

Land Record Computerisation: An Innovative Approach to Management

Computerisation of Land Record (CoLR) was initiated by Ministry of Rural Development, Government of India. Latest tools of Information Technology such as Geographical Information System (GIS), Cadastral mapping, Photometry, Electronic Total Station (ETS), Global Positioning System (GPS) Digitalization, Biometrics and others have revolutionize the CoLR. It is expected that CoLR will not only be beneficial for the common man but also prove a backbone for the development of agriculture based India.



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The Centrally Sponsored Scheme on Computerisation of Land Record (CoLR) was started in 1988-89 with 100% financial assistance as a pilot project in eight Districts of the states such as Rangareddy in Andhra Pradesh, Sonitpur in Assam, Singhbhum in Bihar, Gandhinagar in Gujrat, Morena in M.P., Wardha in Maharashtra, Mayurbhanj in Orissa and Dungarpur in Rajasthan. The objective was to remove the problems pertaining to manual systems of maintaining and updating of Land Records and to meet the requirements of various groups of users. This project was initiated by Ministry of Rural Development, Government of India.

Objectives

The main objectives of CoLR are Computerisation of ownership and plot-wise details for issue of timely and accurate copy of the Record of Rights (ROR) to the Land Owners, store the records with latest digital technology for long time, provide fast and efficient retrieval of information both graphical and textual, provide database for agricultural census.

Need of CoLR

Land records books like *Khasra Girdavari, Khatauni, and Jamabandi* etc. maintained by Patwari, the revenue official at village level, need updating from time to time. These books are being used extensively along with land acquisition and litigation generating voluminous paper to serve the farmers. The storage of these documents is prone to natural disaster like fire, flood, earthquake, loss or

damages due to white ants etc. Therefore, land records and related documents need to be electronically documented.

Evolution of Computer in Land Records' Management

With the launch of computerisation of land records in eight pilot districts in 1988-89 and its further extension to other districts in various states of the country needed an urgent review of the process for further modification and thorough actions. The scheme was reviewed in 1993-94 and it was observed that States were finding it difficult to sustainability of project due to non-availability of skilled man power, hardware maintenance. So, it was decided to use the infrastructure, manpower and network of National Informatics Centre (NIC). NIC upgraded its district centers with latest hardware and software and states were requested to allocate one room near NIC District Centre to start data entry operation.

The project is being implemented in collaborative manner by Ministry of Rural Development (MoRD) & NIC. MoRD provides funds to states for data collection, data entry, site preparation etc. and NIC is providing technical support, software development, training etc. For this purpose a data entry module was developed in DOS / dBase or UNIX / FoxBase by NIC. To update, verification and validation of data, NIC equipped its district centres with appropriate hardware and software. As the technology has changed, NIC has also upgraded its hardware, networking and software to new GUI based environment.

Technologies used in CoLR

Some technologies such as Relational Database Management System (RDBMS), FoxPro, Visual Basic, Oracle, SQL Server are being used for computerisation. Some of the important tools which are frequently used in CoLR are:

- ♦ **Geographical Information Systems (GIS):** GIS may be viewed as integration of spatial and non-spatial data for decision support system. There are two formats used by GIS systems to store and retrieve geographical data i.e. *Raster* and *Vector*. GIS tools can play a major role in different types of land accounting, monitoring, procurement, utilization and infrastructure development.

GIS is used to link electronic documents and digitized maps of the area to generate the true Geographical Information System and Electronic Document Management System.

- ♦ **Cadastral Mapping:** A cadastral map is a map showing boundaries and ownership of land. The cadastral maps show the details as Survey District Names, Block Numbers (within each Survey District), Certificate of Title numbers, positions of existing older structures, government described run hold section and/or lot numbers and their respective areas, adjoining and adjacent street names, selected boundary dimensions and references to prior founding maps.
- ♦ **Electronic Total Station (ETS) & Global Positioning System (GPS):** The introduction of ETS technology augurs a revolutionary change in the agriculture history of the state. A land holder could now obtain a floppy of his land holdings from the provincial record room and reserve it for posterity and ready reference without even having to go to lower administration.

The **Global Positioning System (GPS)** is a burgeoning technology, which provides unequalled accuracy and flexibility of positioning for navigation, surveying and GIS data capture. The GPS NAVSTAR (Navigation Satellite Timing and Ranging Global Positioning System) is a satellite-based navigation, timing and positioning system. The GPS provides continuous three-dimensional positioning 24 hours a day throughout the world. The technology seems to be beneficiary to the GPS user community in terms of obtaining accurate data up to about 100 meters for

navigation, meter-level for mapping, and down to millimeter level for geodetic positioning.

- ♦ **Remote Sensing:** In this Technology, data is collected about the earth without taking a physical sample of the earth's surface. The energy reflected from the earth is collected by the sensors. The collected information can be used as a digital image or as a photograph. Generally these sensors are mounted on a satellite, or on a plane or other airborne structure. Basically there are two types of sensors: passive sensors and active sensors.
- ♦ **Image Processing:** Image Processing is a technique to manipulate the digitized data from an image using various mathematical operations. Generally this is done using a computer, to create an enhanced image which is useful for analysis purpose and also soothing to a human eye. There are three basic functions of an image processing- Image Pre-Processing, Image Enhancement, Image Classification

Technology at user end: The technologies viz. Simputer, KIOSK & Smart Card, Biometrics being used at user end.

Future Vision

Future vision of the CoLR is to create a transparent, efficient and effective Land record delivery system. In the present system, records specific to the Land Owner are not open for scrutiny which results in manipulation and favoritism. The present scenario of Land Record Management System is specific to state. A centralized management system will aid in analyzing and monitoring the Land Records for the country as a whole in the near future. It will lead to the standardization in the maintenance of records and implementation of Land Record Acts issued by Government of India in uniform manner. The Government of India has already announced the National e-Governance Plan (NeGP), in which Land Record is one of the Mission Mode Project.

*It was really fascinating to witness the management of Land Records through effective and meaningful deployment of Information technology infrastructure. The availability of Land plays a vital role in the development of an area. As the technology is rapidly changing, there is a need to incorporate the latest ICT tools for prompt and effective mechanism to manage the Land Record System. GIS, GPS, Remote Sensing, Simputer etc technologies have great potential to simplified Land Record Management System which can serve as multipurpose administrative tools. **i***