

## REVENUE AND FORESTS DEPARTMENT

### 3.7 Computerisation of land records

#### 3.7.1 Introduction

Government of India (GOI) initiated (1988-89) a scheme for the 'Computerisation of Land Records' (CLR) to overcome the problems inherent in the manual system of maintenance and updating of land records. GOI had set a three years time limit for completion of the project. In follow up, Maharashtra launched a pilot project in Wardha district (1989-90), the project thereafter was taken up (1994-95) in 83 Talukas with the help of National Informatics Centre (NIC), Pune.

Even after 14 years, the scheme had not reached a stage where the intended benefits of computerisation could be realised.

#### 3.7.2 Objectives of the scheme

The objectives of the scheme were: (i) computerisation of land records to facilitate easy maintenance and updating of the changes occurring in the land data base, (ii) provide for comprehensive scrutiny to make the land records tamper-proof, (iii) provide data support for implementation of development programme, (iv) facilitate preparation of annual set of records accurately for recording details such as collection of land revenue and cropping pattern, (v) facilitate collection/completion, supply of all information in reply to variety of standard and adhoc queries on land data, (vi) provide database for Agriculture Census and (vii) provide land holders with updated copy of Record of Rights (RoR)/7/12\* extract.

#### 3.7.3 Organisational set-up

The scheme was executed in the State by the Revenue and Forests Department. The Settlement Commissioner and Director of Land Records, Pune was the nodal agency and implemented the scheme through the Collectors.

#### 3.7.4 Audit coverage

Records of Settlement Commissioner and Director of Land Records, and seven\*\* districts out of 35 (14 Taluka Offices out of 356, seven City Survey Offices out of 29 and 10 Taluka Inspector of Land Records Offices out of 319) were test-checked during May to July 2004 covering the period 1994-95 to 2003-04.

\* Form 7 of Revenue Manual gives the details of the land and Form 12 gives the details of crops sown on the land by the cultivator.

\*\* Ahmednagar, Aurangabad, Kolhapur, Mumbai Suburban, Pune, Raigad and Wardha.

### **3.7.5 Audit objective**

To evaluate the software development, identification of problems in software and its rectification, maintenance of data integrity, security features and system controls and provision of maps to land holders.

## **System development and implementation**

### **3.7.6 Lack of definite time frame**

The GOI which financed the project or the Government of Maharashtra (GOM) which implemented it, did not set any specific target date for implementation of the project. After nearly 13 years, the Settlement Commissioner decided a time frame for various aspects namely cross verification and correction of data (15 November 2003), verification by Talati, Circle officer, Tahsildar, Sub Divisional Officer and Collector, printing one copy of 7/12 extract, giving hard copy to *Khatedhar*, receiving objection from *Khatedhar*, rectification of mistakes and issue of certificates by the Collector as to validation being completed by 31 December 2003. Such final validation certificates, however, had not been issued by the Collectors (June 2004) resulting in further delay in the implementation of the scheme.

The Government replied (December 2004) that since the data size exceeded 220 lakhs, the Collector required a lot of time for completing the project. The reply is not tenable as the fact was known at the inception of the project.

### **3.7.7 Lack of documentation**

The land records are the basic records required by the diverse group of users so as to assist development planning, to make the records accessible to people, planners and administrators. In the manual system, the Tahsildar was responsible for the up to date maintenance of RoR and 'register of mutation' in respect of lands in all villages within his jurisdiction. Similarly, the Survey Officer not below the rank of Taluka Inspector of Land Records (TILR) was responsible for the up to date maintenance of RoR and 'register of mutation' in all surveyed cities, towns and villages within his jurisdiction.

The NIC was involved in developing the software and to provide all technical support including training for CLR scheme since its inception in 1994-95. The software package for computerisation of property cards (cities and towns) known as Property Card Information System (PCIS) and for agricultural lands known as Right and Crop Information System (RCIS) was developed (1996) by the NIC in UNIX platform and data entry started from 1997. Neither user requirement specifications were obtained from NIC nor the NIC had done proper system study/analysis and prepared System Requirement Specification (SRS) report for software for acceptance of the department. The above software was, however, abandoned (August 1999) as a comprehensive application package for Land Information System (LIS) as per the objectives was necessary. SRS reports for Land Management Information System (LMIS) was prepared by the NIC in January 2003 and that of LIN-PCIS in March 2004, though the final version of LMIS software package was released

earlier in November 2002 and that of LIN-PCIS was released in June 2002 which indicates lack of planning and documentation.

