Land Records Management: Institutional Challenges and Issues

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Concept of the Workshop

Land, which is a scarce natural resource, has been regarded as a measure of wealth, status and power, from time immemorial. Any developmental activity is nearly impossible to conceive without taking land into consideration. Now, it is being widely regarded that the efficiency in land management is one of the indices of a nation's developmental status. As India is rapidly transforming into an industrialised economy and, consequently, suffers from maladies like urban overcrowding, unlimited exploitation of precious natural resources like land are being put to enormous strain, screaming for proper management. Land Administration in India, therefore, shall have to evolve procedures and methodologies consistent with the social dynamics of the day.

Land records in India, originated during the Mughal period, but were put on scientific foundation by the British. Therefore, the purpose of making maps and records were only to get handsome revenue from the citizens. After independence, we inherited the entire land records and revenue machinery with all the flaws. Though after independence land and land reforms initiatives were taken in every plan period but benefitted less. In the last three decades, in an attempt to improve the quality of land records, and make them more accessible, the central government has implemented various schemes for the modernisation of land records. In 2008, they have implemented a centrally sponsored scheme, the National Land Records Modernization Programme (NLRMP) currently Digital India Land Records Modernization Programme (DILRMP).

In most of the states of India, the land records data are maintained at Taluk offices. These are of two types and are maintained in various registers. The map data is stored in volumes for each village. These are known as the Field Measurement Books (FMB). Various alphanumeric data like Jamabandi, KhasraGirdawari, Pedigree sheets etc. pertaining to each individual land holding is primarily classified into land details and the ownership details and is maintained in various registers.

Under the flagship programme, several components of land administration are bringing into a single point to strengthen revenue machinery and reduces time lagging and poor service delivery. The objectives of the programmes are mainly; Computerisation of all kinds of records, integration of all departments, modern survey to create new cadastral database, internet connectivity to all the tehsils to provide instant services etc. After spending several years of implementation of the programme the development and success stories are limited. Some states are doing exceptionally well some are still can find any solution.

The objective of the workshop is to bring all the stakeholders come into a single platform to identify issues and challenges and will discuss the success stories so that others will be benefitted. That's why we designed the themes in such a manner that all kinds of issues will raise and will provide a scientific and doable solution to the Ministry for further corrections of the programme.

Contents

Inaugural Session
Welcome Address – Shri C. Sridhar[1], IAS

I welcome Director (Smt. Upma Chawdhry), LBSNAA for her presence in workshop on "Land Records Management: Institutional Challenges and Issues". I express my sincere and warm welcome to Joint Directors (Smt. Aarti Ahuja and Shri Manoj Ahuja) and all faculty colleagues of the academy. He also express hearty welcome to all the participants of the workshop.

We have representations from several states of the country who will be dealing with the land records management system from technical and statistical aspects. The workshop focus is on issues relating to technicalities and coordination. It has been a great challenge to manage even urban land records so a session is kept specifically dealing with urban Land Record Management.

I welcome the participation from academic institutions such as NCAER, IIT, ADRI, also institutions like World Bank.

The B.N. Yugandhar Centre for Rural Studies (BNYCRS), a Research Centre of Academy was set up in the year 1989 by the Ministry of Rural Development, Government of India, with a multifaceted agenda that included among others, the concurrent evaluation of the ever-unfolding ground realties pertaining to the implementation of the land reforms and poverty alleviation programmes in India. BNYCRS is currently engage in several research projects and publications

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This workshop is very important in the context of ease of doing business, easy solution to land disputes or maintaining law and

[1]Centre Director, BNYCRS & Deputy Director (Sr.), LBSNAA, Mussoorie-79

order. I hope two day deliberations will contribute towards the body knowledge as well as everyone will come out with some better recommendations for better implementation of the land records management programmes.

Finally, I thank the BNYCRS team and various sections of the academy for helping me to organize this workshop.

Inaugural Speech – Smt. Upma Chawdhry[2], IAS

I welcome all the participants of the two day National Workshop. The major objectives of BNYCRS are Sensitisation of Officer Trainees towards rural realities, socio-economic issues,government programmes /schemes and its impact on the rural community; Preparation of interview schedules on tenancy, land ceiling, land records and computerisation, land consolidation, government waste land, homestead land homelessness, rural development, including poverty reduction programme and generate empirical data of all these programme by the IAS Officer Trainees during their district training and create database; improvements in the assignments prepared by the IAS Officer Trainees during their district training on different issues pertaining to land reforms and rural development, including poverty reduction programmes and to secure statistically consistent data out of that; evaluation of the progress made in (a) tenancy reforms (b) ceiling on land holdings and (c) utilisation of government land in the country and critically examine the successes claimed and problems arisen in the implementation of the rural development programme and to suggest measures related to their implementation mechanism and policy and research and training in the area of land reforms, land record management, gender and landownership, wage employment, common property resources, displacement and rehabilitation, contemporary agrarian movements, tribals and indebtedness, panchayati raj institutions, poverty reduction programmes etc. to act as a think tank to suggest changes in policy.

[2]Chairperson BNYCRS & Director, LBS National Academy of Administration, Mussoorie-79

History of mankind is intricately associated with land relationship. “Land is a resource, land is an asset which is owned and possessed not just by governments but also by non-governmental entities. It is valuable and immovable”, she said. The management of this resource is hence given its characteristics extremely complex, but management of this resource is absolutely must. In the development of any economy land records management play a very important role. The entire debate on presumptive and conclusive title in India is going on in recent days. Multiple agencies are involved in land administration like revenue department, stamps & registration the survey & settlement department and local bodies.

The estimated loss in India as per the world bank study due to lack of clear land titles is 1.3% of GDP. Giving the example of another study, she said that nearly 2/3rd of the total cases pending in courts are land related. A NITI Aayog paper suggests that it takes nearly 20 years to settle a land dispute. So, development and planning activities are effected due to lack of updated records. The Ease of Doing Business report, 2015 observed that the base of modernization of records and breaking them into an online platform has been very slow.

I urge the participants to discuss the successful PPP model which would make us think the role of PPP in land management within the country in future.

Policy responses have been designed for modernization and digitization of records just like NLRMP (now DILRMP). Recent studies indicate that only 64% of funds have been visited till 2017.

Finally, I welcome Shri Vinod Kumar Agrawal and Shri Deepak Sanan and thank them for their warm presence. The two day workshop would come out success with some kind of productive and fruitful recommendations. I wish all the participants a very happy and comfortable stay in the academy.

Technical Session – I
Land Records Management: Journey from manual to e-governance

Speaker 1: Shri C. Sridhar, IAS
Overview of Land Record Computerization in India

The major components of DILRMP are computerization of land records, computerization of registration process, survey, recovery, IEC & capacity building, integration of land & spatial records and last but not the least, establishing modern records rooms.

About the status of computerization of land records in terms of textual data where 25 states have made a substantial progress, 5 states are yet to start and 6 states/ UTs have started computerization but not achieved substantial progress.

As far as status of CoLR (Computerization of Land Records) in terms of spatial data is concerned, among 5 states / UTs, more than 15% computerization is done, 10 states/UTs are between 0 to 15% and 21 states /UTs in the country are yet to start. In Computerization of Registration, 30 states/ UT have made a substantial progress, Manipur and J&K have started but there is no substantial progress and 4 north-east states are yet to start.

In status of integration of textual and spatial data, 14 states/ UTs have started it while on the other hand, 22 states/UTs are yet to start. 9 states have made substantial progress as to integration of land records and property registration whereas Puducherry & West Bengal have started to integrate but still there is no substantial progress seen in this regard. 25 states are yet to start the integration process.

In Status of survey/Resurvey, substantial progress can be seen in Bihar Gujarat, Haryana & Odisha but there are 20 States/ UTs, which are yet to start the process. On the other hand, 12 States have started surveying the land but still there is substantial progress.

In linking of Aadhaar with RoR (Record of Rights), 11 states/UTs, have started but still 25 states/ UTs have yet to start the process.

There is a mandate that whenever the computerization process are advanced, states have come out with protocols which have banned or stopped the issuance of RoR manually.

The total court of such states/ UTs is 13. Six states have initiated activities of issuing RoR by digital signature. They are Andhra Pradesh, Gora, Karnataka, Telangana, Tripura & Uttar Pradesh. On the other hand 17 states/ UTs are yet to make progress in this area. He also highlighted the issues regarding computerization of land records across the country. The main contentions are, firstly, absence or low capacity of technical agencies which are within the states. Secondly, over a period of time most states have neglected the survey department so training manpower within the government is quite limited. Third aspect which is more problematic is the discrepancy between legacy record and computerized record. Fourthly, boundary & area mismatch between dynamic textual data & static spatial data, this results into new dimensions of land dispute in the country.

Since 'Land' is a state subject so challenges are different in several states. One of the objectives of this workshop is to see that how different states have substantially taken steps to improve the land records management system and use them in those states where still no or little steps have been taken.

Speaker 2: Ms. Prerna Prabhakar[3]& Shri Deepak Sanan[4], IAS (Retd.)

Issues in Land Records Digitization: Current Status of Digitization in India and the Challenges

I am going to discuss the issues arising in land record digitization after study on assessment DILRMP in three states i.e. Himachal Pradesh, Maharashtra and Rajasthan. The study was completed by NCAER in collaboration with IGIDR and NIPFP. The main aim of the study was to assess the achievement of main objectives of DILRMP.

The missing part of current status is the real time updation of RoR. Secondly, the mutation computerization is not very clear. The most important aspect is that how well the RoR is being used by the public i.e. legal usability form of RoR. Efforts are needed by states to push the current status of computerization more upwards. Other remaining concerns are the extent of accuracy and comprehensiveness of the data and to what extent digitations improves service delivery. RoR digitations show consistent results but there is a slight mismatch in Himachal Pradesh. Further, as to position in impact assessment and DoLR website is concerned, the consistency in the data is found in HP and Maharashtra whereas inconsistency found in Rajasthan.

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[3]Associate Fellow, National Council of Applied Economic Research (NCAER), New Delhi

[4]Senior Advisor and Head, Centre for Land Governance, IIHS & Senior Advisor, NCAER

On a study done by NCAER, to assess the extent of real time updation, a comparative exercise was undertaken to compare the position in the land record with the actual on ground situation with respect to selected sample plots. For the survey, two tehsils and hundred land parcels were selected. Examinations done with respect to five features characterising every property i.e. ownership, possession, land use, land area an encumbrances. Some of the findings of study were, firstly, limited availability of digitally signed copies were found. Secondly, there was underutilization of funds under DILRMP which was inconsistent with the physical progress. Thirdly, considerable progress has been reported with respect to CoLR but as far as progress in other components are concerned, they are lagging behind. For accurate, comprehensive record updated in real time, there is a need to bring about appropriate legal and procedural changes to enable linkage with other data bases. There is also a need for better reporting by the states and monitoring at the central level to compare progress of registration computerization, she said.

Some of the policy suggestions are, at the state level, better trained staffs and monitoring arrangements are needed for real time updation of land records, should be a reward for best performance by the states with regard to creation of a more comprehensive, accurate and updated record instead of only finding inputs.

Annual reporting should be done on the selected information to capture all the requisite efforts on computerization and linking relevant data bases.

Speaker 3: Shri Vinod K. Agrawal[5], IAS (Retd.)
Land Titling

The committee headed by D.C. Wadhawa had suggested the methods and ways to modernize land record management system in India. Wadhawa committee submitted its report suggesting adopting torrens system. It is also called guaranteed title system. On his recommendations A. P. Govt. supported Appu Committee. This committee gave a suggestion that we are not yet ready to adopt torrens system in India. We have to move towards it gradually and the first step would be to do the computerization of land records. Alternate objective of NLRMP is to achieve torrens system. The Torrens Land Title Registration System provides a sure method for determining and assuring title to land. The Torrens System operates on the principle of "title by registration" rather than "registration of title." A buyer can only receive a title if it is first registered, rather than buying a piece of land and then register it later.

In the registry, each piece of land is identified by a unique number and title. Each title has a description of the exact dimensions of the land and its boundaries. A title shows the names of the registered owners and any legal interests that have been applied against the title and which consequently affect ownership. Also, the registry is open to and may be fully searched by the general public.

The key feature of the Torrens System is that it captures all interests in a property, including transfers, mortgages, leases, easements, covenants, resumptions and other rights in a title register. The interests, once registered, are guaranteed correct by the state. In other words, the register is conclusive evidence of ownership. This is also known as "Indefeasibility of Title".

[5] Shri Vinod K. Agrawal, IAS (Retd.), Hyderabad

The torrens system works on three principles: curtain principle, mirror principle and the insurance or indemnified principle. A sound system of land registration is underpinned by three principles: the insurance principle; the curtain principle, and; the mirror principle. The insurance principle refers to the guarantee secured by the State that any loss incurred by a registered land resulting from reliance on the conclusiveness of the land Registry by a land purchaser will be compensated through a statutory indemnity system. The curtain principle, on the other hand, is the concept that land registration may allow certain equitable interests attached to the land hidden from a purchaser's view. This 'curtain,' however, does not affect the validity of any transaction on the registered land so long as the details of the registration reflects the validity of the title.

Finally, there is the mirror principle. The mirror principle refers to the idea that the due registration of a land title must reflect all the important and significant details that a purchaser must know before buying the land. These details refer to the identity of the "owner, the nature of his ownership, any limitations on his ownership and any rights enjoyed by other persons over the land that are adverse to the owner."

