

## REVENUE DEPARTMENT

### 3.3 IT Audit of Computerisation of land records

#### Highlights

There were major deficiencies in input, access, operation and security controls. Duties as defined to various functionaries were exercised by others. Absence of proper access controls exposed the system to the risk of unauthorized use.

(Paragraphs 3.3.9 and 3.3.10)

Digitization of cadastral map in 131 villages at an expenditure of Rs 98.56 lakh could not yield any fruitful result.

(Paragraph 3.3.11)

Computers procured were utilised for other purposes; additional computers and hardware were provided at Sub-Divisional Magistrates (SDM) and District Data Centre (DDC) offices.

(Paragraph 3.3.12.1)

Scanners purchased for e-Dhara kendras at an expenditure of Rs 17.01 lakh remained unutilised. In addition to the provision as per guidelines, 26 servers at a cost of Rs 34.91 lakh were purchased for taluka offices.

(Paragraph 3.3.12.2)

#### 3.3.1 Introduction

To overcome the inherent problems in the manual system of maintenance and updating of land records, Government of India (GOI) introduced (1988-89) a cent *per cent* Centrally Sponsored Scheme (CSS) of Computerisation of Land Records (CLR). The work commenced in 1990 in Gujarat. Government of Gujarat (GOG) set up a CLR Cell (since renamed as State Monitoring Cell (SMC)) in the Revenue Department. After completion of Pilot Project in Gandhinagar district, GOG handed over (1998) the work to National Informatics Centre (NIC) to take up the scheme for all 225 *talukas* of the State.

#### 3.3.2 Organisational set-up

Principal Secretary, Revenue Department is the State-level implementing authority. Collectors, Additional/Deputy/Assistant Collectors are designated as Nodal Officers in their respective districts. In manual/computerised system, Sub-Divisional Magistrates (SDMs) are supervisory officers for the *talukas* under their jurisdiction. *Mamlatdars*, overall administrators for land records for their *talukas*, are responsible for maintenance of records in his jurisdiction. Deputy *Mamlatdars* are designated as the administrators for e-Dhara Kendra where Record of Rights (RoR) – *Hakka Patrak*, is issued and on-line mutation

workflow is done. Collector, Gandhinagar is the Nodal Officer for procurement of Hardware and Software on the recommendations of the Steering Committee.

### **3.3.3 Objectives of the scheme**

- ☞ To facilitate easy maintenance and updating of changes which occur in the land data base such as changes due to creation of irrigation facilities, natural calamities, consolidation of land holdings or on account of legal changes like transfer of ownership, partition, land acquisition, lease etc.
- ☞ Computerization of ownership and plot-wise details for issue of timely and accurate copy of the Record of Rights to the land owners.
- ☞ Creation of 'land information system' and database for effective land reforms, revenue administration and development planning at the grass root level.

### **3.3.4 Audit objectives**

- ☞ To evaluate extent of computerisation of land records in the State;
- ☞ To assess efficacy of data capture, updation, maintenance, security and validation;
- ☞ To assess efficacy in procurement of hardware/software and its utilisation; and
- ☞ ensure effective utilisation of computerised database for land reforms administration and development works.

### **3.3.5 Audit Methodology**

Computer Assisted Audit Techniques (Interactive Data Extraction and Analysis (IDEA)/Structured Query Language (SQL) and MS-ACCESS) were used for data extraction and analysis.

### **3.3.6 Audit coverage**

Records of Revenue Department, Settlement Commissioner and Director of Land Records (DLR) and 10 districts<sup>35</sup> (20 taluka offices out of 225, 10 SDM out of 54, one District Inspector of Land Records) were test checked (February 2007 to June 2007) covering the period from 2001-07.

---

<sup>35</sup> Ahmedabad, Amreli, Anand, Banaskantha, Junagadh, Jamnagar, Kachchh, Rajkot, Surat and Vadodara

## Audit findings

### 3.3.7 Documentation

On conversion of 'agricultural land' into non-agricultural land, the system was not removing/withholding details of farmers, type of land, irrigation facilities and crops, etc.

In the manual system, the *Mamlatdar* was responsible for the up-to-date maintenance of RoR and 'Register of Mutation' in respect of lands in all villages within his jurisdiction.