The Government replied (December 2004) that the software prepared by NIC had gone through various checks. The reply is not tenable as SRS is required to be prepared before development of the software.

### **3.7.8 Delay in capture and lack of validation of data**

It was necessary to prepare a comprehensive software for LIS based on system study which included inputs like land record, crop pattern, rainfall data pertaining to various sources like Revenue Department, Agriculture Department and outputs required for changes in the land records including consolidation, legal changes and for effective planning at grass root level. The NIC developed (1996) an application software known as RCIS catering to RoR of individuals for rural land holders and PCIS for surveyed city and urban areas. The software developed by the NIC did not cater to the LIS required by the department as it was not user friendly and the system did not provide for constant updating and manipulation of data. The data entry on the RCIS package was stopped and the NIC was dissociated from the CLR (August 1999) as per the recommendation of the committee appointed (February 1999) to study the status of implementation, by which time 35.91 lakh 7/12 records were captured in the computer at a cost of Rs 1.58 crore. No progress was achieved in respect of LIS for over two years (October 1999 to January 2002).

The Government, however, decided (January 2002) to entrust the work of software development back to the NIC, Pune, as no alternative solution was available with the technical experts and the NIC released (August 2002) the first version of LMIS after making necessary changes as suggested by Collectors. The final LMIS version 2.1.1 was released in November 2002. Other modules like mutation and query developed by the NIC were under testing. Efforts made to convert data of 35.91 lakh records in RCIS software could not be achieved as the original data in UNIX operating system was not fully validated and the software RCIS was not compatible with the LMIS software. Hence the data entry done earlier could not be converted to LMIS software package. Thus, the initial data entry of 35.91 lakh records captured in RCIS package at a cost of Rs 1.58 crore under the scheme was required to be abandoned and the hardware based on UNIX operating system purchased at a cost of Rs 1.08 crore upto February 1999 for 83 Talukas were no more useful and were transferred to other needy Talukas for office automation.

The Government accepted the fact (December 2004) but mentioned that the package developed by NIC had to be abandoned on the advice of technical advisor. The fact however, remains that while developing the package, the requirements of the Department were neither considered nor did the Department point out the lacuna in the package during trial runs.

## **Deficiencies in database design and application software**

### **3.7.9 Land Management Information System**

↘ In the manual system, the records being permanent, the history of ownership of any piece of land was not lost in the process of updation. In the computerised scenario, only live entries from the year 2002-03 were captured in respect of 207.82 lakh RoR (7/12 extract). Non-capturing of the earlier entries pertaining to 7/12 extract in the computer resulted in denial of an essential facility available in the manual system.

The Government accepted the fact (December 2004) and stated that the provision would be made later.

↘ In the manual system, the total area of land under respective survey number was indicated at the end of the entries relating to each survey number. This helped in ensuring the correctness of the individual areas in spite of repeated splitting or merger. Examination of the data structure in audit revealed that no provision was made for the capture and storage of the total area. As a result, there was no control to ensure that the areas of all the subdivisions were captured correctly in the application due to which the software does not cater to the major need of taxes recoverable, non-agricultural assessment fees recoverable, lease fee for land and agricultural census.

The Government replied (December 2004) that CLR and PCIS had been developed as per forms and procedures prescribed in Maharashtra Land Revenue Code (MLRC), 1966 and there was no provision to enter total area as per provisions of Code. The Government further stated that after stabilisation of computerised mutation process, mandatory checks would be added.

↘ If any part of land was sold, the mutation entry did not indicate the reduction of area on account of sale of part of land and balance part of land pertaining to previous owner, which was available in the manual system. Similarly, there was no built in control for validation of the data for linking it with the cultivable area of the 7/12 extract with the total area of the 7/12 extract.

The Government stated (December 2004) that the area reduction as suggested did not figure in the process designed to be computerised. Reply is not tenable since as per the provision of law the area was required to be measured and sub divided by following the due procedure.

↘ In the manual system, the crop cultivation details pertaining to previous years (atleast 10 years) was shown in the 7/12 extract. Such facility was available in the package for capturing the data only for previous and current year. Similarly, the details of the person/persons who actually cultivated the land had not been provided as was available in the manual system.

The Government replied (December 2004) that, as per the prescribed format, there was no column for cultivator's name, and hence the Government took a policy decision not to include cultivator's name in computerised 7/12 extract. The reply is not tenable as no corrigendum to this effect seems to have been incorporated in the MLRC, 1966

↘ There was no provision to link and generate the report regarding the fees recoverable from the public for issue of RoR *i.e.* 7/12 extract, taxes recoverable, non-agricultural assessment fees recoverable, lease fee for land and report pertaining to total area of cultivation under each crop village-wise/ district-wise which was required for agriculture census.