The Torrens System has been designed to obviate the need for a chain of title and the necessity of tracing the vendor's title through a series of documents. Each parcel of land is identified by reference to a numbered deposited plan. Each lot of land is the subject of a separate folio in the register. The folio records the dimensions of the land and its boundaries, the names of the registered proprietors, and any legal interests that affect title to the land.

In India, whether somebody has a title or not is the subjective opinion of the person who is seeking a title. So it is a presumptive and not conclusive title. So, whoever is interested in title, has to make his own investigation about the real ownership. There is no official record where one can certify the title. In Indian legal system, he said that there is no law through which the title of any

property can be established conclusively. It is a biggest defect in the system which creates an uncertainty about the title. The result of uncertainty is that India is losing 1.3% of GDP.

The reason for slow growth of ease of doing business is that we take so much time in registering a property. The process of making investigation, going for registration, going for mutation and then finalizing the record takes lot of time. This all is only because India does not have a system of conclusive title.

Further, the registration law in our country is outdated and there is a need for major amendment. Our registration is only a deed registration system. It is not a title registration system. Unless we change this system by brining a new registration act we cannot have conclusive deed of title.

So, there is an urgent need to adopt this system because it not only increases the accessibility of records but it increases the transparency in maintaining the records.

Technical Session – II
Status of DILRMP: Regional Initiatives and Challenges
Chairperson: Shri Vinod K. Agrawal, IAS (Retd.)

Speaker 1: Shri A. Muthu Kumar[6], IAS
The Jharkhand Experience

The purpose of DILRMP is to enhance transparency in the land records maintenance system and facilities moving eventually towards guaranteed conclusive title to immovable prospective in the country. In digitations of land records Jharkhand has digitized all 264 circles. As far as integration between revenue and registration offices are concerned out of total 24 districts all districts sub-registrar (DSR) are integrated with Anchals.

The issues of multiplicity of languages due to presences of different tribes in Jharkhand were a difficult task to translate or read these languages. So we need to here, people to translate and it took around 2 years to complete digitations.

Jharkhand have online mutation system and they have jharbhoomi.nic.in website for pending and updated mutation. On survey/ revenue with the help of IIT Roorkees he said that work order has been allotted for survey/ revenue work of total 967 villages in which 875 are rural villages and 92 are urban villages. The stages of along survey/ revenue and the process adopted by IIT Roorkee for field verification.

As far as status of training and capacity building is concerned, till date 845 revenue officials have been imparted training, out of 38

[6] Director (Land Acquisition, Land Records, & IG Registration), Government of Jharkhand, Ranchi

locations in first phase, modern record rooms has been established at 11 locations so far. He further said that state level data centre has already formed and is functional.

Several imitations under ease of doing business such as e-stamp is made available across sub-registrar offices; increased availability of digested land records along with mutation details, e-nirvana land and Jharbhoomi portals facilitates services like registration of document, verification of certificates & online land records details.

Speaker 2: Shri K.V. Rudresha[7] & Ms. S.Kathyayani Devi[8]
The Karnataka Experience

The Bhoomi project started on pilot basis in the year 1999 and rolled out in the year 2002. On component of computerization of LR, he said that almost 2 crore RoR's are digitized in 203 talukas, citizen service centres are also started and user changes are collected and maintained separately in the states. In survey-resurvey and updating of survey records using technology, Karnataka has done several efforts to take up resurvey using latest technology. About 10 years back 33 villages were resurveyed with the technical support of survey of India. Later under NLRMP scheme the project was undertaken in Belgam district where survey of 60 villages was completed. The issue relating survey is that the department has not been able to carry it forward in large csale. Whenever Re-Survey is completed the RoR's are updated.

Recent imitations taken by the government of Karnataka are, to improve taluk level infrastructure servers, system, connectivity is established, around 900 citizen service centres are established which are called 'Atal Ji Janasnehi Kendra (AJSK) Government has also set up KSWAN network system for better connectivity.

Karnataka has achieved the integration of spatial and textual data by adopting measures like registration or transfer of property in the state takes place only if spatial data-map is attached to the sale-deed. Government has introduced licensed surveys and through them this pre-registration sketch is prepared and after authentication by the survey department, it is issued. The ownership records in the state are verified online and only if the

[7]Shri K. V. Rudresha, Consultant, Bhoomi Monitoring Cell, Bengaluru, Karnataka
[8]Special Deputy CommissionerBhoomi Monitoring Cell, Bengaluru, Karnataka

RoR's are correct the survey is done. Survey in the state is done in the presence of seller and buyer. In Karnataka, Bhumi (RoR) and Nojni (Spatial data) are integrated.

The biggest achievement is that all village maps in Karnataka are digested. These maps are widely used across the other departments like agriculture, horticulture statistical, forest etc. along with revenue department.

As far as computerization of sub-Registrar officials are concerned, the programme initiated by the Karnataka government for computerization of registration of properties is called 'Kaveri'. This programme has been started in the year 2003 and till now all registration of properties is fully computerized. Now, bhoomi and kaveri are also integrated electronically. The process of establishment of Modern record room is on and will be completed as early as possible. Government has also established two training institutes in Mysore and Gulbarga for training and capacity building.

Some of the major institutional challenges are to remove the resistance by staff and initial reluctance by public to shift from manual to e-system. To introduce accountability in the governance, to remove scope of farovrism, giving equal treatment to all, lack of political will is a major challenge. On the other hand, intimate connection in the initial stages and clear strategy and vision should be adopted to ban manual record and introduce the updation process from day one. Few milestones that recently Karnataka government has achieved are integration of Bhoomi, Kaveri and Mojini, integration of Bhoomi and Banks, for simplified process of creation of charges and mortgages.

The road map which the Karnataka govt. want to cover in the form of maintenance of RoR for non-agricultural properties, providing spatial data in RoR, digitization of parcel maps, introduction of mobile app for survey and last but the least in house software development unit for survey department.

Speaker 3: Ms. Usha[9]
The Haryana Experience

I express my gratitude to the organizers for giving on opportunity to share her views on e-stamping in registration of deeds. During last three years, Haryana government carried out number of reforms in land records management and deed registration with an aim to bring 100% transparency in deed registration, zero tolerance and hastle free services to citizens.

The state has implemented e-registration system for all live departments like passport and visa sewa across the state.

On implementation of right to service act, "first in first out policy" in registration of deed helped in bringing greater transparency.

The e-stamping and registration of deed has mandated all registration in Haryana w.e.f. March 1, 2017, having stamp value more than 100. The property registration system verifies and fetches the details of e-stamp and GRN no. are diphased automatically, a unique facility of Haryana which is not available anywhere. We have notified e-KYC rules, 2017 for aadhar based e-authentication for buyers, sellers and witnesses, all line pan verification and linkages with revenue courts for land disputes. Haryana is the front runner state in integration of proper registration with external entities which provides ease of doing business, enhancing authenticity and security of data in bringing almost transparency in the system.

[9] Ms. Usha, Assistant Director, Director General Land Records, Panchkula, Haryana

Speaker 4: Shri Sham Dattatray Khamkar[10]

The project undertaken by the Maharashtra govt. under DILRMP is e-registration i.e. Computerization of records of urban and rural areas. In urban, record of rights are known as property cards. Both are digitized. Next, e -chawdi is comprehensive software for computerization of village officers records. E records is nothing but the scanning of records in modern record rooms. Under this project, government has scanned the legacy record or archival record. Around 35 crores document have been scanned till today. Under e-map project, Maharashtra has digitized cadastral maps. Likewise under e-Resurvey project, Re-Survey is done using latest technologies. It is started in 6 districts.

The guidelines issued by the GoI relating to resurvey and the factors influencing resurvey of Maharashtra are topography, existence of different types of records in three provinces i.e. Central Bomaby and Hyderabad, old method of doing survey (Cross and chain method), increase in number of holding but records are not updated. Developments are also not incorporated in map. Records of rights are also not reflecting the good reality.

Need of pilot project was felt to study the operations & activities of the stepwise process of resurvey, to finalize guidelines & manual for the resurvey, to study need of changes in prevalent laws & rules, to understand reaction & response to the public and to finalize the methodology for resurvey of state.

For a pilot project, Maharashtra government has selected 12 villages of Mulshi taluka of Pune district and adopted two methods of survey i.e. pure ground method and Hybrid approach

[10] Deputy Director of Land Records, Pune

(aerial survey). For 6 villages, it used pure ground method and hybrid approach for remaining 6. They have also created awareness campaigns in each village.

Before starting pilot project several ground control points were fixed, with the help of server slides he showed he design of primary, secondary, tertiary and auxiliary control parts.

The observations after doing resurvey was that there are several reasons for area difference. They are, firstly, the error in the method of area calculation because of slopy area, secondly, the mistakes done in original survey, errors in area calculation method, thirdly, clerical mistake in noting the position or measurements.

Finally, I would like to end my presentation with some fruitful suggestions like there as a need for legal framework just like Bihar & Orissa, adequate methodology for resurvey should be adopted, provisions for adequate manpower is needed and last but not the least, third party audit by technically competent agencies are needed.

Technical Session – III
Role of Technology and e-governance initiatives on land records management
Chairperson: Shri Deepak Sanan[11], IAS (Retd.)

Speaker 1: Shri Sultan Singh[12]
Land Base Data Preparation using Satellite Imaginary and UAVs

I will focus my presentation on the issues of regulation in peri-urban areas and how the high resolution system works in Haryana. There are two technologies used for survey/ resurvey. One is ground technology and second is aerial technology, while using technology there are several issues relating to topography comes before the surveyor.

In the survey conducted in Sarsa & Bhiwani (Rural) and Rohtak (Urban) area, lot of shortfalls found during the survey despite progress. Digitization of land parcels without a geo-reference can have a cascading effect. The land records management system without correction of historical errors, linkages b/w GIS & textual data at best can be "garbage in – garbage out system".

Administration faced several challenges while creating accurate revenue records. In process of surveying, the first existing Haryana land revenue system is 'Musari' named for revenue maps. They scanned it though digitization, vectorization then converted the digital database, social auditing for the entire area. Images are

[11]Senior Advisor and Head, Centre for Land Governance, IIHS & Senior Advisor, NCAER
[12]Senior Scientist 'SG' NRDMS, Haryana Space Application Centre (HARSAC), CCS Haryana Agriculture University Campus, Hisar

not usable unless images added with referencing are done to make maps usable. Image is itself not a solution unless the geo-referencing is done. Therefore, geodetic triangulations are much needed. A formula is-

Maps-referencing =image (not usable)
Image + referencing = usable maps

So, I suggest that once we properly geo-reference according to our topography then only we can achieve output what we desire. Hence, there is an urgent need for geo triangulation. For geo-triangulation, Haryana used the survey of India (SoI) existing framework. They took survey of India (SoI) data as a base. For this purpose, Haryana established the primary & secondary control points.

To find out the reason for difference or mismatch between the map villages shall be treated as a single unit. Then the distance will be measured point to point through satellite / UAVs data processing & village cadastral maps.

The major issues at the village level is, there is a difference between figures of RoR and geo-referencing on actual grounds.

The advantage of this system is that with the above mentioned methods, boundary of one village can be compared with the boundary of another village. So, in this way legacy of data can be tested.

The disadvantage is that acquiring data through this method is time consuming and it is not very useful for area about 200 sq, km. On the other hand, triangulation can be useful in linking aadhar, configure maps, department access, stopping corruption, helping farmers and enhancing government revenue.

The achievements so far are, with the help of 8 triangulations, Haryana has reduced the difference between RoR and actual area

from 7.39% to 0.01% in Manesar tehsil area, where 1500 ownership issues are resolved. So, the future plan of Haryana government is to revolutionize revenue record management.

Speaker 2: Shri Manoj Kumar IAS[13]

I will focus my presentation on transparent comprehensive integrated land records managements system (ILRMS) of Assam.

The geographical location of Assam sharing boundary with Bangaladesh, Bhutan makes it a typical state in respect of preparation of RoR. In Assam out of 33 districts, 6 districts are with revenue department of VIth schedule councils. So it is one of the reasons of delay. Currently, the situation is that Assam have 25 districts where settlement is going on. Government has completed the digitization of RoR in all those 25 districts. Assam government has also digitized cadastral map with the help of geo-reference. It has established modern record rooms and data centres at circles, sub-division, districts, and at state level. Except, VIth Scheduled districts, government has connected all revenue offices digitally i.e. SRO to mandal offices and to state data centres.

The five components of ILRMS are-

1. Dharitree- It is an online system for updation of land records
2. E-panjeeyan- It is an online system for registration of property.
3. Online System of issuing NOC for the transfer of immovable property under section 21 of the Registration Act
4. Revenue collection system is available online
5. Bhunaksha, is an online system for partition of plot and generation of trace map.

[13]Secretary, Government of Assam, Assam Secretariat, Dispur, Guwahati, Assam

All these five system can talk to one another and ensure optimum efficiency, transparency and accountability in the revenue administration. In his presentation, workflow of ILRMS were discussed in details which says that when a person will apply for NoC, DC office will verify NOC after that registering officer do the registration and sent it for mutation but still government has to work upon the real time updation of records. Explainig the Integrated land records management system he said, ILRMS ensures that all the process for the transfer and registration of land and updation of land records, like mutation, partition, conversion and reclassification, and land revenue collection are handed online and people will have access to the land records online.

