘good practices’ followed in land records modernisation across national policy framework and in nine study states namely Karnataka, Andhra Pradesh, Gujarat, Haryana, Maharashtra, Tripura, Himachal Pradesh, Jharkhand and Rajasthan. It also covers the ‘gaps’ in implementation of different processes (such as registration, mutation, survey, settlement, land acquisition), technological initiatives and legal and institutional aspects.

This book will therefore be helpful in updating land records on real time basis and making registration process transparent and reduce manual interface and cut down cost and time.

I congratulate and compliment my team at Department of Land Resources and the associated partners for their relentless efforts in bringing out this booklet.

I am confident that this publication will aid in filling the gaps in the land record sector and in facilitating transparent, valuable and effective measures for farmers, citizens, institutions, government departments, corporate bodies and industries.

Ruolkhumlien Buhril

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Executive Summary

India is one of the fastest growing economies in the world, but its growth potential can be further enhanced by improving the land governance system in the country. The manual system of maintenance and updation of land records practiced earlier resulted in poor and outdated land records. As a result, nearly two-thirds of all pending cases in Indian courts were related to property disputes. Millions of Indians could not use their principal asset as collateral to borrow from the formal financial system. The poor suffers the most. A large proportion of government land lied unused. A large part of the unused land was high-value property in prime areas in major cities. Land hoarding by government agencies created artificial scarcity and was one of the main drivers of skyrocketing urban real estate prices.

The need of the hour was to improve the quality of land records in the country and to make them more accessible. To aptly address such issues, **Digital India Land Records Modernisation Programme (DILRMP)**, the erstwhile National Land Records Modernisation Programme was launched in 2008 by the Government of India. DILRMP serves the purpose to digitize and modernize land records and develop a centralised land record management system and move towards government-guaranteed titles.

The citizen is expected to benefit from DILRMP in one or more of the following ways:

- **Real-time land ownership records will be available to the citizen.**
- **Since the records will be placed on the websites with proper security IDs, property owners will have free access to their records without any compromise in regard to confidentiality of the information.**
- **Free accessibility to the records will reduce interface between the citizen and the Government functionaries, thereby reducing rent seeking and harassment.**
- **Public-private partnership (PPP) mode of service delivery will further reduce citizen interface with Govt. machinery, while adding to the convenience.**
- **Abolition of stamp papers and payment of stamp duty and registration fees through banks, etc. will also reduce interface with the Registration machinery.**
- **With the use of IT inter linkages; the time for obtaining RoRs, etc. will be drastically reduced.**
- **The single-window service or the web-enabled “anytime-anywhere” access will save the citizen time and effort in obtaining RoRs, etc.**
- **Automatic and automated mutations will significantly reduce the scope of fraudulent property deals and hence will reduce land disputes.**
- **These records will be tamper-proof.**
- **This method will permit e-linkages to credit facilities.**
- **Market value information will be available on the website to the citizen.**
• Certificates based on land data (e.g., domicile, caste, income, etc.) will be available to the citizen through computers.
• Information on eligibility for Government programs will be available, based on the data.
• Issuance of land passbooks with relevant information will be facilitated.

This book is a compilation of different best practices which focus on addressing various issues, challenges, and threats to the implementation of DILRMP. The book discusses very scientifically about the mechanisms adopted by the states for better land record management. “BHOOMI - the land records computerization project” of Karnataka dedicated towards digitization of manual Record of Rights, Tenancy and Crops (RTCs) addressing the issue of tampering and destruction and the timely availability of village accountants leading to harassment of the farmers, has been discussed in detail. The book explains the service delivery mechanism adopted by Andhra Pradesh after implementing Mee-Seva which is indeed an emulatable model for the other states of India. A number of innovative practices introduced and followed by Gujarat and Haryana States in the field of Survey / Resurvey have been discussed in detail which will greatly help in reaching the stage of Integrated Land Information Management System (ILIMS) which will ultimately be reducing land disputes. The book also provides a vivid idea about the status of dynamic land records management and integration with registration via various softwares developed by the States of Maharashtra, Tripura and Himachal Pradesh. It also includes discussions on positive social impact apart from the direct benefits to the citizen and the administration. "Dharaa" app – a mobile-first approach of Rajasthan, provides a plethora of services and serves as a single citizen mobile application for land records. This book gives an insight into National Generic Document Registration System (NGDRS) “One Nation One Software” which will start a new era in the process of registration. We hope that it will be helpful for practitioners and researchers and also serve as a guide to other States as well.

(Hukum Singh Meena)
Joint Secretary
Department of Land Resources
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Introduction

Land and its management falls within the legislative and administrative jurisdiction of the State Governments as provided under Entry No.18 and 45 of the State List (List II) of the Seventh Schedule to the Constitution.

Land plays an important role both in rural and urban areas. Therefore, it is important that a landholder should have an authentic and tamper proof record of the land. Land being a State subject in the Constitution, the system of land records management varies from State to State, often even within a State, depending upon its historical evolution and local traditions.

1.1 Pre-Independence

**Summary Settlements:-**
- Settlements done by the British had three fold objects.
  - To assess land revenue.
  - To decide who shall pay the sum assessed.
  - To frame record of rights including rights of proprietor, lessee, mortgage, tenants etc. of each parcel of land.
- The maps prepared by young officers were done in haste having inaccurate measurements causing incorrect summary settlements.
- The first Land Revenue Act was passed in 1871 followed by the second Land Revenue Act of 1887.