The Government replied (December 2004) that the same would be included in the software in due course.

↘ There was no provision for mentioning below poverty line (BPL)/ tribal land holders which was essential for framing and implementing schemes for BPL/tribal persons and also did not have provision for recording the date of birth of minors so that when they become major, the guardianship could get nullified. Further, the package did not have provision for address of the *khatedar* especially in cases where the *khatedar* was a non-resident of the village.

The Government replied (December 2004) that query software was under development.

↘ It was noticed that all the masters items in the software package were editable and there was no provision in the software package to assign a part area of the village to one Talathi\* and another part to the second Talathi so that the Talathi could open the module pertaining to his area of jurisdiction.

The Government replied (December 2004) that NIC, Pune would be asked to develop this facility.

### **3.7.10 Property Card Information System**

In the manual system, property cards were maintained as RoR of land holdings by land record department for surveyed cities and towns (urban areas) and the copies of the same were issued to property holders for their use like permission for building construction and litigations.

↘ In the manual process, if there was a ban on making changes/mutations on properties pertaining to the Government land allotted for rehabilitation, properties which had charges on them like mortgage and court order, notings were taken under authorised signature banning further mutations in respect of such properties. The software, however, did not provide the facility for freezing the banned data against making such illegal mutations.

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\* Talathi – a government official posted for a village or group of villages who keeps record of rights, crop information, license fee recoverable for land holding.

The Government replied (December 2004) that such regulations were exercised during enquiry prior to mutation, and it will be impractical to regulate transaction through computer. The reply is not tenable as the lacuna in the software may result in issue of incomplete property cards.

↘ Whenever the details of an entry exceeded one page, the computer did not print the continuation on the next page but printed the next mutation entry resulting in incomplete print of the property cards.

The Government replied (December 2004) that instructions had been issued to NIC to correct the discrepancy.

↘ The software package did not have provision to link and generate the amount of fees recoverable for issue of property cards, to generate area report of the land and tenure reports. The Government replied (December 2004) that the single window software was under consideration for compilation of the total consolidated land holding of each person and village-wise report regarding the total number of property cards.

↘ There was no provision in the software to link the survey number (*khasra*) of the agricultural land of the 7/12 extract with the city survey number of the property cards in respect of agricultural lands converted for non-agricultural use.

The Government replied (December 2004) that this aspect would be taken care of in record-room software.

### **3.7.11 Inadequate System Control**

The software did not have provision for enabling only those modules where the authorised person like Maintenance Surveyor (MS)/Talathi could enter and use that module and disabling of all other modules which were not to be operated by the officials concerned. It also did not provide for limiting the availability of the property cards pertaining to the jurisdiction of the MS as provided under manual procedure. There was no compartmentalisation of the data in respect of the office of each City Survey Officer (CTSO) resulting in access to the data pertaining to other CTSO offices. Thus, security level was not prescribed for each level of officer concerned with the operation of the software for issue of property cards.

↘ Unique user ID code was not given to each authorised person who was allowed to operate the system to avoid confusion in future.

↘ The system allows the System Administrator to register himself as user like MS/Talathi which was not desirable.

↘ Test of the mutation module indicated that there was no foolproof security in the form of providing joint thumb impression of two officials for making modification/changes of the previous certified mutation entries.

↘ The department had not developed disaster management and recovery plan for restoration of the whole database.

The Government replied (December 2004) that necessary instruction had been issued to NIC in this regard.

### **3.7.12 Pilot project on computerisation of Cadastral Survey Maps**

A pilot project for computerisation of Cadastral Survey Maps covering the Talukas of Purandar and Rajgurunagar of Pune district was given to M/s Visionlab Private Limited, Hyderabad (March 1999) at a total cost of Rs 41.98 lakh for completion of the project within four months. The basic software for the project delivered by the agency (June 1999) was not customised to the requirement of the department. An expenditure of Rs 31.32 lakh was incurred for the development of the software and digitisation of cadastral survey maps in respect of the above two Talukas. Mutation module was not developed by the agency as it was not a part of the agreement. Thus, the pilot project was incomplete as the changes/mutations in the digitised maps were not possible. This would not reflect the ground realities for incorporating mutations due to transfer, succession, land acquisition so that the land holder could get copy of up to date RoR alongwith accurate digitized maps of their land. It was noticed that the software was not used in any other Taluka office (June 2004) resulting in unfruitful expenditure of Rs 31.32 lakh.