Endeavour is being made a equip it with the facility of online payment though the payment gateway and next step is to link it up with the system of the institutions like aadhar, banks, cooperative societies, urban local bodies etc. so that the delivery of services which require verification of land records get fast and hastle free. With the help of graphical power point he showed the current status of implementation of ILRMC.

Speaker 3: Shri B. K. Panda[14]

The main focus of my presentation is the understanding the aerial technology and the method or process through which it is being executed on ground.

The methodology of aerial survey conduct where he said that after input collector there is a data inventory. Simultaneously, monumentation is being carried out and DGPS observation, after we carry out flying. Thereafter, production in which data processing as to geo-referencing, RoR integration is done, finally field verification and post survey is done. Later, he showed pictures of primary & secondary control points, survey of India Benchmarks and aircrafts & camera they use for survey in Bihar.

The advantages and disadvantages of aerial survey are, in aerial survey images accuracy is very high compared to HRSI. Aerial survey provides a current pictorial view of the ground. Another advantage is by using maps and comparing them with update RoR, 70% survey work can be completed in lab and only 30% verification is required. Through aerial survey, encroachments can be easily identified by superimposition on cadastral maps. One limitation of the aerial survey is visual obstructions such as forest, hills, tree lines or stream junction requires ground topographic survey.

The key challenges in a way of current survey methods like lack of understanding to implement technical rules & guidelines, lack of community participation and public awareness and lack of monitoring mechanism. On these issues and challenges, he suggested, extensive training and workshop can be conducted to

[14] Senior Vice President, IL & FS Environmental Infrastructure& Services Limited, Gurgaon

train the field staff for re-survey related activities and recruitment of adequate staff. Additionally community participation need to be strengthen including involvement of local elected & their apportion persons. Last but not the least, adequate focus and priority should be given to ensure that the possession of the government lands/ public lands re intact by the local revenue officer.

Speaker 4: Shri Niladri Sekhar Dhar[15] & Dr. Meghna Dutta[16]

In context of CoLR (Computerization of Land Records), the ownership right of land should be looked from two stand points, first, the conditions under which those calming to be owners may exclude other from the use and enjoyment of the land and what is produced therein. Second, the ability of owners to transfer rights of the land to other individuals through inheritance, sale or any other way.

The state plays a critical role in land administration. It includes survey; land records land management, land use and many regulatory and welfare activities.

In context of Bihar, the land administration system is very complex especially in the state of Bihar. Talking about the history of land records management in Bihar, he said that one of the major problems of land administration in Bihar is the lack of up-to-date RoR. Out of 38 districts, revisional settlement is completed in 12 districts. Thus in 26 districts, Bihar have records as old as 1910-1920. Even the Revisional Settlement Operations, which were started in 1960s, have become out-of-date.

Looking to the recent progress in modernization of land records in Bihar, government has decided to provide digital maps of mauza(s) pertaining to cadastral survey, revisional survey, chakbandi and aerial survey to citizen through secured software at the respective sadar anchal of each district. The recent efforts of creating software like Bhu-manchitra and Bhu-naksha for digitizing the records was appreciated.

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[16] Assistant Professor, Department of HSS, Indian Institute of Technology, Patna

The process of establishing clear land titles in Bihar is very weak, as land records are incomplete, inaccurate. However, some serious steps have been taken in recent past toward establishing clear land titles.

Technical Session- IV
Urban Land & Property Records Management: Status, Challenges and Way Forward
Chairperson: Vivek Kumar Singh[17], IAS

I will start with a disclaimer that survey/ resurvey is still in process in Bihar so it is neither a narration of success story nor an excuse for a failure but the presentation of current efforts made by the Bihar government in improving LRM system.

In the name of Land Records, RoR (Record of Rights) and cadastral maps are kept since Britishers time. In Bihar, original Jamabandi is RoR means transitional land records of the states on which mutations have been done so far. To make it better, Bihar has digitised their jamabandi. The target of the government is that by April, 2018 Bihar should be at par with other states.

The authenticity of jamabandi is always a questionable issue. So as a result, Bihar started survey/ resurvey using hybrid method or aerial method.

Aeriual method is a very good model which gives a real picture. This process was started in the year 2013. The formalities for flying for the purpose of aerial photography took almost 3-4 years just because it involves the steps like firstly, the request letter to customs for exemption of duty for bonafide and government use. Secondly, flying permission from Ministry of Defence in advance for a fixed period. Thirdly, parking and operating permission is requested from cabinet secretarial of state govt., who in turn request the DGCA (Director General of Civil Aviation). Fourthly, flight plans are prepared by the agencies to cover the area of

[17] Principal Secretary, Revenue &Land Reforms Department, Government of Bihar, Patna

interest in the concerned district to be shared with local ACT for smooth operation.

With the help of visuals, we can see the crucial nature of trijunction pillars which are known as ground control points fixed at different places. Aerial survey is not only limited to the survey, it can be used for multi purposes starting from land acquisition to check in encroachment and other departmental works.

It is pertinent to discuss two process, one is 'Kishtwar', which is very important in terms of spatial legacy where roles and guidelines are not to clear. Another is 'Khanapuri' process through which ownership is to be decided by the department who owns the land. From khanapuri to the stage of final publication new conditions & methods have been adopted.

On actions taken by the department of revenue on survey/ resurvey he said that 13 survey & settlement officer are established at 13 districts; Aerial photography is completed in 38 districts; MoD data vetting process is completed & maps are generated in 33 districts; agencies have been selected for preparation of soft copy of khanapuri parcha and distribution of khanapuri parcha among landholders; software are being developed for preparation of khasra panji and generation of khanapuri parcha and RoR.

The challenges of special survey and concerns relating to legal & administrative functioning are, gang-barar & gard-shikasht acts are quite old and difficult to implement in present context. Many small corrections in the formats are required to facilitate the working, but legal procedures are necessary for these changes to happen.

There needs to be a mechanism for curbing the practice of showing Raiyati holding in government share and wrong doing in the name of correcting it. Intention should be to bring down litigation to a minimum rather to flame it up for vested reasons. The kind of survey which has been adopted needs a very customized skill set for its operation.

Speaker 2: Ms. Deepika Jha[18]

The key objectives of Land system reforms are to make land available for productive use. In Peri-urban areas, unauthorized developments are not recorded. They have a high property value, NLRMP has had very little focus on urban areas. Only agricultural areas are surveyed and the settlement areas are not surveyed properly.Urban boundaries are keeping changing and our systems simultaneously have failed to keep changing the records. Some area (e.g. Bombay state) did have provision for city surveys and property cards.

Talking about the status of urban record in India, There are four kind of records. They are-

(1) RoR is absent and not updated in Delhi, Rajasthan and Karnataka,
(2) In Bihar, RoR exists but in rural format. It does not contain details as it should have
(3) Gujarat and Maharashtra have property cards.
(4) Other than above three records, there are alternate records formats which very a lot at city levels, e.g. tax records.

Property cards & city survey maps typically deal with land. On format of ownership card of different states one single format for all information should be there. Properties, scope and challenges for urban records vary from those of rural land records. Few defects are like built up details are not recorded, land use and its change are not reflected, spatial sub-divisions often not recorded, similarly other urban encumbrances like mortgages, permission, justification are not included, there are higher complexity of

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regulations such as building permission, etc. There are complex tenure systems such as slums, squatter settlement, rental housing etc. There are also issues of multiplicity of authorities, they keep changing jurisdiction.

It is needed to translate learning from computerization of rural records to urban records including resurveys. The question remains what to record and how to record and who would do it. So, Inter-institutional cooperation of people, records and electronic databases is a necessity.

Speaker 3: Shri K.V. Rudresha[19] & Ms. Kathyayani Devi[20]

The UPOR project is an initiative of Survey settlement Land Record Department (SILR) government of Karnataka.

There are no legal provisions for ownership records managements. Karnataka government mandates creation of ownership records for all urban areas. In present situation, Karnataka has multiple records system such as RoRs, ULB Khatas, UDA khatas, and Panchayat khatas, Unique numbering system does not exist anywhere in the country and property can be transacted multiple times. Many times there is a mismatch between document and dimensions on ground. What are purchases may not be the same as to what he gets in reality. It is a buyer beware situation. The main issue is of increasing land mafias in urban areas.

As far as legal support is concerned, city survey activities are being carried out as per section 148 of KLR Act (Rule 82 of KLR Rules). The property Register (PR) cards have presumption value under section 133 of the Act. As per Rule 15 (iii) of Karnataka Registration Rules, 1965, "In areas where city surveys in complete, the parties should be directed to have the CTS member invariably entered whenever the registration takes place.

Karnataka has also geo-references the maps coming under urban areas. Generation of maps and registration of textual data was taken up simultaneously. The implementation of this project is based on PPP model. Generation of maps, survey and digitization is done with the help of private partners.

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[20]Special Deputy Commissioner, Bhoomi Monitoring Cell, Bengaluru – 01 Karnataka

The salient features of UPOR project is that it contains & spatial details (Co-ordination of the boundary parcels, area details) rights on the property (ownership, possession, mortgage etc.) and PPP model. The benefit of UPOR project is that the property owners holding genuine titles to property will be assured of their ownership. Prospective buyers of property will be assured of the genuineness of the property offered for sale and all encumbrances are systematically recorded.

Speaker 4: Ms. Mridula Singh[21] & Ms. Abha Singhal Joshi[22]

Land Records management is a huge concern for us as we support government in several projects. The challenges and constraints relating to land acquisition are, poor land administration plans, cumbrance formats and procedures, inadequate computation and lack of awareness of procedures entitlements. These issues often results in increased litigation and lack of transparency, I will give you an example of a project done in Gujarat where land was transferred but no mutation done and under titles were found. She presented a cost benefit analysis of delayed process, where conservative estimate of cost of delay is around Rs. 300 Crore per annuam. This shows that why there is need for clear land titles.

New law i.e. LARR act, 2013, has created a lot of chaos, insecurity and created far more litigation in last four years. Section 24 of the act created division among people. It clarifies that there is a formula on which compensation has to be based. Section 26 talks about market value, sale deed, average of the highest value. Compensation to rights, titles and interest in land is derived from the old act.

The land acquisition process flow i.e. at every state of acquisition the land records come into play. These stages contains first, requisition to government; second, collector's certificate as to nature of land; third, selection of social impact unit, who can go on ground and find out the issue or disputes on land. Fourth, Referral of social Impact Assessment report to expert opinion. Fifth, government will take final decision after expert group's opinion; sixth, there is a declaration and imitation for claims, seventh stage

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[22] Consultant – World Bank, C/o The World Bank, New Delhi

is of hearing of objections and eighth, compensation award will trigger off what are the documents available with. She further said that the only way to have a stay on land acquisition process is to go directly to High Court through a writ.

The provision of updating land records within 2 months of the preliminary notification is a tedious task. The timeline for updating records is mentioned under section 11 (5). The most important thing is claim of possession (national, deemed, automatic) and not corrected land records, so there is the criticality in land acquisition.

Technical Session - V
Group Work- Group 1: Learning from Regional Initiatives

Speaker 1: Ms. Deepika Jha[12]

Group focused on good practices of states, issues or concerns and recommendations or way forward. In computerization of Land records, textual records have been computerized to a large extent across states but still it is not sure that how far have they translated into an updated record. It is not clear from the DILRMP MIS, and it is often not clear from various compiled sources. Also, though these records have been computerized, the digitally signed RoRs are not yet available. Still, in most of the states, the procedure of getting stamped and manual signing persists. Digitization of existing spatial records must be accorded priority, and their issuance using digital signatures. The second part of discussion dealt with DILRMP MIS. MIS itself is a good practice. It has significantly improved over last two years. There have been efforts by DoLR to keep it up to date. Thereafter, suggestions came as to improvements for better tracking such as design of the MIS should be able to better capture certain details, for e.g. what exactly is being captured in e-mutation, or in record integration? Which spatial record is computerized (village map or tippan)? Because in some states village maps are limited in number and are legal documents but in lot of southern states, tippans are considered as legal documents. Another suggestion is that MIS should also be self-explanatory to state level staff providing the information. Many times, it has been found that ground staffs often do not understand what DoLR means by using a particular term. So, there should be training for capacity building.

Survey and re-survey needs to be contextual. Each state needs to decide on betterment. The topography, density, habitation will

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decide the technology. It is also a fast evolving field, which needs to keep updated. So, it is suggested that there is a need for a detailed advisory note on this, based on state level expenses, which will help states to decide what technology they can offer. It was also suggested that mapping is the easier part of it. It is after mapping that the crucial part begins. In a discussion on urban areas, urban property records are still not recognized as critical despite their high transactional values and impact on ease of doing business. There are also 'turf' issues between different departments, from government of India to local institutions.

So, at national level, there are no best practices which can be easily replicated and to challenge is to build awareness on urban property records. So, states should start integrating existing records with various agencies.

Group 2–Issues in Integration of Institutions and Structures

Speaker 2: Ms. Prerna Prabhakar

Second group discussed several issues in integration of institutions and structures. One of things that is brought out is missing integration between the departments pertaining to land records. There is an existing gap between textual and spatial data. There is also an existing gap between RoRs and registration because of lag in the mutations and updation of RoRs. There was a discussion on three models West Bengal, Bihar and Andhra Pradesh in a country. In West Bengal, there is a designated department which handles revenue records as well as survey. There are states like Himachal Pradesh, Haryana, and Punjab where there is a department that handles registration and revenue together.