**Regular Settlements:-**
- First regular settlement was made under the Land Revenue Act of 1887.
- During the fifth phase of settlements from 1902 onwards, complete re-measurement was done to correct old field maps known as the Bandobast of 1909-10.

Indian Land records system originated during the Mughal period. Dewan Todar Mal attempted to reform the system for the first time during Sher Shah Suri’s reign. Under the reign of Mughal Emperor Akbar, Raja Todar Mal the then Finance Minister transformed the land revenue collection and assessment into a systematic practice by appointing a clerk in every Village. This system of maintenance of land records by Patwari is still prevalent in Indian sub-continent which was improved by the British and later by Government of India.

British inherited the institutional form of agrarian system from the Mughals and rationalized levy and collection of land revenue from landholders by conducting cadastral surveys to determine village boundaries. The original land survey in various parts of the
country was carried out in the late 19th and early 20th century (1880 – 1915) by old Princely States and the British. Original cadastral survey did not take place in many North-Eastern States; e.g. Arunachal Pradesh, Manipur, Meghalaya etc. A similar situation prevailed in the Union Territories (UTs) such as Lakshadweep, Andaman & Nicobar Islands, and Daman & Diu. In many parts of Maharashtra, Odisha, Tripura and Chhattisgarh also, the survey and settlement operations had not taken place. The survey was carried out with the conventional survey techniques like cross staff and steel chain available at that time. It was envisaged that re-survey would be done every 30 years, but for various reasons no large scale fresh survey or re-survey has been carried out, with the result that the papers of survey records have become inaccurate, very old, fragile, mutilated in addition to the fact that a large number of cadastres have been lost over a period of time.

1.2 Post-Independence

After independence, the Government of India took a number of steps for land reforms, doing away with the intermediaries i.e. the Zamindars, imposed land ceiling on size of land holdings, redistributed land to the tillers, rationalised tenancies, took up land consolidation etc.

The Government of India initiated two Centrally-sponsored schemes in the mid-1980; Strengthening of Revenue Administration & Updating of Land Records (SRA&ULR) and Computerization of Land Records (CLR) to computerise the land records in the country.

These schemes were rationalised in 2008 and the Department of Land Resources is implementing the National Land Records Modernization Programme (NLRMP) since 2008 to modernize the land records management system, in the country with real time, tamper proof and transparent land records. The programme was revamped as the Digital India Land Records Modernization Programme (DILRMP) from Centrally Sponsored Scheme to Central Sector Scheme with hundred percent funding from Government of India with effect from 01.04.2016. To set-up a modern land administration system, the two main systems of the land administration viz. i) land records management, and ii) registration are proposed to be modernised and integrated with the help of modern technology. The ultimate goal of the DILRMP is to usher in a system of Integrated Land Information Management System (ILIMS) wherein all the information is available at one place. DILRMP is one of the State-level Mission Mode Projects of the
Digital India Programme of Government of India. While a major focus of the programme is on providing improved citizen centric services to the land owners and other people, an efficient land administration is essential for ease of doing business and hence for faster growth of the country. In modernising the land administration system in the country, the implementation of various activities under the programme envisages making use of advanced space and computer technology. Expert organizations like the Survey of India, NIC and Indian Space Research Organization (ISRO), etc. are being involved in imparting training to master trainers, who in turn, train the State/UT staff in ETS/DGPS, survey methodologies, scanning, digitization, GIS and ICT activities. The Department is also organising exposure visits for the officers and staff of the States/UTs which do not have a legacy of maintaining land records and lack the technical competence to modernise their land records, to other States/UTs which have demonstrated considerable success in implementing the project. The present publication is a step in the direction of sharing experiences by the States who have taken up innovative steps, at times going beyond the minimum expectations under the DILRMP. This book contains write-ups on the presentation made by the States during Regional and National workshops since its inception.

To achieve the objectives of the programme, the following activities are being supported under the DILRMP:

**COMPONENTS OF DIGITAL INDIA LAND RECORDS MODERNISATION PROGRAMME (DILRMP)**

1. **Computerization of land records including:**
   - Computerization of Records of Rights,
   - Digitization of Cadastral Maps,
   - Integration of spatial and textual data,
   - State-Level Data Centres (SLDC).

2. **Survey/Re-survey and Updating of Survey & Settlement Records**
   - Pure Ground method using Electronic Total Station (ETS) and Differential Global Positioning System (DGPS);
   - Hybrid methodology using aerial photography and ground truthing by ETS and DGPS;
   - High Resolution Satellite Imagery (HRSI) and ground truthing by ETS and DGPS.

3. **Computerization of Registration**
   - Computerization of Sub-Registrar’s Offices (SROs),
   - Data entry of valuation details,
   - Data entry of legacy encumbrance data,
   - Scanning and preservation of old documents,
   - Connectivity of SROs with Revenue Offices.

4. **Modern Record Rooms etc**
   - Setting up Modern Record Rooms, Land Records Management Centres at Tehsil, Taluk, Circle, and Block Level

5. **PMU and DILRMP cell for Capacity Building**
   - Training & Capacity Building of the officers and staff implementing the programme.
1.3 Implementation of DILRMP

Since land and its administration is a State subject, activities envisaged under the programme are implemented by the State Governments/UT administrations. The States/UTs draw up projects to implement these activities, including a comprehensive training programme for their revenue, survey, registration officers and staff for effective implementation of the above activities and subsequent operating of the system including mutation and updating of land records, issue of authenticated copies of RoRs along with maps-to-scale, handling modern survey equipment such as DGPS, ETS etc.