Based on the outcomes of pilot study, it was decided to computerise village form 7/12, Form 8a and Form 6 (*Hak Patrak*) or Mutation Register. GOG decided (1998) to hand over the project to NIC for system study, software development, implementation and all technical support including training for CLR scheme. The software package for computerisation of land records known as "BHULEKH" was developed by the NIC in UNIX platform. Neither User Requirement Specifications (URS) were obtained by the NIC nor had NIC done proper system study/analysis. Further, the NIC did not prepare System Requirement Specifications (SRS) report for software for acceptance by the department after its evaluation. Not assessing the users requirements resulted into some of the important provisions of the Land Records management not getting provided for in the system as on conversion of 'agricultural land' into 'non agricultural land', system should remove/withhold all details such as name of farmers, type of land, irrigation facilities, crop, etc. from the RoR. However, sample RoRs, in respect of agricultural land, converted into non-agricultural land revealed that all these details are still persisting in RoRs.

### 3.3.8 Change Management Control

Changes/amendments to the package (system) need to be properly authorised, tested, accepted and documented. These procedures were not followed and no changes were documented. Even, history of the different versions of the different Modules of the system issued by NIC was not maintained and SMC was not having any record for the changes in the system made by the NIC, when the amended versions were released. It was observed that changes for removing 'bugs' or for any other requirement to improve the functionality were directly made by the NIC at the request of the end-users. No records were kept of these changes and different versions of the modules were in use in various e-Dhara kendras.

### 3.3.9 Input controls

Irrelevant and incorrect data being fed in the system due to lack of data validation coupled with inadequate and ineffective input controls.

The objective of **Input control** is to ensure that the procedures and controls guarantee that (i) the data received for processing are genuine, complete, not previously processed, accurate and properly authorised and (ii) data are entered accurately and without duplication. **Data validation** is a process for checking transaction data for any errors or omissions and to ensure the completeness and correctness of input. Lack of such data validation checks in the Software coupled with inadequate and ineffective input controls like supervisions, etc. resulted in irrelevant and incorrect data being fed in the system; thus putting a question mark on the reliability of the data. Some findings arrived at by analyzing the data are illustrated below.

- ✘ In 1740 cases, name and address of the applicants for RoR were recorded as ‘*talati sah mantri*’, ‘*talati cum mantri*’ or ‘*tcm*’ ‘*talatishree*’ etc.
- ✘ In 16 cases, addresses of the applicants were left blank and in two cases, applications were found without applicants’ name and address. Thus, there was no foolproof mechanism to upload the correct data in the system; as a result, the RoR issued would also be incorrect/incomplete.
- ✘ All the mutations were required to be supported with the attachments provided on this behalf; the applications were also to be verified by the supervisory level officers. However, review of the database revealed that in 69 cases, the applications were found without attachments and in 82 cases, applications were found not verified; in one case, the application was found verified by operator who had no privilege for verifying the applications. Thus, accuracy of the mutation and consequently correctness of the RoR could not be ensured.
- ✘ RoR could be issued after the applicant registering either of survey number, *khata* number or the mutation number. However in 70 cases, no such details were found captured by the system.
- ✘ Besides other things, the RoR was to contain crop area and details of the crop. In 647 cases, the crop area was found ‘nil’ while the details of crops were given.
- ✘ Out of total records of 3,37,222 (*Bhuj taluka*), farmers’ name were not found recorded in 83 cases.
- ✘ In the case of caste, there were five codes, viz. ‘0 to ‘5’. No description was given in table for the code ‘0’; still, in 5,135 records, caste codes were shown as ‘0’. Similarly, code ‘6’, which did not exist, was found recorded in the table.
- ✘ In two *talukas*, updation of data of crop plantation was made only up to 2004-05 (*Kamrej*) and 2005-06 (*Ahmedabad*). It was also revealed that data fed in ‘*REVYR*’ (Revenue Year) are not reliable as these were consisting of data (Revenue Year) like ‘-01’, ‘-1’, ‘001-0002’ etc. As a result the farmers would not get the correct information with seasonal crop updation.

Thus incompleteness in database exposed the risk of generation of incorrect RoRs.