In Bihar, there is a department which handles survey and revenue department. There are two issues like there is a lack of integration and even in case of integration, the officials have no designated work. On creation of an authority that has integration among survey, revenue and registration department. In this way, we can achieve two objectives. One is possibility of real time updation and other is in case of any change in mortgage, or by land acquisition procedure or by any court decision, records can be updated automatically.

One of the major policy suggestions is that above mentioned departments should be linked to Banks, revenue courts and land acquisition department.

Group 3 – Role of Technology and e-governance in Land Records Management

Speaker 3: - Shri Manoj Kumar, IAS

Group 3 discussed role of technology and e-governance in land records management. As far as role of technology is concerned, in developed countries such as US, Europe, Australia and New Zealand, it is a proven form of carrying out land surveys and settlements.

Technology already exists, however, what is important in India is the suitability to meet the local requirements, sentiments of the population, etc. The technology provides the true representations of the ground as close to the reality as possible. The images which are a by-product of latest technology can be utilized in multi-departments for multiple tasks. Hence, use of latest available technology is the way forward.

Group recommends that there is a need of mandatory formulation of technical guidelines and standard operating procedures (SOP). States like North-East who are lagging behind should standardize technology flow as unified framework applicable throughout the country. In case of urban and rural property mapping, the technical format should be common. Very important suggestion highlighted in the presentation is that every state in land perspective should come up with requirement analysis and gap analysis. Every state should know is what and how much is required. There should be some specific guidelines.

At field level, capacity building framework need to be formulated at a pan-national level for state, district and sub-district level emphasizing clear role and responsibility. Training module shall be available at all levels with respect to technology. The

monitoring framework is (MIS based) is also required to monitor TAT based – completion of the assignment.

At technical level, guidelines should be framed for IT hardware and software and required infrastructure for execution of the project. There should be emphasis on data security with adequate secure disaster recovery backup and information management. Another recommendation is that any central government agency and its R & D using in these land reforms shall suggest new technologies like Block chain technology, artificial intelligence, etc.

Finally, it is recommended that public awareness campaigns and community participation should be organized for the benefit of public. Last but not the least, each state should work on 17 points given by DIPP.

Workshop Papers

Issues in Land Records Digitization: Current Status of Digitization in India and the Challenges

Deepak Sanan and Prerna Prabhakar

Abstract

India recorded a spectacular improvement from 130 to 100 in the World Bank's Ease of Doing Business (EoDB) rankings for 2018. An important component of this index is the ease of registering property which also seeks to capture the quality of land administration. Despite the overall jump in EoDB ranking, India has dropped sixteen ranks in the "ease of registering property" subcomponent, from 138 to 154. This slippage represents a huge potential for creating an improved environment for business by removing rigidities with regard to land markets and institutions. The significance of better land records in security of tenures and an improved property rights scenario has long been recognized by the central government. Programmes aimed at computerizing and modernizing land records were initiated in the late 1980's. In 2008, the Department of Land Resources (DoLR), Ministry of Rural Development (GOI) amalgamated two earlier schemes and launched the National Land Records Modernization Programme (NLRMP). This was rechristened the Digital India Land Records Modernization Programme (DI-LRMP) in 2014. Although this programme has been in operation for many years, no independent evaluation had been undertaken. In this context, a pilot impact assessment of the DI-LRMP was undertaken in three states by three institutions. The National Council of Applied Economic Research (NCAER) carried out an assessment in Himachal Pradesh, the National Institute of Public Finance and Policy (NIPFP) in Rajasthan and the Indira Gandhi Institute of Development Research (IGIDR) in Maharashtra. The selection of these states catered to factors like ensuring diversity both geographically and in terms of land administration systems. On

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the completion of the three state study, the NCAER prepared a synthesis report which compared the findings across the three states

Key Messages

- In the computerisation of land and associated records, DoLR's MIS highlights the greatest achievement with respect to computerized RoRs and the least achievement with respect to integration of RoRs with digitized CMs.
- There is lack of clarity with regard to what computerization of mutation is meant to convey – does it refer merely to an online entry of an application for mutation or does it capture the final change in the RoR?
- The MIS does not appear to seek information on availability of digitally signed copies of the spatial record.
- The registration process is characterized by multiple steps which are not captured by the DoLR MIS- only the information pertaining to online availability of circle rate is provided.
- It is unclear what the Integration of registration and RoR means as per the DoLR MIS- does it mean that the registration process checks RoR details to verify details in the proposed deed? Does it mean an immediate note in the RoR on a registration event or does it go even further and mean an instant update of the RoR following the registration?

- Financial performance of DI-LRMP exhibits underutilization of the funds allocated and released by the centre to the states and the financial information in the MIS on expenditure by the states does not appear to be updated regularly.

- The Impact Assessment (IA) data and the DoLR MIS are more or less consistent with regard to the physical progress with regard to computerisation in most of the land record categories. It does however, highlight the need for more accurate reporting by states.

- The comparison of land records with the on ground situation in the IA brings out the fact that even with significant achievement in computerizing the land record, real time updating of land records on various dimensions is still some distance away.

- Based on the focus group discussions and state consultations with revenue officials, IA exercise provides suggestions for improving real time updation of land records, improving DI-LRMP design and effective ways of data reporting by states on DI-LRMP MIS.

This paper aims to discuss the status of land record digitization as reported by DoLR on the DI-LRMP Management Information System (MIS) for the whole of India and further to present a comparison of the status on the DoLR website with the findings of the three state impact assessment. Digitization of land records serves little purpose if the information provided does not reduce conflict, dispute and litigation in relation to land and property. A comprehensive and accurate record, updated in real time, is critical if this objective is to be achieved. In order to make some comments about the accuracy of the digitized land records, this

paper also includes a discussion of the findings of the impact assessment with regard to the extent of consistency between the land record and the on ground situation. This comparison of the record and the on ground situation was conducted for sample land parcels in two selected tehsils in each of the three states. The comparison between the on ground situation and the record was conducted with respect to five features of each land parcel– ownership, possession, land use, extent or area and encumbrances. Consultations with officials dealing with land record administration to secure suggestions to better pursue the core objective of a better record and changes in the DI-LRMP in this context, were part of the work done in this study. Suggestions emanating from the study in this regard are also discussed in this paper.

Introduction

India's relatively low ranking on the World Bank's Ease of Doing Index is in part caused by poor performance on 'the ease of registering property', which also seeks to capture the quality of land administration. It has been estimated that land market distortions account for about 1.3 per cent of lost annual economic growth and a significant number of land parcels in India are the subject of litigation. In this context, it has been suggested that conclusive titling needs to be adopted as a way of reducing litigation and associated transaction costs, and consequently improving the "Ease of Doing Business". An essential first stage, in seeking to achieve such an objective, is a better existing record of land and property.

The importance of modernising land records through the application of technology has been recognized for a long time in India. After running two parallel programmes on computerisation and modernisation of land records for many years, the

[26] McKinsey Global Institute 2001.

[27] Daksh (2016), a civil society organization in India, as per which two-thirds of the civil cases in districts courts pertain to land/property issues.

Government of India (Department of Land Resources (DoLR), Ministry of Rural Development) amalgamated these programmes in 2008 into a new centrally sponsored scheme called the National Land Records Modernisation Programme (NLRMP). The NLRMP, which projected conclusive titling as the ultimate goal of land record modernisation, has now been made a central scheme and renamed as "The Digital India Land Records Modernisation Programme (DI-LRMP)". The main aims of DI-LRMP are enunciated as the provision of a system of updated land records, automated and automatic mutation, integration between textual and spatial records, inter-connectivity between revenue and registration, and finally the replacement of the present deed-based registration and presumptive titling system with conclusive titling including guarantee of the title.

In effect, the objective of the DI-LRMP is to facilitate the setting up of a modern and efficient land records management system in the country with land records updated in real time. The main components of the programme are:

- Computerisation of the records of rights (RoRs)
- Digitisation of maps and survey / resurvey of land to create more accurate spatial records,
- Computerisation of the registration process; and
- Integration of all these three activities / data bases.

Given the existence of the programme for almost a decade, there was some discussion around the need for an impact assessment of DI-LRMP. In this context, before a nationwide exercise, a pilot impact assessment was undertaken. The pilot was jointly conducted by three Impact Assessment Agencies (lAA) and one overall coordinating agency (OCA). The National Council of Applied Economic Research (NCAER) was both the IAA for the first state (Himachal Pradesh) as well as the OCA for the project. The National Institute of Public Finance and Policy (NIPFP) was the IAA for the second state (Rajasthan) while the Indira Gandhi

[28] NCAER 2017a, IGIDR 2017, and NIFPF 2017, NCAER 2017b

Institute of Development Research (IGIDR) for the third state (Maharashtra). The three states were selected to capture some of the variations in the geographical context as well as land administration systems in the country.

This paper examines the status of land record digitization in the country as brought out by the DoLR website and the extent to which this is borne out by the impact assessment study. In this context, section 2 of the paper points out the extent of digitization stated to have been achieved by all the states of the country as per the DoLR website. It also briefly discusses the financial progress under the DI-LRMP (including its predecessor the NLRMP) for India as a whole. Thereafter, section 3 presents a comparison between the status of land record digitization in the three states brought out by the impact assessment study and the DoLR's DI-LRMP MIS. It also looks at the three state data on financial progress in order to draw attention to the accuracy and consistency of the data on the website. Section 4 of the paper is about the findings of the impact assessment study with regard to the extent to which the land records are an accurate, comprehensive and up to date mirror of the actual position on the basis of a comparison between the land record and the on ground situation. Finally, section 5 offers suggestions to address the various shortcomings brought out in the preceding sections.These include suggestions to increase the accuracy and usefulness of the data being collected by the DoLR to monitor progress in digitization of the land record, improvements with regard to the DILRMP programme as well as improving the real time accuracy of the record.

1. LAND RECORD DIGITIZATION: DOLR

The DoLR website shows the up to date status of land record digitization in India as reported by the states on the following components– Record of Rights (RoRs), Cadastral Maps (CMs), Registration process and the integration across these key components. Table 1 below attempts to capture the overall India picture in this regard. The first column provides the percentage of digitization in the country as a whole for the various components

of land records that are sought to be digitized. The next four columns mention the number of states under brackets of digitization percentage for the mentioned categories of land records.

Table 1
Status of Land Record Digitization (year 2018)

	Digitization percentage	**Number of States with**				
	India's digitization percentage	**0-5% digitization**	**6-50% digitization**	**51-90% digitization**	**91-100% digitization**	**No information available**
RoR computerization (percentage of total REs /villages)	86.35	5	6	8	17	
Mutation computerized (percentage of total villages)	47.23	11	8	7	10	
Digitially signed RoR (percentage of total villages)	29.57	23	4	4	5	
Digitized CMs (percentage of total CMs)	46.37	2	5	3	16	10
Number of REs in which Cadastral Maps linked to RoR (percentage of total REs)	26.64	25	7	3	2	
Web based computerization of registration process (percentage of total SROs)	54.49	18	5	2	11	
Circle rate online (percentage of total SROs)	69.36	14*	4	3	14	
Integration of registration process with RoRs (percentage of total SROs)	52.26	20	3	3	10	

***Source*:** Website of Department of Land Resources, Ministry of Rural Development, Government of India. Accessed on 1-2-2018.

An analysis of the information in Table 1 (read with the information in the table A1 in the annexure) brings out the following.

1. The country as a whole appears to have made significant progress in computerizing RoRs, with a country wide percentage of 86.35% of the revenue estates or villages now possessing a computerized RoR. All major states show an above average coverage. Yet how significant is this achievement in making available a more comprehensive and up-to-date record is difficult to make out from this information. The computerisation of mutations, in which the achievement is only a little over half of that for digitization of the RoR, may point to a considerable gap in this regard. This data on the computerization of the mutation process, does not really enable a comment on whether this ensures a ready availability of an updated record. This computerization may, in fact, be entirely unrelated to the time gap between attestation of a mutation and its incorporation in the record. In effect, computerization of the RoR, could be a one time exercise which can certainly enable timely updating of the record but does not necessarily reflect that this is actually occurring. A digitally signed RoR is a good measure of a facility that aids the public. This achievement on this front is only a little more than a third of the extent to which RoRs are digitized. Significant achievement is reflected in only a few states. Furthermore, what is the extent to which digitally signed copies of the RoR are readily available on the web may be more meaningful information than just the extent of computerisation of the textual record.

2. Digitisation of CMs is a step towards improving public access to the spatial record. Reported performance in this is only a little over half of that reported with respect to computerization of RoRs. Meaningful availability of this record can occur only when it is linked to the RoR. In this

respect achievement drops to only 26.64%. There is no indicator to gauge the extent to which this digitized spatial record is being made available on the web in a digitally signed form. Updating this spatial record in real time would require integration with RoRs which in turn should be integrated with the registration process. The figures would appear to show that achievement on this front is likely to be very low.