A Project Sanctioning and Monitoring Committee (PSMC) at the Government of India level has been set under the Chairmanship of Secretary, Department of Land Resources to sanction and monitor projects and guide implementation of the project. At the State/UT-level, Monitoring and Review Committees have been constituted under the Chairmanship of respective Chief Secretaries of the states for regular review of the programme. The programme also envisages the constitution of District Level Monitoring and Review Committees to review the progress of implementation of the programme at the ground level and submit report to the State-level Monitoring and Review Committee. A Core Technical Advisory Group (CTAG) has been constituted which includes, inter-alia representation, from expert technical organisations like Survey of India, Forest Survey of India, NRSC, NIC etc. to render technical advice and assist the Department of Land Resources, Government of India and the States/UTs in finalising the costs norms.
1.4 Achievements and Benefits to Citizens

As envisaged under the programme, many States have achieved remarkable success in delivery of public services to the citizens. The programme has also helped create a data base for the scientific development of land. Some of the benefits to the citizens resulting from the successful implementation of the programme include:

- **Easy access to computerised copies of Records of Rights (RoRs):** Computerization of Record of Rights (RoRs) has largely been completed in 23 States, whereof 12 States are issuing ROR through Kiosk/ Common Service Centre at Town/Village level (such as Lok Mitra Kendras in Himachal Pradesh etc.), or have made possible taking of printouts of the RoRs from the States website anytime as records have been placed on the State's website. 25 States/UTs have placed ROR data on the State's websites; 17 States have digitized their cadastral maps with the result that these states are in a position to issue land records with maps.

- **Reduced interface with the government offices:** A major problem faced by the farmers in getting their land records has been the repeated visits required to see the Patwari or Tahsildar offices where these officers were not available for one reason or the other. Computerisation of land records with alternative channels of delivery has made obtaining of land records hassle-free with reduced malpractices. 17 States have stopped manual issuance of RORs, 21 States/UTs have accorded legal sanctity to computerized copy of RORs.

- **Enabling States to provide guaranteed public services or integrated public services.** Mee-seva of Andhra Pradesh is a pioneering effort in providing integrated services to the people at one window. The Government of Madhya Pradesh is a pioneer in enacting Madhya Pradesh Public Service Delivery Guarantee Act-2010 to provide time-bound, right-based public delivery of services of a number of Departments at one place.

The e-sub registrar offices are streamlined and transparent
Many other States have also taken a cue from these states and have introduced these services.

- **The DILRMP has made easier to obtain other land-based certificates** such as SC/ST/OBC caste certificates, income certificates, domicile certificates etc. due to easier accessibility of RoRs.

- **Easy access to land information**: The spatial maps developed by Gujarat, Bihar and some other states overlaying various infrastructure facilities and the ownership details manifest the potential of data generated under DILRMP for easy identification of land for developmental projects. The programme envisages setting up of Modern Record Room at Tehsil level and State data centres;

- **Integration with Registration**: Computerisation of registration and its integration with land records offices facilitate automated mutations, making property transaction efficient. Integration of Bhoomi-Kaveri by the Government of Karnataka is one such example. 24 States have computerized their registration process and 14 States/UTs have integrated their Registration Offices with Revenue Offices.

- **Bank Links**: Some States like Karnataka, Gujarat, UP etc. have provided access to RoRs to banks, leading to reduced time in sanction of bank loans.

- **Survey/Resurvey**: Gujarat and Haryana have made progress in the resurvey of land, while Bihar, Odisha, Rajasthan and Maharashtra are at various levels of implementation of this activity. The progress made by Gujarat in resurvey and creating updated cadastres brings out the fact that overlaying these cadastres with the maps pertaining to infrastructure and other facilities available in that area has considerable potential for facilitating decisions for identifying land for development purposes.

- **Link to other sectors**: Computerised land records data are useful for many sectors. Digitised cadastral maps/ FMB and computerised Records of Rights are useful for effective delivery of crop insurance, fertilizer subsidy. Similarly, the National Generic Document Registration System (NGDRS), an advance software for registration process, is enabled for automatic flow of information of high value properties transactions to Directorate of Income Tax, Ministry of Finance.
Karnataka-Computerization and Modernization of Land Records- BHoomi and its integration with KAVERI

A major activity under the Digital India Land Records Modernization Programme is the computerization of land records which is to set-up a modern, comprehensive and integrated land record system to provide Citizen Centric Services in the country. Many States have largely computerized the records of rights and some of them have integrated these records with other departments with added services to the citizens. Some of the best performing States in the country in this respect are Karnataka, Andhra Pradesh, Telangana, Tripura, Himachal Pradesh, Tamil Nadu, Gujarat, Rajasthan, Sikkim, Puducherry and Jharkhand etc. The success under this programme has been considered in terms of easy and quick availability of Record of Rights (RoRs) to land owners, with minimum interface with the Patwari and tehsil offices, inter connectivity of land revenue offices, integration of land records with registration so as to initiate automatic mutation (which in future should enable online verification of the land records at the time of registration) and connectivity with other offices such as banks for quick processing of loans to farmers.