### 3.3.10 Information System securities

#### 3.3.10.1 Segregation of duties

**Duties of Talatis, Circle Officers and Mamlatdars were performed by Data Entry Operators at e-Dhara Kendras.**

The *Talatis*, Circle Officer and *Mamlatdar* were provided with the different levels of authorisations viz. entry and maintenance, supervision and approval of entry respectively. However, it was noticed in the test-checked *e-dhara Kendra* that the functions of these authorities was being performed by the Data Entry Operator. No *talati* was posted in any of the *e-Dhara Kendra* for consulting revenue matters. This affected the distribution of duties and powers

according to the hierarchy in an organization, which made the system vulnerable to risks and manipulation.

### 3.3.10.2 Physical Access Controls

No guidelines or policy was framed to restrict unauthorised persons from physical access to the IT Systems. No record in support of the access to the system was also maintained to ensure access by the authorized users. Absence of such controls increases the risk of unauthorised persons altering/taking information as well as theft of physical assets.

### 3.3.10.3 Logical Access Controls

- ✘ The Government could not adopt/frame any guideline for standard password policy. No record was maintained for having details of creating/deleting (with date) login-ids on transfer of *e-Dhara* Deputy *Mamlatdars* (EDM), operators etc. No provision was made for Menu/Sub-Menu wise permission/roles/restrictions.
- ✘ Login-id of ‘District Information Officer (DIO)’ was found being used for issuing RoR, giving authentication and for routine works; the id was for exclusive usage by the DIO, NIC only, who was to render technical support.
- ✘ ‘Admin Module’ was to be accessed by the *Mamlatdar* only. However, in the test checked *e-Dhara* kendras, thumb impression of EDM were configured for accessing ‘Admin Module’. It was also observed that *e-Dhara Kendras* functioned beyond working hours and on holidays. In some *e-Dhara Kendras*, login-id of EDM was also used by all the operators. Thus, there was no control to restrict the unauthorised access to the system.
- ✘ As per the Operational Manual EDM or in-charge EDM is empowered to give authentication for the working in *e-Dhara Kendra*. However, finger data for un-authorized users viz., operators (10 cases), *talatis* (four cases); District Information Officer (two cases) were also captured by the system and in some cases finger data were found deleted;
- ✘ Gaps were found in the users-ids; similarly duplicate user-ids were found used; more than one user-id was created for an operator with different privileges.

### 3.3.10.4 Generation of log files

The log file was found not capturing all details of operations carried out. In 29 cases, users who performed operations on the system were not found in the main table for users and similarly in 995 cases, users were also given privilege of authentication. Moreover, in seven cases, the years of operation were shown “2040” and in 12,834 cases (out of 1,65,627 data), the ‘user code’ was left blank.

This implies that the log-files were never reviewed for remedial action.

Cadastral maps of 131 villages (Anand district) digitised were lying unused.

### 3.3.11 Digitisation of Cadastral Maps and Tippans

A cent per cent Centrally sponsored pilot projects for Digitization of Cadastral Maps and *tippans* was implemented (1998-99) in two districts (*Anand* and *Sabarkantha*) by the Settlement Commissioner and DLR with the objective of providing computerised *tippans* to the villagers and creating cadastral map by mosaicing the *tippans*. The work covering eight *talukas*<sup>36</sup> was assigned to two agencies<sup>37</sup>. The agencies were paid in all Rs 98.56 lakh<sup>38</sup>.

Scrutiny of records of DLR, Anand revealed that cadastral maps of 131 villages of Anand District were digitized and firm delivered final CD, but it was lying un-utilised and was not even installed in any of the three talukas of the district; instead hard copy of the computerised *tippans* was being used. Thus, Rs 98.56 lakh spent on digitization of cadastral map could not yield any fruitful result.

### 3.3.12 Other points of interest

#### 3.3.12.1 Procurement of Hardware

GOI released (December 2003) Rs 1.40 crore to equip 35 SDM offices. However, all 54 SDM offices were equipped with hardware/software for creating sub-division level centre against the GOI's order for 35 SDM offices. In eight cases, these computer systems were used for "other office work".