3. Computerisation of the registration process can represent both a major improvement in delivering a service to the public as well as being an important step in enhancing the availability of a comprehensive record of transactions related to property. The current data shows that over 54% of the SROs in the country are computerized. However, this information is insufficient to comment on two important aspects. How far does this relate to actual property related transactions? Placing computerization in the context of transaction intensity will enable a better idea of the extent to which the public has been facilitated than the number of SROs covered. More significant is the fact that a blanket assertion of computerization of registration can cover a lot or very little! Thus, a fully computerized process can cover all steps in registration from web based entry of data pertaining to a proposed registration through checking of circle rates on the web, payment online of relevant fees and duty, the SRO being able to scrutinize and verify details and digitally affix her signature online to immediate electronic delivery of the registered document. The current information enables at best a comment on the extent to which circle rates are available on line (and even these may not be updated rates).

4. Finally, integration of data bases of registration with RoR is shown to have reached 52.28% in the country. This is shown as a percentage of SROs. It would be more meaningful if this was expressed in terms of the revenue

estates or villages that are integrated with the registration process. A more serious lacuna related to the fact that this information does not allow us to ascertain how far this integration translates into a record that is updated in real time. Does this mean that as soon as a transaction relating to a property is registered, the RoR receives a notification in this regard? It does not enable us to know the extent to which it enhances the credibility of the registration process. Is it the integration of a reliable RoR from which various details are checked at the time of registration?

Overall, it can be said that the status of land record digitization as per the DoLR MIS reflects the greatest achievement with respect to computerized RoRs and least achievement on integrating RoRs with digitized CMs. After almost three decades of effort, the results are not very heartening. However, even more disconcerting is the fact that even this information does not really allow definite comments with regard to the extent to which comprehensive, accurate records updated in real time are being generated with this technological input. The MIS also needs improvement in order to be able to see the extent to which the computerisation efforts have actually facilitated the public.

Financial Progress Under DI-LRMP

The financial picture of DI-LRMP implementation indicates considerable underutilization of the funds allocated and released by the centre to the Indian states (Table 2). The DI-LRMP comprises various components under which funds are sanctioned. This either reflects a failure by the states to report expenditure on the MIS or shows that the central programme has serious design issues that constrain expenditure under it. It would seem that even much of the physical progress recorded on the website may not have been undertaken by the states under this programme. Many of these components under the NLRMP (when it was a centrally sponsored scheme) had different matching requirements from the states. This also possibly induced the states to seek more funding

under segments with a higher central share, which did not necessarily translate into the concomitant expenditure.

Table 2
Financial Progress of DI-LRMP (2008-09 to 2017-18)
(Rs lakh)

	Funds Sanctioned by Centre	Funds Released by Centre	Expenditure (as Entered by State/UT)	Fund Utilization (expressed as a %age of funds released)
Total	192673.1	115908.8	12067.89	10.41

***Source*:** Department of Land Resources, Ministry of Rural Development, Government of India.

Status of Land Records: Impact Assessment Study

Physical Progress

Information regarding the status of computerization of land records in the states covered by the impact assessment study was canvassed through questionnaires drafted jointly by the three institutions engaged in this exercise. Information obtained from the MIS of the DI-LRMP was verified with the concerned department of the state government, and where relevant, with the National Informatics Centre at the state level. As a part of the assessment of state level computerisation of land records, the claims made by the state government were verified by performing random test checks.

Broadly, the land record digitization status of these three states (Table 4) shows considerable difference in emphasis. HP has taken the lead in computerising textual records (RoR) and making available digitally signed copies of RoRs. Maharashtra has clearly marched ahead in terms of digitization of the registration process while Rajasthan is catching up in this regard. In digitizing

cadastral maps, HP has made most progress, with the other two states still at a nascent stage. With respect to integration of RoR and CM data bases, maximum progress is again witnessed in HP. Even the registration and RoR linkage, is most visible in HP in practice.

IA and DoLR comparison

The IA report had shown the overall achievement reflected on the DoLR website data and the status of the three states in this context in early 2017. This information is reproduced in table 3 below.

Table 3
Progress Achieved in the Three Pilot States Regarding Various Components of DI-LRMP

Component	Total number of States/Union Territories reported to have completed the component activities	Number of pilot states reported to have completed the component activities
Computerisation of Land Records	27	3 (Himachal Pradesh, Maharashtra and Rajasthan)
Computerisation of property Registration	30	3 (Himachal Pradesh, Maharashtra and Rajasthan)
Integration of land records and property registration	11	2 (Himachal Pradesh and Maharashtra)
Stoppage of manual issuance of RoR	18	1 (Maharashtra)
Data Placed on Websites	22	3 (Himachal Pradesh, Maharashtra and Rajasthan)
Bhu-naksha (Cadastral Maps) customised	15	3 (Himachal Pradesh, Maharashtra and Rajasthan)
Digitally Signed RoRs	7	1 (Rajasthan)
Integration of Bhu-Naksha and RoR	5	-

Source: DI-LRMP Pilot Impact Assessment study, NCAER, 2017

As is obvious from the above, the achievements were shown in a binary form of whether a particular action had been performed or not. As such, a state had either computerized RoRs or it was still to do so. The IA revealed the need to nuance how this achievement on various components is exhibited if it is to be meaningful. Even as a binary construct, the information was not completely accurate. Both on digitally signed RoRs and integration of spatial and textual records, it did not show Himachal Pradesh amongst the achievers. With over 97% RoRs available in digitized form, this was probably amongst the highest in all states. Instead Rajasthan which barely registers a presence on this component figured as an achiever. Similarly, on integration of textual and spatial records, HP is one of the few states to have made a start on this but had not posted its achievement (not humility on the state's part, just plain failure to report on the MIS!).

In order to make a more meaningful comparison, data obtained in the course of the IA exercise and that reflected on the DoLR website currently, is presented in Table 4 below. This comparison has to take into account the fact that the IA data largely relates to 2016 and the comparable figures are those currently on the DoLR website. Some variation is likely due to this fact. Another problem in comparing the figures is that the IA has not necessarily captured the information in the same way as required by the MIS. Eg. The IA did not seek information on the computerisation of mutations since per se this information has little relationship with more efficient updating of the record which is more likely to be captured by the integration of the registration and RoR data bases and the facility of registered transactions being immediately noted in the RoR in some form. With respect to computerization of the registration process, the IA obtained information on the various stages of the process and not as an omnibus single indicator of computerization of registration (Table 4).

Table 4
Land record Digitization Status: Comparison between Impact Assessment and DoLR data

		Himachal Pradesh	Maharashtra	Rajasthan
RoR computerization (percentage of total villages)	IA	97.6	99.01	96
	DoLR	99.9	98.83	96.6
Mutation computerized (percentage of total villages)	IA	n.a	n.a.	n.a
	DoLR	1.54	98.84	8.65
Digitially signed RoR (percentage of total villages)	IA	97.6	0.0	7.6
	DoLR	85.7	0.03	7.6
Digitized CMs (percentage of total REs / CMs)	IA	17.91	3.8	0.0
	DoLR	99.8	3.6	5.12
Number of REs with Cadastral Maps linked to RoR (percentage of total villages)	IA	17.91	0.0	0.0
	DoLR	34.2	0.0	0.02
Web based computerization of registration process (percentage of total SROs)	IA	0.0	n.a.	n.a
	DoLR	0.0	96.8	4.5
Circle rate online (percentage of total SROs)	IA	100.0	96.8	100
	DoLR	100.0	96.8	33.4
Integration of registration process with RoRs (percentage of total SROs)	IA	97.6	n.a.	n.a
	DoLR	100.0	96.6	1.71

Source: DI-LRMP Pilot Impact Assessment study, NCAER, 2017 & Department of Land Resources, Ministry of Rural Development, Government of India.

1. RoR digitization shows consistent results in the case of all the three states, with only HP showing a slight mismatch between the IA and DoLR figures.

2. Again in the case of digitally signed copies of RoR, Maharashtra and Rajasthan figures in both sets of data match perfectly with some variation in the case of HP.

3. In the digitisation of cadastral maps, the two sets of data do not match in the case of any of the states. However, the variation is nominal in the case of Maharashtra. HP shows almost 100% digitisation on the DoLR website against less than 18% in the IA. However, the IA does mention that this work is proceeding apace in most districts and it is possible that significant progress has been achieved. Similarly, in the case of Rajasthan, a start has been made in digitisation of CMs as per the DoLR website against the nil achievement at the time of the IA.

4. The position on integration CMs and RoRs, is again more or less consistent as reflected in both the IA and the DoLR website for the case of both Maharashtra and Rajasthan. In HP's case, the DoLR website shows almost double the achievement brought out in the IA. This is also possible given that this work has been progressing quite fast since the IA was carried out.

5. On circle rates being available on the web, the position in the IA and DoLR website is consistent for HP and Maharashtra. In Rajasthan's case, the DoLR website data is only a third of the 100% availability reflected in the IA.

6. On the computerisations of mutations, no information was obtained during the IA. As mentioned in the earlier section, it is difficult to understand the value addition in computerisation of mutations which is not captured by the integration of the RoR and registration data bases. So while Maharashtra, reports almost 99% of computerisation of mutations, the integration of the two data bases is actually reported at a slightly lower level. The mutation computerisation is an automated notice of a registration event to the revenue officials responsible for maintaining the record and not a note in the RoR itself.

7. The information on web based computerisation of the registration process is consistent between the IA and the DoLR website at the overall level in that it reflects the advances made in Maharahstra in this sphere and the relative lack of progress in HP. The IA brings out some inconsistency in the figures for the total number of SROs and those linked to the web based system in Maharashtra. More important, the IA brings out that attempting to capture computerisation of registration as a single step process cannot reflect the position on a multi stage process like registration. The IA brought out the position on computerization of the various stages of the registration process in the three states as shown in the table below.

Table 5
Digitisation of the Registration Process
Comparative Position of the States

Steps	Undertaken By Client, Registration Office or Both	Himachal Pradesh	Maharashtra	Rajasthan
1. Title Search	Client			
1a. Checking with RoR	Client	Online	Offline (mostly)	Offline
1b. Access to Legacy Registration Record	Client	Nil	46% SROs permit search from 1985 onwards and 47.3% from 2002 onwards	Nil (rapidly being made available for last 2 years)
2. Circle Rate (real time availability of notified rate)	Both	Available	Available	Available
3. Payment of Duty	Client	e-stamp	On line system	e-stamp/on line system introduced

4. Document Preparation and Application	Client	Offline	Partially web based	Off line (now data entry partially web based)
5. Verification of Duty and Documents	Office	Offline	*Duty verification*- Online Documents verification – partially web-based	Off line
6. Attestation of Registration	Office	Offline	Partially web-based	Off line
7. Delivery of Document	Office	Offline	Online system	Off line
8. Updating of record	Office			
8a Notice for Updating is noted in the land/property record:	Office	In all cases where RoR is computerised (97.6%)	2.8% of SROs	Offline
8b Actual Record Updation occurs in real time:	Office	No	No	No

***Source*:** DI-LRMP Pilot Impact Assessment study, NCAER, 2017

Overall, comparison of the position brought out in the IA and that reflected on the DoLR website, shows a consistency in many important details. It does however, bring out the need to ensure states pay greater attention to accurate reporting on most fronts. More important, it brings out the need to ensure that the information on computerisation of registration is collected for a multi stage process

Financial Progress

While the figures in Table 2 (shown earlier) relate to aggregate financial figures from 2008-09 till the latest year, 2017-18, the IA has information for the three states only till the latest time period at the time of the study (Table 6). Still, the national level picture of underutilization is mirrored by the data of the three states. In effect, the earlier observations on issues in the design of the DI-LRMP can be safely reiterated.

Table 6
Financial Progress of DI-LRMP for pilot states
(2008-09 to 2015-16) (Rs lakh)

State*	Funds Sanctioned by the Centre (in Lakh Rs.)	Funds Released by the Centre (in Lakh Rs.)	Expenditure Incurred (in Lakh Rs.)	Fund Utilisation (expressed as a %age of the funds released)
Himachal Pradesh	6907	4330	303	7.00
Maharashtra	8420	6536.16	1673.67	25.61
Rajasthan*	752.630	550.450	263.650	47.90

***Source*:**Department of Land Resources, Ministry of Rural Development, Government of India.

***Note*: ***Details in the case of Himachal Pradesh and Maharashtra pertain to the period 2008–09 to 2015–16, while for Rajasthan, the data is for the time period 2012–13 to 2014–15.

In Table 7 below, the latest financial details on the DI-LRMP website for the three IA states have been exhibited. A comparison with the data in Table 6 above brings out an anomalous result. The latest figures of expenditure for Rajasthan are nil and almost negligible for Maharashtra! Clearly, the systems for reporting and monitoring data up loaded on the DoLR website need improvement.

Table 7
Financial Progress of DI-LRMP for pilot states
(2008-09 to 2017-18) (Rs lakh)

	Funds Sanctioned by Centre	Funds Released by Centre	Expenditure (as Entered by State/UT)	Fund Utilization (expressed as a %age of funds released)
HP	6927.818	4344.259	705.96	16.25
Maharashtra	10432.07	6535.435	58.472	0.89
Rajasthan	19319.07	4137.21	0.00	0.00

***Source*:**Department of Land Resources, Ministry of Rural Development, Government of India.

1. Comparison between Land Records and on Ground Situation

One of the key objectives of the IA was to comment on the extent to which computerisation of the land records is facilitating a more comprehensive and accurate land record updated in real time. For this purpose, an exercise was undertaken to compare the position in the land records with the actual on ground situation with respect to sample plots. The comparative analysis was undertaken in two tehsils (selected on the basis of a pre decided criteria) in all the three states and involved a survey of 50 land parcels in each of the two tehsils. The consistency or variation between the record and the on ground situation was examined with respect to five features that characterize every property– Ownership, Possession, Land use, Extent or Land Area and Encumbrances. The three institutions varied in the methodology used to select the sample plots so the results were not comparable across the states. However, the results still make it possible to comment on the nature of the variation and the gaps that need to be addressed.