The Government replied (December 2004) that pilot projects had since been initialised, phalanis had been updated and computerized tippans were used for official work. The reply is not acceptable as the software was not used in any other Taluka so far.

### **3.7.13 Deficiencies in procurement of hardware**

↘ The department purchased 275 P-III computer systems worth Rs 4.34 crore (March 2002) which were supplied to 255 Taluka offices and 20 City Survey Offices to avoid lapse of funds. The actual data entry of 7/12 extract was started from April 2003 by which time the warranty period had expired and the department paid annual maintenance contract charges of Rs 21.66 lakh to the company for the period May 2003 to April 2004. Purchase of computers in advance of requirement without verifying the availability of required software indicated inadequate planning and resulted in extra expenditure of Rs 21.66 lakh on annual maintenance contract.

The Government replied (December 2004) that data entry module (DEM) was expected to be provided by NIC by April 2002 and that GOI provided funds based on actual utilization of previous year's allocation. Consequently, the Government mentioned that to utilize the funds, the purchases were made in March 2002. This clearly indicates that the funds were utilised merely to avoid lapse of grants.

↘ It was noticed that in 11 Tahsil offices, the work of issue of various certificates including 7/12 extract was entrusted on build, operate and transfer (BOT) basis to a private agency and therefore, the responsibility of providing the computer hardware vested with the BOT agency. The department, however, supplied computer systems with UPS, printers to such

offices also. This resulted in unnecessary purchase of 46 computer systems costing Rs 70.38 lakh.

↘ The Collector, Pune made an irregular payment of Rs 15 lakh in advance to a private BOT agency for data entry (February 2004) though the onus of the data entry, its validation including giving printouts, rectifying mistakes and updation of changes fully vested with the agency.

The Government replied (December 2004) that explanation had been sought from Collector, Pune.

↘ The computer systems supplied to Taluka office, Rahuri in April/May 2002, was used for “other office work” as the work of issue of certificates including 7/12 extract was given to private agency on BOT basis.

↘ 275 Flat-bed scanners and 275 Bio-metric devices were purchased at a cost of Rs 28.29 lakh and were supplied to 255 Talukas and 20 CTSO offices in March-April 2002. Though the department stated (July 2004) that the scanners would be used after development of full fledged software, they were not used in any of the Talukas or CTSO offices. Further, the data entry of 7/12 extract was yet to be completed and validated (June 2004) and the mutation module was yet to be installed and tested. Since Bio-metric device could be used after installation and testing of mutation module, it resulted in injudicious purchase of 275 Bio-metric devices costing Rs 17.45 lakh in advance of requirement. The flat-bed scanner was also not used in any of the 275 offices which resulted in unnecessary expenditure of Rs 10.84 lakh.

The Government replied (December 2004) that bio-metric devices were now under use for edit module and scanner would be used after development of software.

### **3.7.14 Monitoring and Evaluation**

The scheme of CLR was started on pilot basis in 1989-90 and full-fledged scheme from 1994-95. However, no physical and financial targets were fixed by GOM for each district/Taluka upto November 2003. There was no proper monitoring of the progress of the scheme and the Government did not fix periodical targets for various milestones of the project like physical completion of the infrastructure, electrical components and installation of computers. Finally, at the State level, the time schedule for completion of the project of CLR was fixed from 15 November 2003 to 31 December 2003 which was approved in the meeting held on 18 December 2003 *i.e.* 13 years from the date of start of pilot project. The department subsequently revised the target for data entry (March 2004), validation (July 2004) and issue of RoR (July 2004). Validation had not been completed in any of the district. No evaluation study was conducted as the project was still incomplete.

### **3.7.15 Conclusion**

Due to faulty planning, poor implementation and monitoring, the CLR scheme which started with the pilot project for computerisation of land records initiated in 1989-90 at Wardha was yet to reach functional level even after

incurring an expenditure of Rs 17.99 crore. Thus, the manual system was still in use for all practical purposes. The software developed by the NIC was devoid of system controls and the application programs were yet to stabilise. None of the objectives of the scheme were fulfilled even after 14 years and frequent changes in policy initiatives by the Government resulted in suspension of the project for over two years and implementation of the scheme was not completed in any of the districts so far. Even after 14 years of data entry, the basic purpose of giving a landholder a computer generated RoR was not achieved.

**3.7.16 Recommendations**

- Basic platform for development of the software should be fixed for uniformity.
- Proper security policy, disaster management and data recovery plan should be well documented and circulated to all the user departments.
- Facility available in manual maintenance of record should be provided in computerisation system.