Before computerization, the land records in Karnataka were maintained by 9000 village accountants and were not easily accessible to the farmers, as an accountant used to serve about 3-4 villages. Mutation requests also took long time in finally altering the ownership details as requested by land owners. Government of Karnataka started computerization of land records in 1991 under their Bhoomi Project, taking help from the computerization of land records (CLR), a Government of India Scheme. The need for Bhoomi was felt since the manual Record of Rights, Tenancy and Crops (RTCs) were prone to tampering and destruction and the timely availability of village accountants was not certain, leading to harassment of the farmers. The project was conceived to reduce the interface between the Government officials and common citizen to provide on demand citizen services for delivery of computerized RTCs through kiosks.

2.1 BHoomi- the land records computerization project

The Bhoomi project began in the year 2000 with the basic objective of digitization of manual Record of Rights, Tenancy and Crops (RTCs) which is the main document recognized for identification of ownership/occupant and for reclaiming rights and liabilities of any agricultural land. The Bhoomi software was developed by NIC. After the data entry of the manual RTCs was completed on “as is what is” basis, the verification and
validation of the digitized data was done by the Revenue Department officials. In order to make the best use of the computerized records wherever the records had been computerized, the State Government banned the manual issuance of RTCs in 2002, through an amendment of the Karnataka Land Revenue Act, 1964. The State Government decided to recognize only the computerized land records and RTCs duly signed by the authorized signatory.

At present, nearly 2 crore manual RTCs have been digitized and the Bhoomi software is the only platform for up-gradation of land records. All taluks / tehsils have a project site for this purpose. Since inception of Bhoomi, approximately 15 crore computerized RTCs have been issued to the farmers. Annually about 10 lakh mutations are carried out through Bhoomi software. RTCs and mutation copies are issued to the citizen on a nominal charge of Rs. 10/- per RTC and Rs. 15/- per mutation copy at the land revenue and RTCs kiosks.

- RTCs are also being issued at 892 Atalji Jana Snehi Kendras & various tele centers, apart from the 203 RTC kiosks across the state.
- There is a state level user charges committee headed by the Principal Secretary, Revenue Department to fix the user charges.

To make the mutation process transparent and easy, the State Government has set up dedicated Bhoomi application kiosks for receiving mutation requests. The Software controlled process obviates arbitrariness in the timely completion of mutation requests, because of the following features:

- Dedicated Bhoomi application kiosk for receiving mutation request based on Request- cum – acknowledgement concept.
- Software controlled checks for acknowledgement of submission of supporting documents at Kiosk.
- Bhoomi uses Biometric Device for effective security to access the Bhoomi software & approving the mutations & thereby ensuring accountability at every stage.

The software automatically generates transactions and mutation number. First in First out (FIFO) number has been adopted in disposing of the mutation cases to ensure that the revenue department officials do not delay or favour people in carrying out the mutation. The MIS reports make it possible to track the time taken in completing

Integration with other services
The State has integrated the Bhoomi data base with other system and Departments as follows:-
- Registration Dept: Bhoomi – Kaveri Integration
- Survey: Bhoomi – Mojini Integration
- Land Acquisition: Bhoomi–Land Acquisition Integration
- Banking : Bhoomi – Bank Integration
the mutation process in each case. These reports also make it possible to point out the officer-wise pendency and ranking of districts/taluks on the basis of efficiency in completing the tasks.

2.2 **KAVERI- the Registration Process**

The Kaveri software which has been developed for registration, uses data from Bhoomi database;

- Kaveri software uses data from BHoomi database during the registration process itself for the registration of all properties for which RTC database is available.
- Only the current owner, whose data is available in Bhoomi database can transfer the rights.
- No transfer of rights are allowed on Prohibition of Transfer of Certain Land (PTCL) Act, 1978 (Land granted to SC/ST).

This makes it possible that no sale, pledge/mortgage transactions are allowed on Government or Common Property Resources (CPRs). It ensures that only the current owner, whose data is available on Bhoomi data base, can transfer the rights. It also makes it possible that there is no transfer of record of rights, on land settled with scheduled castes and scheduled tribes. **It also facilitates to check that any order of the court on some registering parcels are complied with.** With the integration of Bhoomi and Kaveri, the mutation transactions are initiated automatically and the notice for mutation is generated by the next date.

2.3 **Integration of Bhoomi with the Survey Department**

The integration of Bhoomi with the Survey Department within MOJINI software has also been achieved. The Survey Department uses data from the Bhoomi project.

- MOJINI software of survey department uses/consumes BHoomi data to prepare pre-mutation sketch (PMS/11-E sketch) for measurement/identification of land before registration for the benefit of prospective buyer.
- Pre-registration sketch avoids future litigation & assures the prospective buyer of certainty of the land (extent & location) he is going to buy.
- With this, there is synchronization between textual data (RTC) and spatial data (11-E sketch) & simultaneous updation of RTC and survey records with the help of integrated Mutation Podi (IMP).
- Bhoomi has also been integrated with the Integrated mutation Podi System (IMP) to achieve both mutation and podi (plotting/division of land transacted in survey records) in one shot, to ensure each owner/occupant has separate RTC.
- Survey records match with RTC.
- Bhoomi - land acquisition integration facilitates in bringing tight integration between BHoomi and land acquisition activities which helps in maintaining updated land records and helps in preventing wrong notification due to volatile nature of data & avoids procedural mistakes.
- This integration avoids acquisition of same piece of land more than once resulting in payment excess/double compensation.
2.4 Bhoomi-Bank integration

Farmers and bankers faced a number of difficulties in credit advancement process in the Banks under the system of manual records. To overcome these problems, the integration of banks with Bhoomi records was taken up with the objective of automatically initiating mutation transaction in BHOMMI, based on the online requests raised by Bank branches, either to add or remove liabilities. The benefits from such integration are presented below:

**Before Integration**
- Repeated demand for fresh RTCs from farmers by Bank.
- Banks force farmers to obtain NOC from all other Banks with in a specific area before disbursement of loan.
- Delay at the time of entry of encumbrances in RTC Farmer has to visit 5-6 offices that too multiple times.
- Failure in timely disbursement of farm credit & excessive delay, usually taking months for updation of credit information in the RTC.