1. In the case of ownership, it is clear that the existing emphasis on computerisation and integration of the three areas of textual record, spatial record and registration process needs to be pursued with greater viguor if records are to be updated in real

time after registration of transactions. Furthermore, even after this is completed, it will leave an important gap. Succession as an event that necessitates change in the record is still not covered as a sphere where appropriate data base linkages are required to bring about the possibility of real time updating of the record.

2. In the case of possession, the gaps relate to entry in the record of tenants or others using land and property. Addressing this gap, will require statutory or procedural changes in every state to facilitate appropriate entries to be made and data bases to be linked. In Rajasthan, for example, the land record does not have a column to record possession at all. In HP, the tenancy reform law creates perverse incentives militating against recording tenants or sharecroppers.

3. In all three states, the findings suggested a considerable gap between the record and the on ground situation in the case of land use. Updating this in real time, requires bot changes in procedure and use of appropriate data bases.

4. In all three states, it was noted that the area given in the RoR and the on ground measurement showed a high degree of variation. While this brought out the fact that spatial records may not be very accurate, it also flagged the point that resurvey could result in large scale disputes unless appropriate protocols were evolved in advance to deal with the variations. An important preliminary step could perhaps be to reconcile the existing textual and spatial record in order to reduce the ambit of differences. This requires an emphasis on digitizing the spatial record in all states.

5. In the case of encumbrances pertaining to a property (in terms of restrictions or conditions affecting the property), it was seen that only mortgages are entered in the record and even in this case, in most states real time updating of the record would require certain statutory and procedural improvement to ensure

that data base linkages like registration can be used. Important encumbrances that cause dispute and conflict in relation to land include on-going litigation or land acquisition proceedings as well as land use or customary restrictions attached to land. In most states, there are no existing instructions or mechanisms for recording many of these encumbrances in the RoRs. Appropriate data base linkages can mitigate this gap. Innovations in this regard need to be brought under the ambit of the DI-LRMP.

2. Possible Steps To Hasten Achieving DI-LRMP Objectives

The objective of this paper was to bring out the level of computerisation of the land and associated records and by looking at the findings of an impact assessment of the DI-LRMP, to reflect on the extent to which the objective of a more accurate, comprehensive record updated in real time is being achieved. Finally, it was to include suggestions on ways in which the shortcomings pointed out, could be addressed. The preceding sections of this paper have highlighted the following areas where action is required:

1. Progress on computerisation of land records, under the DI-LRMP and its predecessor programmes, has been patchy. While considerable progress has been reported with respect to computerisation of textual records, other components lag behind. Even in the case of textual records, the facility of making available digitally signed copies of the record on the web is still very limited.

2. The utilization of funds under DI-LRMP has been extremely poor and does not appear to be linked to the reported achievements in computerizing various components of the record.

3. Apart from the need to speed up the existing work on computerizing various components of the land record and registration process and integrating these data bases, there is a

need to bring about appropriate legal and procedural changes to enable linkage with other data bases that can aid in the process of creating a more accurate, comprehensive record updated in real time.

4. The DI-LRMP MIS largely reflects the actual achievement of the states with respect to the outputs sought to be achieved by the programme. However, some improvements would enable capturing better the achievements in digitization of land and associated records such as securing information on the various steps involved in registration. Some changes may also be necessary to secure information on the extent to which the RoR reflects information from other associated data bases that can improve the record. It also needs better reporting by the states and monitoring at the central level.

   The IA study included bringing the findings of the study to the notice of relevant stakeholders, in order to elicit suggestions on action that can enhance the prospects of a more accurate and comprehensive record updated in real time and ensure the DI-LRMP is more focused in rendering assistance to meet this objective. To this end, these findings were discussed with revenue department officials in focus group discussions (FGDs) and state level consultations. Based on the recommendations that emerged in these consultations and the analysis of the shortcomings brought out in the IA, the following suggestions are put forward as possible ways to hasten achievement of the DI-LRMP objective of securing a more accurate, comprehensive record updated in real time.

1. At the state level, the recommendations included better trained staff and monitoring arrangements. They pointed out the need to expedite on going computerization efforts in relation to the textual record, the spatial record, the registration process and integration of these data bases. They also highlighted the need to make the necessary statutory and procedural changes to enhance the possibility of real time updating of RoRs through 'instant mutation' on the occurrence of registration. Most

significant were the suggestions on additional data bases to be linked to address the gaps that will remain even after the process of computerization as envisaged currently is completed. These include links to the birth and death register to take care of the bulk of succession related events as well as links to data bases related to various encumbrances like court cases, land acquisition and land use restrictions introduced by development plans. Use of satellite maps and creating linkages in this regard, can help improve the position on recording land use change in real time. Encouraging voluntary partition of property and creating appropriate formats for recording built up property and recording possession on various segments of such property can also aid in the record better reflecting the actual possession on the ground.

2. Suggestions to improve the design of the DI-LRMP so that it has a better link to state efforts and the outcomes sought to be achieved, focused on increased flexibility for the states in making expenditure decisions. They also sought a component that rewards performance by states with regard to creation of a more comprehensive, accurate and updated record instead of only funding inputs.

3. On the data front, the IA has suggested that the states may be asked to report annually on the following details in order to capture all the requisite efforts on computerization and linking relevant data bases that are expected from the states. Most of this information is already received on the DI-LRMP MIS but some additions will be necessary.

- Number of tehsils/talukas or other administrative division for property record purposes and revenue villages/estates in the entire state.

- Names of tehsils/talukas reported to have computerised/ digitised the RoRs/CMs (separately) and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where copies of the RoRs/CMs (separately) in a legally useable form can be accessed from the web and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where registration of property-related transactions is automatically done in the computerised RoRs and the number of revenue villages/ RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where registration of property-related transactions result in instant mutation in the computerised RoRs and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where encumbrances in the form of mortgages can be immediately noted in the computerised RoRs and number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where encumbrances in the form of revenue court cases can be immediately noted in the computerised RoRs and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where encumbrances in the form of civil court cases can be immediately noted in the computerised RoRs and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where encumbrances in the form of land acquisition proceedings can be immediately noted in the computerised RoRs and number of revenue villages/RoRs in each of these tehsils/talukas.

- Names of tehsils/talukas where encumbrances in the form of statutory land use restrictions can be immediately noted in the computerised RoRs and the number of revenue villages/RoRs in each of these tehsils/talukas.

- Number of SROs in the state.

- Number of SROs in the state where registration of a sale deed requires and/or has a facility for online:

a. entry of data with regard to the proposed registration;
b. availability of updated circle rates;
c. payment of stamp duty/registration fee;
d. verification of payment/scrutiny of requisite details and completion of registration process with digital signature; and
e. immediate delivery of the registered document.

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Annexure

Table A1: State wise Status of Land Record Digitization (year 2018)

	0-5% digitization	6-50% digitization	51-90% digitization	91-100% digitization	No information available
RoR computerization (percentage of total REs /villages)	Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, NCT Of Delhi	Jharkhand, Kerala, Chandigargh, Odisha, Manipur, Jammu & Kashmir	Puducherry, Chattisgarh, Uttarakhand, Tamil Nadu, Daman & Diu, Bihar, Goa, Assam	Dadra & Nagar Haveli, Himachal Pradesh, Lakshadweep, Karnataka, Andaman & Nicobar, Telangana, Tripura, Madhya Pradesh, Maharashtra, West Bengal, Andhra Pradesh, Rajasthan, Gujarat, Uttar Pradesh, Punjab, Sikkim, Haryana	
Mutation computerized	Bihar, Himachal Pradesh, Odisha, Arunachal Pradesh, Jammu & Kashmir,	Kerala , Uttarakhand, Jharkhand, Madhya Pradesh,	Goa, Chattisgarh, Gujarat,Tamilnadu,	Dadra & Nagar Haveli, Andaman &Nicobar, Telangana, Tripura,	
(percentage of total villages)	Karnataka, Lakshadweep, Meghalaya, Mizoram, Nagaland, NCT Of Delhi	Punjab, Manipur, Rajasthan, Chandigargh	Uttar Pradesh, Sikkim, Assam	Maharastra, Puducherry, Andhra Pradesh, West Bengal, Haryana, Daman & Diu,	
Digitially signed RoR (percentage of total villages)	Jharkhand, Chattisgarh, Haryana, Punjab, Bihar, Uttarakhand, Maharastra, Arunachal Pradesh, Assam, Chandigargh, Daman & Diu, Goa, Jammu & Kashmir, Karnataka, Kerala, Lakshadweep, Manipur, Meghalaya, Mizoram, NCT Of Delhi, Odisha, Sikkim, Nagaland	West Bengal, Madhya Pradesh,Gujarat, Rajasthan	Himachal Pradesh, Uttar Pradesh, Tamil Nadu, Tripura	Dadra & Nagar Haveli, Andaman & Nicobar, Telangana, Andhra Pradesh, Puducherry	

Digitized CMs (percentage of total CMs)	Maharastra, Daman & Diu,	Uttarakhand, Uttar Pradesh, Rajasthan, Andaman & Nicobar, Gujarat	Telangana, Jharkhand, And hra Pradesh	Dadra & Nagar Haveli, Goa, Odisha, Puducherry, Sikkim, Tripura, Assam, Himachal Pradesh, Bihar, Madhya Pradesh, Kerala, Chattisgarh, Tamilnadu, Haryana, Punjab, West Benga	Arunachal Pradesh, Chandigargh, Jammu & Kashmir, Karnataka, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, NCT Of Delhi
Number of REs in which Cadastral Maps linked to RoR (percentage of total REs)	Dadra & Nagar Haveli, Andhra Pradesh, Jharkhand, Telangana, Goa, Rajasthan, Arunachal Pradesh, Bihar, Chandigargh, Daman & Diu, Haryana, Jammu & Kashmir, Karnataka, Kerala, Lakshadweep, Maharastra, Manipur, Meghalaya, Mizoram, Nagaland, NCT Of Delhi, Puducherry, Punjab, Uttarakhand	Assam, Andaman & Nicobar, Himachal Pradesh, Gujarat, Sikkim, Uttar Pradesh, Tamil Nadu	Chattisgarh, Madhya Pradesh, West Bengal	Odisha, Tripura	
Web based computerization of registration process (percentage of total SROs)	Tamilnadu, Chattisgarh, Arunachal Pradesh, Assam, Chandigargh, Dadra & Nagar Haveli, Goa, Himachal Pradesh, Jammu & Kashmir, Karnataka, Lakshadweep, Manipur, Mizoram, Nagaland, NCT Of Delhi, Odisha, Punjab, Uttar Pradesh	Daman & Diu, Sikkim, Andaman & Nicobar, Meghalaya, Haryana	Uttarakhand, Bihar	Andhra Pradesh, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Puducherry, Telangana, Tripura, West Bengal, Maharastra, Rajasthan	
Circle rate online (percentage of total SROs)	Andaman & Nicobar, Arunachal Pradesh, Assam, Chandigargh, Chattisgarh, Goa, Jammu & Kashmir, Karnataka, Lakshadweep, Manipur, Meghalaya, Nagaland, Odisha, Sikkim	Daman & Diu, Mizoram, Punjab, Tripura, Uttar Pradesh	Uttarakhand, Haryana, Tamil Nadu	Andhra Pradesh, Dadra & Nagar Haveli, Gujarat, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Nct Of Delhi, Puducherry, Telangana, West Bengal, Maharastra, Rajasthan, Bihar	

Integration of registration process with RoRs (percentage of total SROs)	Tamil Nadu, Uttar Pradesh, Arunachal Pradesh, Assam, Chandigargh, Chattisgarh, Daman & Diu, Goa, Jammu & Kashmir, Karnataka, Lakshadweep, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, NCT Of Delhi, Odisha, Puducherry, Uttarakhand	Andaman & Nicobar, Punjab, Bihar	West Bengal, Haryana, Sikkim	Andhra Pradesh, Dadra & Nagar Haveli, Gujarat, Himachal Pradesh, Jharkhand, Telangana, Tripura, Kerala, Maharastra, Rajasthan	

***Source*:** Department of Land Resources, Ministry of Rural Development, Government of India.

Reforming Urban Property Record Management in India- A Case-study of Karnataka

Samartharam N. R.*

Abstract

Maintenance and timely updation of land / property records is one of the important responsibilities of state government irrespective of whether it is presumptive or conclusive titling system of land records management. While agricultural land management system in India has reasonably established to large extent, there exists gap in urban non agricultural land management system. One can attribute many reasons for these lacunae in urban land management system, there is need to evolve standard procedure for record keeping and timely updating of urban land records in the country. A good property record management system is critical for better land use and land use planning. Different systems are prevalent in India for managing urban / non agricultural land and each of these systems have their own advantages and disadvantages. In most of the cases information available is stale as procedure used caters to the needs of traditional agricultural land management. Lack of systematic process to brining the newly created properties is also one of the reasons for inaccurate urban / non agricultural land record system. Government of Karnataka has taken an initiative and has introduced e-Gov solution named e-Aasthi with National Informatics Centre as technical solution provider to manage Urban property records. Introduction of ICT in managing property records will bring much required transparency, user friendliness and authenticity. This case study will focus on the challenges faced in evolving the solution, earlier models tried, road map for achieving good urban property record management system and unique advantages of the e-Aasthi.