Further, as per revised guidelines only one client without any laser printer was to be procured for each SDM office. However, against the specified items two additional clients with one laser printer were provided to each SDM office and thus excess expenditure of Rs 76.04 lakh was incurred.

Each District Data Centre (DDC) was to be equipped with one server, three clients and one laser printer as per the revised guidelines. However, two additional clients and one additional printer were purchased for each DDC and thereby excess expenditure of Rs 24.09 lakh was incurred.

#### 3.3.12.2 Hardware for e-Dhara kendras

Scanners were purchased and supplied to all the 225 *e-Dhara kendras* at the cost of Rs 17.01 lakh. These scanners were to be used for scanning old VF-6 maintained by the *talatis* and for scanning documents created during the online mutation work flow. The scanners were not used in any of the 225 *e-Dhara kendras* as the Software 'Scan Module' could not be developed by the NIC which resulted in unfruitful expenditure Rs 17.01 lakh.

As per revised guidelines, two Clients, one Scanner, one eight port hub/switch and one Laser Printer were purchased on the recommendation of the Steering Committee for each taluka. However, in addition to the above, 26 Servers (Rs 34.91 lakh) were purchased to replace the server of 26 talukas which were provided in the first phase of CLR. Thus 26 servers were procured without approval of GOI.

<sup>36</sup> Three *talukas* (131 villages) of Anand district and five *talukas* (408 villages) of *Sabarkantha* district

<sup>37</sup> *Visionlab* Private Limited, Hyderabad (1999-2003)-Anand district; *Geotech Datamatrix* Private Ltd., Gujarat (2000-01), *Sbarkantha* district

<sup>38</sup> *Visionlab* Private Limited, Hyderabad-Rs 49.22 lakh; *Geotech Datamatrix* Private Ltd., Gujarat-Rs 49.34 lakh

### 3.3.12.3 Site preparation etc.

Government of India released (December 2003) Rs 20.00 lakh as one time grant for set-up of State Level Monitoring Cell at State H.Q. Out of this Rs 10.00 lakh was granted for set-up of Video Conferencing Room at H.Q. for effective monitoring of CLR scheme at various level.

Out of Rs 20.00 lakh, Rs 0.80 lakh and Rs 0.50 lakh were sanctioned for site preparation and for purchase of furniture respectively for SMC at Revenue Department. However, it was observed that above items were not purchased and site was not constructed. Thus SMC was deprived of the basic infrastructure as per GOI guidelines for monitoring and evaluation of the operationalisation of the scheme at State level.

### 3.3.12.4 Diversion of Servers

On the recommendation of Steering Committee, one Server, five clients, one Laser Printer, one LAN Switch, one UPS, one CD Writer, and two Bio-metrics were purchased for SMC Cell. The dead stock register revealed that the Server was issued (January 2005) to the System Manager who was deputed by Gujarat Informatics Limited (a Government of Gujarat undertaking) on contract basis for providing technical support. The Server was being used as stand-alone PC by the System Manager.

Server purchased for SMC Cell was issued to the System Manager from Gujarat Informatics Limited.

### 3.3.12.5 Creation of Video Conferencing Room

Out of Rs 20.00 lakh, Rs 10.00 lakh was granted for set-up of video conference room at Revenue Department for effective monitoring of CLR at various levels. Necessary equipments (TV, Projector, Screen VC Set, Laptop) costing Rs 3.40 lakh were purchased. Rs 3.87 lakh was placed at the disposal of Nodal Officer (Collector, Gandhinagar) for civil and electric work. It was seen that these equipments were still lying idle and were not put to install as the site had not been prepared even after lapse of three years since the grants was released.

### 3.3.13 Conclusion

There were various deficiencies in the system developed. Duties defined to various functionaries were not exercised. Access controls were not secured; consequently authenticity of data could not be ensured. The system was not secured from manipulation. There was no disaster management plan in existence.

### 3.3.14 Recommendations

- ✍ Correctness of the captured data should be ensured;
- ✍ Foolproof control system should be ensured;
- ✍ Updation of data may be carried out as per schedule;
- ✍ Provisions for continuity in business, following any disaster, should be made.

The matter was reported to Government (August 2007); reply was not received (October 2007).