**After Integration**
- Credits of all Financial Institutions (FIs) of pledge are entered without fail in ---- TRCs
- Bank need not insist for NOC from all FIs as all encumbrances are recorded in Bhoomi records
- No cross lending – TRCs becomes one referral point for all agricultural lending – crop loan as well as term loans
- ¾ reduction in time taken for updation of rights & liabilities details in TRCs.
- Substantial reduction in man power required.
- Reduced litigation – increased benefits to FIs & farmers.

### Reach of Bhoomi bank Integration (2012-2013 to Jan 2015)

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2.5 Ongoing Activities/Projects in BMC

- Redevelopment of Bhoomi software christened as "NAMMA BHOOMI" based on a centralized architecture using state-of-the-art technology.
- Development of New land acquisition software based on "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act-2013."
- Revenue Court Module linking AC/DC offices with Bhoomi.
- Software to monitor all Revenue Court Cases.
- Web based user management tool for login/DSC request from field Offices to BMC.
- Software to handle Conversion of Land.
Mee-Seva – Andhra Pradesh

A key objective of the Digital India Land Records Modernization Programme is to improve delivery of public services to the citizens. The programme aims at developing transparent and tamper-proof land records and their hassle free access to the landowners on demand, delivery of the copies of records of rights at their doorstep through kiosks, in a time bound manner, without interface with the revenue officials. Citizen Charters have been prepared by many States like Andhra Pradesh, Telangana, Himachal Pradesh and Madhya Pradesh to ensure time bound delivery of services. One pioneering effort in the country in this regard has been the “Mee-Seva” in Andhra Pradesh. Computerization of land records in Andhra Pradesh was initiated in the mid-1980s. As on date, the record of rights i.e. Adangal/Pahani in Andhra Pradesh has been computerized.

The objective of Mee-Sewa is to enhance accountability, transparency and responsiveness to the needs of the citizens by providing services through a cost effective method. The ultimate objective is to bring public services closer to the citizens as articulated in the vision statement on National e-Governance Project. Mee-seva provides integrated services, aiming at easier, faster, online, web-based, transparent and secured citizen-centric service facility to provide convenient access to the citizens without any need for them to go to multiple Government offices for getting their work done. Efforts have been put to offer various services through a seamless & integrated architecture and provide a very friendly interface to the citizens transacting their activities with various departments. These services are classified broadly in two categories; Category 'A' services can be delivered across the counter by a Mee-Seva operator; while category 'B' services require back-end operations from the concerned office of the issuing authority. The pilot

Objective of Mee seva

- To enhance the accountability, transparency and responsiveness to citizen's needs.
- To provide cost-effective methods of service provision to the departments and agencies.
- To provide efficient and real-time MIS reports to the Departments.
- To ensure quality and reliability of provision of services through enforcement of mutually agreed SLAs.
- Ultimate objective is to bring public services closer home to citizens, as articulated in the Vision Statement of NeGP (National e-Governance Project)
Mee-Sewa was launched by the State in Chittoor on 4.11.2011, offering 10 services.

At present, the services of the Revenue Department are operational in 13 districts of the State. There is a wide network of Mee-Sewa kiosks with 4218 authorized Mee-Sewa kiosks providing 288 services of various Government Departments, of which 64 services relate to the Revenue Department. In all, 3.70 crore services requests were received till the end of 2014 out of which 2.87 crore requests belonged to the Revenue Department. Around 27% requests were disposed off across the counter while 72% required back-end operation.

Further, to improve quality, the Government of Andhra Pradesh has decided to seed Aadhaar Number of each Pattadar in the State in Webland Software. Such Aadhaar seeding will further prevent benami transactions and also create the potential to identify ceiling surplus land for redistribution as per the State Policy. It could also help in identification of genuine Pattadars for issuing loans, registration benefits of Government schemes, distribution of crop subsidy, settling claims under Crop Insurance, linking of Pattadars with their bank accounts and can thus pave the way for providing benefits directly to the farmers. The State has a total of 70,46,445 Pattadars out of which 82% have been seeded so far.

One vital feature of land administration in Andhra Pradesh is the integration of revenue and registration records by Integrated Web-land and CARD Software. The manual process for mutation has been stopped. The Registration
Department now verifies the land details before registration of the transactions. After registration of documents, these are automatically transferred to the Revenue Department for mutation.

The State Government has introduced another service which is issuing Pattadar's Pass-book electronically and secured stationery with 13 security features and the State Unique ID Number. Such Pass-books can be obtained through Mee-Seva. The State Government has also developed e-Title Deed Module which is at present at the testing stage. To further improve the delivery of services the State Government has targeted 100% computerization of land records including graphical spatial records. The State Government is working on operation of a GIS by integrating textual data and spatial data. It proposes to introduce hassle free and time-bound mutation with mandatory survey before registration. In place of a complete survey, Government of Andhra Pradesh will have need based survey with continuous upgradation of the survey records with modern equipment.