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Keywords: Urban Property record management, e-Aasthi, e-Governance, non-agricultural properties, urban local bodies.

1.0 Background

2.0 Land management is one of the oldest disciplines of the governance and land being very important aspect of mankind keeping huge sentiments humans attach to it. Land management involves managing agricultural and non agricultural lands. While agricultural land management system in India is quite comprehensive and well established one, non-agricultural land management is the area which needs impetus. Most of the states in India have completed or on the verge of completion of digitization of land records pertaining to agricultural lands under DILRMP programme (erstwhile CLR / NLRMP). Many states issue record of rights (RoRs) across the counter. Electronic integration with different stakeholders like registration, survey & settlement department, banks and land acquisition has also been achieved in few states. However, there is no standard system for non-agricultural land management in many states.

In most of the southern states in India, non-agricultural properties are not maintained by Revenue department even though the respective Land Revenue Acts provides provision for the same. Normally, once agricultural land is converted for non-agricultural purpose, separate hissa (sub survey number or sub-division number) is assigned and revenue demand is made zero. Literally RoRs of these land parcels will be hanging records as revenue department deletes them from demand, collection and balance (DCB) and nobody will take them into their account. In certain cases where owners want to sell their non-agricultural land, they are using Revenue department RoRs as instrument to transact land. As far as sites and houses are concerned, registration department is depending on the Khatha (Property tax account) issued by the Grama Panchayts or Urban Local Bodies (ULBs) In the Western part of India covering parts of Karnataka, Maharashtra and Gujarat, there is a concept called City Survey where non agricultural lands including house sites, houses /

buildings are managed under city survey by the Survey and Settlement wing of the Revenue department. In most of the cities City Survey is not able keep pace with expansion of the city and also not able to maintain the up-to-date records. There has been an attempt to maintain the non agricultural properties like sites and building as part of Record of rights which is originally meant for maintaining agricultural lands. Due to non availability of up-to-date and comprehensive city survey records, khatha maintained by ULBs are being used as property record for all the transactions in registration department [Except Gujarat].

Erstwhile Bengal presidency covering states of West Bengal, Orissa, Bihar and Jharkhand has a system called holding number and plot number maintained by Revenue department based on the Municipal survey of 1929. Due to lack of periodic surveys, newly expanded areas of the cities are not taken care as part of these municipal records. These properties do not have holding number and plot numbers which is characteristic of urban non agricultural properties. To fill this vacuum, these newly created non agricultural properties are maintained as a part of the Record of Rights used for maintaining agricultural properties. The revenue records along with the Municipal records such as building details etc., maintained by the ULBs are used to transact the properties.

In most of the northern states there have been attempts to maintain the non-agricultural property details as part of agricultural land records with remarks. There are instances wherein multiple owner details recorded in other rights column. Due to non availability of complete and updated data pertaining to non agricultural properties like buildings and building sites, records maintained by ULBs for the purpose of tax collection are being used as documents to transact.

None of the above systems scrupulously maintain building and building sites used for residential, commercial and industrial purposes. There seems to be a big lacuna when it comes to maintenance of apartment details which is the need of the hour in most of the urban agglomerations.

It is clear that, agricultural land management system in India is reasonably established to a large extent and standard procedures are in place. Appreciable aspect of the agricultural land record management system in India has a lot of similarity with respect to attributes captured as part of RoRs. Some of the common attributes by which every land parcel is identified by are location details like to which district, taluk (tehsil/mandal/circle), revenue village the land parcel pertains to, survey/land parcel number (Khasra number/Dag number), total area or extents of survey number, owner details are recorded with their extents, remarks are also recorded as part of the respective RoR. The land records maintenance differs from state to state like in some states owner extents are mentioned in terms of absolute value, in other states is percentage of total area of survey number, in some states, the group of owners are having their total extents for the entire group, shares of the extents are recorded. In some States, the RoR also records details such as crops grown season wise, soil type (Dumad/Chahi/black soil/red soil/alluvial soil), and source of irrigation, Rights and liabilities, mortgage details. In some States/UTs, the ROR also records details such as tenancy, land use (barren/cultivable/dry/wet), holding type (size of holding such as large farmers, small or marginal farmers based on the total area of land extents). The ownership details recorded in the RoR also includes name of the owner, identifiers name, caste, address. RoR is called by different names in different States/UTs.(Khasra, Khatauni, RTC, Adangal, Pahani, Dag Chitha ,Jamabandi, Nakal).

Irony of the whole urban non agricultural land management system is that, in Karnataka demand register extracts used in the sub register office for performing transactions were different from what was prescribed in the **Karnataka Municipal Act 1964.** There were instances wherein fake demand register extract required to complete the registration formality were created by middlemen in sub registrar's office itself. It was astonishing to note that demand register copies which were not prescribed under **Karnataka Municipal Act 1964** were being issued from Urban Local Bodies without maintaining any issue register. All these

activities had resulted in mushrooming of illegal layouts in peri-urban areas.

There exists a gap in urban non agricultural land record management system. As explained earlier most of the states do not have a comprehensive land record management system for non agricultural lands in urban areas. There is neither uniformity nor a standard procedure in maintenance of these records unlike agricultural land records. Some of the reasons which can be attributed for non standard procedure for maintenance of the records are as follows:

- Non uniform acts and rules followed across different presidencies in pre independent India and lack of commitment to bring uniformity in post independent India – partly because of land / property records management is part of state list.

- Delay in conducting survey / re-survey and dependency on pre independence surveys conducted during early 1900 by British.

- Successive governments failed to estimate and provide non agricultural land for housing, infrastructure, industries etc., and keeping growing population in view.

- Land / property records management system not able to cope up with pace of urbanization [Urbanisation is taking place at a faster rate in India. Population residing in urban areas in India, according to 1901 census, was 11.4%. This count increased to 28.53% according to 2001 census, and crossing 30% as per 2011 census, standing at 31.16%. According to a survey by UN State of the World Population report in 2007, by 2030, 40.76% of country's population is expected to reside in urban areas.][1] due to traditional survey systems which are laborious and lack of skilled manpower in government sector to used latest technologies.

- Land grabbing is lucrative activity in Urban / peri-urban areas and vested interests resist any reforms / stream ling of the property record management system.
- Lack of Total Land Management system wherein every inch of land is accounted for and there are processes preferably IT processes which will ensure that reduction in agricultural land will get added to non agricultural land and all the stakeholders on board.

3.0 Introduction

Land is a very important resource which needs to be leveraged to part finances the urban development projects. The urban agglomerations should govern the property record system efficiently, so that it encourages quick development and transaction of land. Property Tax is one of the major fund sources of Urban Local bodies. Collecting tax of all the properties within the purview of its jurisdiction become a challenging task as identifying the new properties or changes taking place on an existing property has become more laborious task. There have been attempts in Karnataka to strengthen property record management system, two important initiatives are

- Urban Property Ownership Records (UPOR) by SSLR (Department of Survey, Settlement & Land Records)

- Hassan pilot under KMRP (Karnataka Municipal Reforms Project) of Urban mapping cell (Urban Development Department).

3.1 Urban Property Ownership Records (UPOR)[2]

UPOR was started in five cities (Bellary, Mangalore, Hubli-Dharwad, Mysore and Shimoga) of Karnataka under PPP model during the year 2009 with following Objectives

- Robust system of Urban Property Ownership Records is to be created for every property which accurately records both the spatial details of the property as well as non-spatial record of rights data for Land Parcels, Structures / Buildings and Roads etc.
- Property records will serve as trusted records for all transactions.
- This property record created through this project will evidence property ownership for all regulatory and legal purpose.
- The property record will continue to remain current and accurate forever through the process of mutation. In other words, Records will not become obsolete or inconsistent.
- All property record related transactions and services will be handled through this project.

UPOR was a PPP model project with one Survey Partner (SP) and one Technical Service Provider (TSP). Major role of SP was to conduct survey and was selected for each town. TSP was to provide IT support for the UPOR project and only one TSP was selected for all the towns to avoid the redundancy in IT framework and to have uniformity in the property management system. While government shared burden of building IT infrastructure in state data centre, SP & TSP were to share & sustain on the user charges received from the citizen from selling property cards. However rates of property cards are decided by government and share between SP and TSP was decided through tender process.

Of the five towns where UPOR took off, due to various reasons project was winded up in Bellary within one year and within three years in case of Hubli-Dharwad. As per the department, one of the main reasons was bad quality of work by SP. In Case of Mangalore, re-tendering was done for selecting new SP as old SP was not able to carry out the activities as desired by the department. Project has seen reasonable success in two towns namely Shimoga & Mysore. As far as Shimoga is concerned, Property Card issued through UPOR has been made mandatory

for all transactions; in fact there exists electronic integration between Registration system (KAVERI) and UPOR for data exchange in real time. In case of Mysore thou property cards available for many properties, it has not yet been made mandatory for carrying out transactions. One important observation in case of Shimoga is both SP and TSP are sister companies. In the city of Mangalore, work is in progress and project is back on track after change in the vendor (SP). Many property cards are being generated in Mangalore now; however it has not been made mandatory unlike Shimoga. Following table indicate the progress achieved in three towns as end of September 2017.

Table 1.0

Activities	Shimoga	Mysore	Mangalore
Estimated number of properties (RFP)	75,000	1,50,000	1,50,000
No. of properties measured and mapped (as on Shimoga-13.8.11, Mysore-31.7.11, Mangalore-17.2.14)	97,315	3,18,351	1,47,262
No. of Properties for which ownership documents collected	69,875	1,99,201	73,635
No. of Properties for which draft PR card generated	57,428	1,25,678	26,889
No. of Properties for which final PR card issued	32,868	34,824	13,464

Source: Department of Survey, Settlement & Land Records

3.2 Hassan pilot under Karnataka Municipal Reforms Project (KMRP) [3]

There was an attempt to create property records in Hassan similar to what was being done under UPOR by Urban Development department as Creation of property titles to all urban properties is high on the reform driven Jawaharlal Nehru National Urban Renewal Mission (JNNURM) agenda. Hassan pilot under KMRP was initiated with following objective.

- Detailed and accurate maps at 1:500 with measurements of properties of boundaries and buildings to one cm accuracy for creation of property records for title certification. Project used Total Station and prepared maps at basic scale 1:500 and derived at 1:1,000.
- As part of the project, Total estimated area to be surveyed was about 100 sq km in which 25 sq km is developed and 75 sq km is undeveloped.

However project did not go through, after survey was completed linking property polygons to properties in property tax register. Major challenge seems to be huge vacant plots found without demarcations especially in undeveloped area and apathy of ULB staff in linking map with property register in developed areas.

4.0 e-AASTHI - A Property Management System for Urban Local Bodies

Thou, UPOR saw some success in three of the five towns selected initially in 2009; it could not prove itself to be scalable project. Repeated attempts by SSLR to implement UPOR in Bengaluru failed miserably as department could not finalize the vendors. Either companies were not ready to participate in the tender process or bids submitted were too high compared what department had estimated. Project under KMRP did not see its logical conclusion. The Gap existed in maintenance of urban property records continued even after these two projected were tried. Government of Karnataka along with National Informatics Centre as technical partner wanted to implement via media solution which takes care of following requirements of all stakeholders.

4.1 To Urban Local Body (ULB)

- Better management of property records under their jurisdiction.

- Complete elimination of illegal properties getting into records.
- Good-bye to fake documents.
- Accountability ensured for department officials.
- Reduction in property disputes.

4.2 To Citizen

- Across the counter service for getting documents.
- Requests are acknowledged and can be tracked.
- Easy access to their records through web interface
- Elimination fake documents ensure buyers are not cheated.
- Easy access to loan due to authenticity of the document.

4.3 Other Stakeholders

- Registration department is provided with all information about the property at the time of registration so that verification of documents is not a challenge anymore.
- Impersonation during registration is completely avoided as property documents are issued with photo of the owner printed in property document.
- Banks and Financial institutions can advance comfortably as legally created properties and illegally created properties can be clearly distinguished easily.
- All the accepting authorities can verify the document on web and also can depend on paper document to large extent as documents are digitally signed and bar coded.

As a result of this process, a citizen centric e-Governance project called e-AASTHI [AASTHI means Property in Kannada] has been conceptualized, designed and implemented in 213 ULBs across Karnataka. e-AASTHI handles highly sensitive property documents, which is a workflow based application for Property Management System for Urban Local Bodies in Karnataka. e-AASTHI works on incremental model, which avoids legacy data entry which is laborious in nature and also exempts survey

activities before implementation. As per the latest reports in e-Aasthi website, as of now e-AASTHI has created 2.5 lakh property records and 3.25 lakh documents have been issued to public on demand basis. Approximately, Rs. 2.25 crore has been collected as service charges.

Transparency in the processes of land/property administration such as registration, transfer, paying taxes, availing credit, getting government lands granted, getting government lands on lease, land acquisition etc., are essential to remove corruption the land administration. Usage of ICTs to build e-Governance systems will go long way in bringing transparency and thereby reducing corruption and improving quality of property records. The basic characteristics of a well designed e-Governance system such as audit trail, data integrity, role based access and data security will bring in much required traceability, accountability and reliability required for any land/property administration system. e-Aasthi has been designed to take care of all the requirements mentioned above.