**WAY AHEAD FOR ANDHRA PRADESH**

- 100% Computerization including Graphical Records.
- Creation of GIS by integrating textual data and spatial data.
- Hassle-free and time bound mutation.
- Mandatory survey before registration.
- Need based survey and continuous updatation.
- Modern survey equipment(ETS/DGPS).
- Strengthening Mandal IT infrastructure.
- Modern Record Rooms
- Training and Capacity Building.
Re-Survey of Land in Gujarat

The original survey of land in the country was under taken by the British with the main objective of facilitating collection of land revenue and demarcating the boundaries. Though the re-surveys were envisaged at regular intervals of 30 years, however, these were never taken up by the State Governments. Some of the States conducted revised surveys after independence at the time of consolidating the land holdings which were taken up during the 1970s and 1980s. Since the original surveys are very old, the cadastres prepared at that time do not reflect the present ground situation. Therefore, a need was felt for some time for land resurvey. In some parts of the country where the survey has never taken place, the States need to conduct survey. Keeping these considerations in view, the National Land Records Modernisation Programme (NLRMP) laid a great emphasis on the survey/re-survey of land using modern technologies. After careful consideration, the NLRMP suggested that the following three modern technologies were found to be most suitable, for which financial and technical assistance is provided under the programme:

(i) Pure Ground method using Electronic Total Station (ETS) and Differential Global Positioning System (DGPS);
(ii) Hybrid methodology using aerial photography and ground truthing by ETS and DGPS;
(iii) High Resolution Satellite Imagery (HRSI) and ground truthing by ETS and DGPS.

The Government of India provides 100% financial assistance for survey/re-survey, besides arranging the technical training; yet the States are generally hesitant to take up the survey/re-survey of land due to lack of technical capability of their staff and officers, who have been used to the conventional methods, to handle the modern technology and also lack of political and administrative will. Nevertheless, some States like Haryana, Bihar, Odisha, Maharashtra etc. have initiated the work of using different modern technologies and are in the early stages of the re-survey. In this perspective, the initiative of the Government of Gujarat under NLRMP deserves commendation, paving the way for other States to take up the survey.

4.1 Original Survey in Gujarat

The original land survey in various districts of Gujarat was carried out in the late 19th and early 20th century (1880 – 1915) by old Princely States and the British. The survey was carried out with the conventional survey techniques like cross staff and steel chain available at that time. As per the prevailing provisions of law (The Gujarat Land Revenue Code, 1879), normally re-survey was to be done every 30 years, but for various reasons no
fresh survey or re-survey in the State of Gujarat was carried out, with the result that the papers of survey records have become inaccurate, obsolete, fragile, mutilated in addition to the fact that around 20% to 25% of the records have been lost over a period of time. Due to the various changes over a period of time, these records many a time are not commensurate with the ground realities. The unit of measurement was at the time of old survey was Vigha – Vasa & Acre – Guntha which was converted to Hectare – Acre- Meter with adoption of new Metric system without any fresh measurement. During the original survey, a tolerance limit of 5% was allowed while calculating the final area. As the original cadastral survey was not geo-referenced, the mosaicked village maps often overlap each other.

4.2 Current Resurvey of Agricultural Land in Gujarat

The current resurvey of agricultural land which is underway in Gujarat under DLRM / NLRMP is a joint effort of the Central and State Governments. The Government of Gujarat has taken the initiative in starting and implementing the project. Resurvey has been initiated and completed in many districts in the State. The State is using the latest land surveying technologies like Differential Global Positioning System (DGPS) and Electronic Total Station (ETS) machines with 100% ground truthing method.

4.3 Vision & Objective

The State initiated the work on land re-survey with the following vision:

"To undertake detailed resurvey in Gujarat and create updated land records including textual and spatial information, enabling establishment of a system which will help in the continued maintenance of updated land records and provide ready and smooth access to the required information to all stakeholders – including Citizens and Government."

The objectives of the resurvey were set forth as follows:

- Creation of an updated Cadastral and Title database through re-survey & measurement and Title verification process.
- Creating an integrated view of textual and graphical information on land records using latest land survey technologies & GIS software.
- Replacing manual records with digital records, updating the records and ensuring consistency of information across the departments.

4.4 Planning and Information, Education and Communication

A key to such a large project is detailed planning and unambiguous information dissemination and clear communication with all the stakeholders implementing the
project including the government officers and staff, the survey agencies, the landowners and other institutions such as the Panchayati Raj Institutions. The State Government prepared a detailed work plan for the pre-survey, survey adjudication and post-survey activities before starting the resurvey. A manual in Gujarati and English language was prepared and released by the then Hon’ble Chief Minister of the State on 30-05-2012.

The manual contained all the necessary details like:

- Work flow and role of the officer concerned.
- Time limit to complete the task and to whom the report is to be submitted.
- Tender Document with pre-bid clarifications.
- Legal provisions relating to resurvey work.
- Circulars and GRs published by the State Government on resurvey.
- Formats of report and of communication.
- Detailed methodology to be followed at different stages of the survey.