All activities in e-AASTHI are e-Enabled, all inputs for transactions are through electronic interfaces like input screens or consuming XML data received from other stake holders. e-AASTHI software is a workflow based system with digital signature integration along with built in FIFO concepts. Form-3s (Property document) are issued only from the database and no hand written documents are being issued. All the accepting authorities have been informed not to accept hand written Form-3s. Form-3 database has been web enabled so that anybody can view the issued Form-3.

5.0 Challenges faced during e-Aasthi deployment & implementation

According to departmental officials, managing change was big challenge as Urban Local Bodies officials were new to property

record management system. Unlike revenue department, Urban development department officials were not familiar with property records management. There was no standard and uniform procedure that was followed while taking properties into demand register and performing mutation process. Urban Local Bodies Officials had to be trained on domain issues as well as in software usage. Karnataka state was formed during state re-organization by bringing areas belonging to five different administrative zones during British rule namely Princely state of Mysore, Bombay-Karnataka, Hyderabad –Karnataka, Madras presidency and Princely state of Coorg. Procedures, Practice and documents used in administration were different in different regions, even after unification, officials were influenced by old practices. An effort of standardization was not achieved as there was lots of flexibility in the manual system. Adopting uniform and standard procedure all across the state was a challenge as manual systems were designed keeping local needs in mind. In addition to uniformity & standardization issues other challenges faced in Urban Local Bodies are as follows:

- Not in a position to differentiate legally created properties and illegally created properties using existing data – possible only by subjective analysis if documents are provided.
- Fake Form-3s are being created by middlemen in SRO office/ Municipalities. No facility to verify the authenticity of form-3 at SRO office (most of the time SROs not interested to verify – excuse given is loss of revenue to state exchequer).
- There was practice of charging double tax for illegally created properties and take into assessment register. Not applied uniformly and there was lack of clarity.
- Handling properties received from peri-municipal limit villages has become problematic and nothing much has been done on that even though khatha registers of erstwhile Grama Panchayats are available with ULBs.

- Processes are not put in place to automatically bring new properties into property records database thereby brining them into tax net. ULBs are completely dependent on field surveys conducted from time to time or voluntary disclosures which happen rarely.
- There is no standardization in uniquely identifying the property there by leading to fake and fraudulent transaction in SROs.
- Most of the ULBs don't have issue register for issuing Form-3 and sometimes difficult to assess whether Form-3 in question is indeed issued from ULB or not.

6.0 Innovative aspects of e-Aasthi

There are five important innovations in e-AASTHI

- **Shift paradigm from Tax collection system to Property management system**

  "Clear title, records of land ownership and boundaries in the growing periphery of cities will dramatically improve the ability for planned urban growth and land transaction efficiency between the buyer and seller." Efficient functioning of land and property markets requires well-organized and updated land / property record management systems which clearly indicate legal ownership of land. e-AASTHI application fills the gaps that were existing in manual system by adding more required parameters such as boundary details, land category, land usage. e-AASTHI application enables Urban Local Bodies to shift from existing tax records to property records with clear title. All this achieved by adopting well defined workflow & approval process

Fig 1.0

- **Integrated Online mutation module**

  Online mutation module is one of the core modules in e-AASTHI application. The critical and sensitive activities of ownership change, data updation, approvals etc., are done using online mutation module for all the service requests. Any type of mutation request, after its initial acceptance at the application level is acted upon in the mutation module. Each and every request can be traced & tracked till it reaches logical conclusion. There are about 15 different types of mutations for which the requests are received from the citizens / stakeholders.

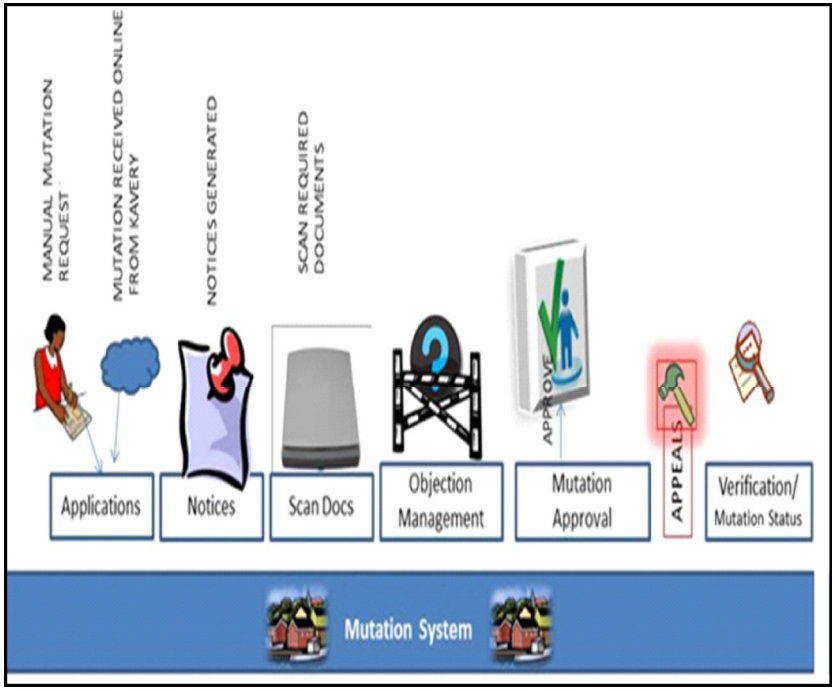

Fig 2.0

- **PKI Enabled**
  e-AASTHI application is PKI (Public Key Infrastructure) enabled application with integration of digital signatures is in place to adhere to IT act 2000. PKI provides the framework that allows it to deploy secured services based on encryption. PKI allows creating the identities and associated trust need for identification and authentication process.

- **Government Process re-engineering**
  Process re-engineering has been carried out by urban department to stream line the property record management for properties coming under their jurisdiction of Urban Local Bodies. Following three major activities were accomplished as part of process re-engineering for achieving objectives of e-AASTHI:

- **Process re-engineering in Acts and Rules.**

Rules under **Karnataka Municipal Act 1964** inserted / amended with an intention to make Form-3 as document similar to ownership record instead of just tax account. Urban Development department enhanced FORM-3 with all the relevant data pertaining to non-agricultural properties. As per the amendment, Form-3 register contains all the information which is required for any property / ownership record. Number of columns in Form-3 was increased from 24 to 43 and it is conspicuously clear that Form-3 derived after Government Process Re-engineering is almost nearer to property / ownership document similar to what was being issued under UPOR without survey component.

- **Executive orders banning manual records**

Urban Development department issued government order banning manually written Form-3. Registration department was advised to register properties only on the basis of Form-3 issued from e-AASTHI software which has digitally signed bar code of Chief Officer/Commissioner. All other stakeholders have been informed not to accept manual records issued from Urban Local Body with respect to Form-3.

- **Workflow based process for generation of property documents and mutation**

Workflow process has been defined in e-Aasthi wherein every official in the ULB has been assigned with specific job so that he can be made accountable. Roles and responsibilities have been well-defined in such a way that officials in lower hierarchy would perform activities such as data entry, scanning and uploading of documents, printing of checklists and reports etc., Supervisory role has been given to next level where officials can check the work done by the lower level officer and take decision either to forward for approval or return to lower level with specific remarks. Lower level official can rectify the mistakes highlighted and re-submit the transaction with compliance for the remarks

raised by supervisory role. Approving authorities also have been given facility to approve, reject or return to supervisory role official. Officers at ULB level, District level and State level have been provided with facility to verify the activities that are being carried by Chief Officer/Commissioner at ULB level.

- **Mobile app for e-Aasthi**

  An e-Aasthi mobile app is available for usage of citizen, ULB staff and other stakeholders who wants verify authenticity of the document issued from e-Aasthi by reading QR bar code printed on the document. Alternatively one can check authenticity of the document by retrieving the document from the website by typing document number. Further mobile app provides for searching & viewing of property documents. Enabling ULB staff to perform certain mutation activities like field inspection, approve and forward features are being developed as part of this mobile app.

- **Mobile/ Tab APP (Android) for conducting field survey (to add new properties)**

  Rapid pace of Urbanization is resulting in huge number of new properties getting added to ULBs. To make ULB services citizen friendly, UDD, Govt. of Karnataka has decided to collect the information of the new properties at the field level by the ULB official instead of waiting for citizen come and inform.

  Android based Tab app is in place for gathering property details through door-to-door survey / field visit conducted by ULB officials. This app has the features of collecting entire property details along with owner's photo, property GPS coordinates, identification card detail and collecting of supporting documents by taking picture & converting it as PDF. Feature of collecting details for each apartment unit is also part of the mobile app. e-AASTHI App connects to the e-AASTHI database and uploads the data using mobile

networks by removing manual intervention of writing data on a paper and re-entry in the application. By deployment of Mobile App. transcription errors completely eliminated, saves time and improves efficiency of officials.

7.0 Comparative Analysis of manual system Vs e-Aasthi with respect to the BPR, Change Management, Outcome/ benefit, Change in legal system, rules and regulations

Sl.No.	Activity	Manual System	e-Aasthi
1.	Process workflow	Not clear	Well-defined workflow in place for each and every activity
2.	Clarity with respect to legality of the property	Was not there	One can clearly make out whether property is legally created or not
3.	Mutation process	Lack of well defined process and standard procedure	Common well-defined procedure all across the state
4.	Scope for fake documents	Lot of scope as documents were manual	No scope as documents can be verified on web and each of them are digitally signed and bar coded.
5.	Legal sanction as property record	Only used as demand register extract	With required amendments to act they have become property records.
6.	Outcome / benefit	Access to records were difficult	Easy access to records
7.	Accountability	No accountability for issuing documents or using them for registration	Accountability completely ensured
8.	Rules / regulations	Lack of clarity	Lot of clarify after BPR & amendments to act and rules
9.	Change Management	Not applicable	Ensured through series of training and capacity building programs
10.	Outcome of BPR	No record about time taken for adding new property to tax net.	Average time taken to generate and add property to tax net and property database is 11 days which is well within the 40 days prescribed under and GSC ACT (Guarantee Services to Citizen Act).

8.0 How to improve the urban land records system

Ultimate aim of any land records management system is to move from presumptive titling to conclusive titling. An automated cadastral survey and land titling system should be developed to enable the land market to function efficiently and to facilitate the extension of institutional financial intermediation. Also, an efficient information system on land registration is essential for efficient land management. This should cover the inventory of publicly-held land and their present and anticipated land use plan for the next 5-10 years. The ULB's need to adopt latest Remote Sensing and GIS techniques extensively for building land and property information system. This will not only enable them to generate financial resources by keeping up to date record in a transparent manner and also streamline the entire process. However lot of ground work needs to be done to reach titling in India. One should focus on building textual records first to know the volume of the work involved. To achieve this there is an immediate need to contemplate on following items

- Federal government should start deliberations on brining uniform model act to govern properties in urban areas and fix responsibility either to Revenue department or Urban Development department and not both.
- While designing such new system, care should be taken to maintain inter operability between new system and agricultural land records management system which is prevalent.
- There should be national level centrally sponsored scheme like DILRMP to handle urban property land records system.
- Since urban property record management system is evolving now, it is advisable to have common system across the country which will avoid challenges that are being faced in integrating agricultural land records management system of different states.
- There is need to build capacity in urban Local bodies with respect to latest technologies in surveying aspects so that

ULB officials are in a position to check, verify and certify the work done by outsourced agencies.

9.0 Conclusion

e-AASTHI is best example of implementing incremental model of implementation of e-Governance application. e-AASTHI is not only G2C but it is also G2G application. As discussed in earlier sections citizens have been empowered with easy access to their property records within the jurisdiction of Urban Local Body, it has removed uncertainty with respect to obtaining copies of the document. A well-defined workflow based system enables easy tracking of requests and to know the status of requests. It important to note that e-AASTHI also serves the needs of stakeholders such as banks, courts, registration department etc., which substantiates that e- AASTHI is also a G2G application. e-Aasthi is a comprehensive property record management system except that cadastre doesn't exists for it. Once the MIS data of all properties are available in digital form after through certifications from hierarchy of ULBs, building cadastre should not be difficult activity. In fact detailed analysis of UPOR using table 1.0 also shows that document collection and establishing ownership was most challenging job and not measuring and mapping.

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The B. N. Yugandhar Centre for Rural Studies (BNYCRS) is a Research Centre of Lal Bahadur Shastri National Academy of Administration, Musoorie. It was set up in the year 1989 by the Ministry of Rural Development, Government of India, with a multifaceted agenda that included among others, the concurrent evaluation of the ever-unfolding ground realities pertaining to the implementation of the Land Reforms and Poverty Alleviation Programmes in India. Sensitizing of the officer trainees of the Indian Administrative Service in the process of evaluating of land reforms and poverty alleviation programmes by exposing them to the ground realities; setting up a forum for regular exchange of views on land reforms and poverty alleviation between academicians, administrators, activists and concerned citizens and creating awareness amongst the public about the various programmes initiated by the government of India through non-governmental organizations are also important objectives of the B. N. Yugandhar Centre for Rural Studies. A large number of books, reports related to land reforms, poverty alleviation programmes, rural socio-economic problems etc. published both externally and internally bear testimony to the excellent quality of the Centre.

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