To educate all these stakeholders, the State Government prepared a documentary film on the project, highlighting its objectives, the methodology, the processes to be followed, the work flow charts; an actual gram sabha meeting, the process of adjudication, the process of final record preparation, the job chart of survey agency, the role and responsibilities of the landholder during survey, and an interview with the Commissioner of Land Records, field officers and farmers. This film was first shown at the National level Workshop on NLRMP during 2012-13 at Gandhinagar. It was made compulsory that all survey agencies should show this film while conducting a gram sabha.
To ensure people’s participation, it was made compulsory for all survey agencies to issue an advertisement in the local newspapers at the beginning of survey, indicating the schedule fixed for the gram sabha, details of land to be surveyed, and for distribution of land parcel maps, made compulsory for all survey agencies.

Toll free telephone helplines have also been started for all districts. This resulted in the support & co-operation of the landholder during measurement and the handling of objections during measurement and brought about transparency in entire work.

4.5 Monitoring System

As the project involved a large number of stakeholders, quick resolution of any issue emerging during the survey work is required, giving clear directions. Also based on the feedback on the execution of the project, quick decisions are required for any course correction, for the speedy and smooth implementation of the project. Therefore, project committees have been set up at four levels i.e. State, District, Tehsil & Village, with clear roles and responsibilities of each of these committees, so as to ensure that there is no delay in resolving of any issue, whether policy related issues at the top level or the ground implementation of activities. As per their roles, these committees meet regularly at their respective headquarters to resolve issues & speed up progress. Weekly progress review meetings are held at Commissionerate level with all agencies and clear instructions are issued. More than 32 circulars have been issued, giving clear guidance to ensure that no delay takes place in the implementation of the project.

4.6 Hardware and internet connectivity and Software applications

Computer servers with the required capacity have been installed to handle large volumes of data for the entire resurvey work at the State Data Centre. The district level offices have been provided with internet and SWAN connectivity, in order to transfer data to the State Data Centre. The central data base has been made accessible to all users with ID and secured password.

Special computer applications were developed for i) the Resurvey work, ii) Graphics & GIS work, and iii) Online- work monitoring. It has brought uniformity in the discharge of the work at all four stages of the project viz. pre-survey, survey, adjudication & post-survey
activities. Special modules, both textual and graphic, have been developed which include data formats, land registers, land parcel maps and village maps and all allied 11 deliverables in Unicode supported in Gujarati language. Uniform colour coding scheme, hatching pattern and feature codes were decided for more than 110 land uses and features. Software application has been developed for integrating new textual RoRs with maps of land parcel. Both data are now integrated, due to which the new RoR are provided with a map of land parcel to the holder of land. The Software application has further enabled the integration of land data with registration.

4.7 Progress of resurvey

The Government of Gujarat initiated the resurvey work during 2008-09 in Jamnagar on a pilot basis. As per the guidelines of the Government of India, the Ground Control Networks (GCNs) have been established in the entire State covering 1,70,000 Sq.KM of area. 4 layers of GRID of ground control points i.e. Regional, Primary, Secondary and Tertiary have been established in all 33 districts in the State. The resurvey work has been extended to all 33 districts of the State covering 1,70,000 Sq. KM area. Presently, the resurvey work is in full swing in the State, with the target to complete the entire resurvey work before December, 2020.

Resurvey work is already in progress in all 33 districts and nearing completion in 8 districts. Detailed Survey work, using the latest survey technology, has been completed in 9851 villages out of a total of 18,501 villages and the final record has been prepared for 4989 villages. Records of 1636 villages have been finally promulgated, wherein digital GIS based & integrated RoR is available to the people. Arvalli District, with all its 682 villages, is fully promulgated and it became the first promulgated district under NLRMP. This project brings out the fact that it is possible to modernize land records with survey, with the active involvement of the people, with due preparations and detailed planning. It has made possible, for the first time in the country, to issue copies of the computerized Record of Right with map at Civic centres. The effort of the State received commendation during the Conference of Revenue Ministers held on 27-06-2014 at New Delhi.
4.8 Integration with other Services/Departments

The state government has integrated the work with a number of other services and departments as mentioned below:

Integration with Banks

The present process of getting crop loan from banks is time consuming, forcing a borrower to contact three different offices 1. Bank 2. Sub-Registrar office, and 3. RoR offices. To solve this problem, access to real time Land Records (RoR) has been provided to all leading banks which are sanctioning any loan / debt to the landholder. A Master user application has been created for the banks so that banks can access the land records and initiate the mutation entry in RoR for any loan / mortgage (Boja). Banks will also be able to release mutation entry in RoR after repayment of loan (Boja Mukti).

Land Acquiring Bodies

There is a huge backlog of mutation entry in land records for land acquisition by different land acquiring bodies. Due to this reason, land acquiring bodies find itself difficult to know to whom they should pay money for the land actually acquired. Also, the names of LAQ authorities are not properly recorded in the RoR. Sometimes, there is a problem regarding the area and confusion about whose land is actually acquired. To solve this problem, a Government resolution has been issued and like banks, all land acquiring departments & bodies are now authorised and allowed to initiate mutation entry for LAQ in RoR accessing the real time RoR.

All ordering Authorities

Over and above the Revenue Officers, various authorities, other officers and courts also pass orders for which a mutation entry is required to be initiated in land records. Sometimes, it takes months to initiate this entry in the RoR. Due to this reason, even the online land records do not reflect real time situation. To avoid this situation, all officers and ordering authorities are allowed to make and initiate entry in real time land records. As a result of this, the land records will be real time and more transparent which will help to bring “Clear Title System” based RoR or near to “Conclusive Title System” in the State.

Integration of Land Records

The Revenue Department is integrating all the three activities i.e. the Survey, the Record of Right and the Registration. The new accurate and integrated digital land records will be very useful to all stakeholders including various Government departments for development and macro planning.

Digitisation of Cadastral maps

Gujarat is first amongst the few States in India which have completed digitisation of
Cadastral maps. During 2005-06, all 18352 old village maps and 24800 map sheets were scanned, geo-referenced on satellite images and digitised up to the land parcel. As old village maps were not geo-referenced, the mosaicked, village maps are getting overlapped or interacting amongst them. To solve this issue, all digitized maps were processed on single platform using 1 x 1 km grid. All satellite images were provided by ISRO and the project was completed using state fund.

**Challenges faced**

State Government faced difficulties due to large scale changes in land use, fragmentation of holdings which rendered large difference in ground realities & land records were not timely updated. Due to these reasons, the area derived from the digitised maps differs from what has been recorded in RoR. The digitised maps are used for the purpose of macro planning by various Government departments and organisations with these limitations.

### 4.9 Computerisation of Land Records

Computerisation of RoR (e-Dhara) was completed during 2004-05 & the manual issue of RoR is banned by Government Regulation/Order (GR) since 2004-05. Further mutations using computers were started during 2005-06 and 34 types of mutation modules were developed. Integrated Land Records (e-Jamin) project is introduced since 2010 replacing e-Dhara in which;

- All land records and registration records were converted to centralized format & at central servers at State Data Centre (SDC).
- New software through which when registration is done, automatic mutation gets registered for agriculture land.
- Administratively, Land records and Registration offices brought together at Mamlatdar office (Taluka) and opened approximately 75+ new Sub-Registrar offices where SRO were not present.
- E-Stamping counters were also established in each taluka Mamlatdar office in each e-Jamin Kendra.
- As on today, all taluks of Gujarat state from 33 districts (All 248 tehsils) have dedicated connectivity (GSWAN) and are functioning fully online.
- Processing almost 80000 mutations every month out of which 25% mutations are of agriculture land as SALE mutation (Auto Mutation).

### 4.10 Property Registration – GARVI

The entire property registration process has been computerised and is available online. It has been integrated with RoR and for sale deed transaction, the holder need not contact two different offices i.e. revenue and registration due to auto mutation process. The details of GARVI are:
• Application is meant for Superintendent of Stamps and Inspector General of Registration.
• The application covers the complete process of property registration in Gujarat State i.e.
• Pre-valuation
• Registration fees
• Market value calculation
• Capturing photo and thumb impression of buyer & seller parties
• Scanning the document
• Auto mutation for agriculture
• The web based application is implemented in all Sub-Registrar offices
• The application is hosted at State Data Centre
• The system is integrated with land record and at present all agriculture transactions in GARVI are reflected through auto mutation in land record.

4.11 Preservation of old record

Over and above computerisation & modernisation of records, the Revenue Department has taken steps to preserve important old records. The entire Scanning of Land Record is covered under IT Road Map of the State. The work completed includes the following:

• Legacy record of all survey number scanned (2011-13)
• Village Form No. 6 Mutation Register (2011-13)
• Village Form No. 8 A - Khatavahi (2011-13)
• All Village Maps – More than 26500 Map sheets (2005-06)
• All Land Parcel Maps (Tippana) : 80 Lakh Pages (2009-10)
• All Property Cards in City Surveyed Area - 50 Lakh Pages (2011-12)

4.12 Modern Record Rooms

The State has modernised record room in 225 Revenue Offices out of 248 Offices including survey settlement offices. The original land record of these offices are now stored in mobile storage compactors which are attached to civic centre. The copies of maps, records and information are provided from this centre.
4.13 Way Ahead...

At present, the status & title of RoR is presumptive. With the final output of NLRMP & resurvey, the goal set by the State Government is to provide Clear Land Titling for all RoR. It is planned to provide and maintain world class land records keeping system. For day to day updation & maintenance of new resurveyed record, the spatial mutation software application is also developed and it is under testing and is operational since April-2015. The highlights of road ahead are:

- 100% Computerized & Digitized land record
- To cover all forms and accounts of land record keeping
- Integration of Revenue Offices – Revenue, Survey & Registration
- All records on secured State Data Centre only
- ROR with GIS anywhere
- Geodetic Data centre is created
- Internet & intranet based record
- Online & Mobile based applications with e-payment gateway
- Access of Data to all stakeholders with secured password

With consistent support and guidance of the political leadership of Gujarat State, the resurvey work in the State is progressing well. The hardship faced in executing the project relates to its technology i.e. the State is doing this work using 100% ground truthing methodology using ETS and DGPS, which provides the best accuracy in land survey methodology amongst three popular land survey technologies. Using this technique, the surveyor has to go to each field and measure the farm in front of land holder. The critical activity i.e. record promulgation work was covered under ‘Gatesheel Gujarat’ the target oriented programme directly under the supervision of the then Chief Minister of the State. It has been targeted and is expected that the total revenue area of the Gujarat i.e 1.70 Lakh Sq. Km. will be completely surveyed and the State will be able to complete entire project by December-2020.

The resurvey work will enable to set up a land records system which is up-to-date on real-time and is transparent which will help to bring “Clear Title System” based RoR or near to “Conclusive Title System” in the State.
Distribution of copies of New RoR by Hon’ble Revenue Minister.