# REVENUE AND LAND REFORMS DEPARTMENT

## 1.4 INFORMATION TECHNOLOGY AUDIT ON COMPUTERISATION OF LAND RECORDS

### 1.4.1 Introduction

The Revenue and Land Reforms Department was responsible for maintaining and updating land records in the State. Computerisation of Land Records (CLR), a centrally sponsored scheme was initiated in the year 1988-89 and aimed at providing landowners with computerised copies of Records of Rights (RoRs)[1] at a reasonable price. In the State, the scheme was implemented with technical support from the National Informatics Centre (NIC) at Patna. At the district level, the computerisation started with software called "*Bhu-Abhilekh*" developed in 2000 on UNIX based FOXBASE (DBMS)[2]. A revised version of the software "*Bhu-Abhilekh*-2" with visual studio as front end and SQL[3] Server as back end was launched in November 2007.

In the year 2006-07, the National Land Reform Management Programme (NLRMP) was launched in the State to augment the CLR project and to establish a Land Record Information Management System, which would provide anywhere anytime delivery of land records in an integrated, efficient and cost-effective manner.

For the implementation of the scheme, the Director of Land Records and Survey at Patna was the nodal officer at the State level. At the district level, the District Collectors were the implementing authorities who were assisted by Additional Collectors (Land Revenue). At the block level, the Circle Officers who were the custodians of land records were responsible for ensuring the availability and validity of land records.

The Government of India (GOI) released Rs 6.64 crore to the State during 1998 to 2009 for implementation of the project. The State, however, could utilise only Rs 3.97 crore as of July 2009.

### 1.4.2 Audit coverage

Information Technology (IT) audit of CLR for 2004-09 was conducted during April to August 2009 in the office of the Director, Land Records and Survey, 12 out of 38 districts including town circles[4], also known as *anchals*[5]. CAATs[6]

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[1]  *The document containing particulars of landholders*

[2]  *Data Base Management System.*

[3]  *Structured Query Language*

[4]  *Bhojpur, Buxar, Darbhanga, Katihar, Kishanganj, Madhubani, Muzaffarpur, Nalanda, Patna, Saharsa, Samastipur and Vaishali.*

[5]  *The block level unit of the Revenue and Land Reforms Department where primary land records are kept.*

[6]  *Computer Assisted Audit Tools (IDEA, SQL-SERVER 2005, MS-ACCESS).*

were used for analysis of the data along with issue of questionnaires and interactions with the officials of the department. The audit observations were communicated to the Government in October 2009 and reply is awaited (November 2009).

*Audit findings*

### 1.4.3    Programme implementation

*1.4.3.1   Data entry of land records*

As per the implementation arrangements, records were required to be brought from *anchals* to the districts for data entry and after completion of the data entry, printouts of the *khatiyans*[7] etc. were required to be sent for verification to the concerned *anchals*. After the first verification, carried out at the *anchal* level, necessary changes were to be carried out by the vendor at the district centres. The corrections were required to be confirmed at the *anchal* level again. Further, data entry of land records in respect of *Khesra Panji*[8] and Register-II[9] was required to be completed within three years from the date of release of the first instalment (1998-99) of funds.

Scrutiny of records of the Directorate, Land Records and Survey disclosed (May-August 2009) that data entry was made in respect of only 19192 villages out of 45740 villages (42 *per cent*) involving all 38 districts of the State, up to July 2009. The data entry work was stopped in Buxar, Madhubani and Patna since 2005, in Nalanda since 2007, and in Katihar and Samastipur since 2008. Reasons for non-completion of data entry work were not available on record.

In all the 12 test-checked districts the department claimed that data was entered in respect of 4275 out of total of 8337 revenue villages and the data entry was completed/verified. It was, however, seen that the first printouts of *khatiyan*s given for verification were still to be verified in respect of five[10] districts. In three districts[11], the second level printouts of *khatiyans* were still to be verified at the *anchal* level. In Katihar district printouts of *khatiyans* were yet to be given for verification.

As the primary records were kept at the *anchal* level, the process of verification and confirmation at this level led to unnecessary delays. As a result, only 42 *per cent* data was captured in the State. The delays mainly occurred due to non-implementation of the computerisation at *anchal* level, though this was required under the revised guidelines (1999) of the CLR project. This indicated lack of planning and prioritisation.

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| [7] | *Register of land records.* |
| [8] | *Details of  land plots.* |
| [9] | *Lagan (land rent) register.* |
| [10] | *Bhojpur, Buxar, Muzaffarpur, Nalanda and Samastipur.* |
| [11] | *Darbhanga, Kishanganj and Madhubani.* |

The department did not have a mechanism to monitor the software problems faced by the users and failed to obtain technical support from NIC. This resulted in delays in sorting out problems and facilitated inaccurate data entry in the system.

In reply, the department stated (December 2008) that Rs 19.61 crore had been given to BELTRON[12] in 2007-08 for procurement and installation of computers in *anchals*. Audit however noticed (August 2009) that though computers were supplied to *anchals*, they had not been installed at any of the test-checked *anchals*. Further, the *anchals* did not have any/sufficient trained manpower to operate these computers.

Verification of the data entered from the records of the *anchals* had also not been completed in any of the test-checked districts. Thus, Records of Rights could not be issued (August 2009) even though the target set for their issue was March 2004.

### 1.4.3.2    *Payment made to vendors without verification*

As per the procedure laid down, all payments to vendors were to be made after obtaining the first stage checklist (printouts) of the data entered. All the systems and peripherals used for this project were to be provided and maintained at the vendor's own cost.

In Samastipur district, however, it was noticed that the checklists were issued by the vendors only in case of 132 villages out of 750 revenue villages where data entry was completed. The department made payment of Rs 14.98 lakh to the vendors (June 2005 to August 2007) without verification of their work/services and also without obtaining the first stage checklists (printouts) of the data entered for 750 villages. It was also noticed that the vendors could not complete the work and had left the work midway after receiving payment.

### 1.4.3.3    *Purchase of hardware*

In five[13] out of 12 districts test-checked, total amount of Rs 18.68 lakh was spent during 1999-2001 from scheme funds on the purchase of computers, uninterrupted power supply devices (UPS), printers and air-conditioners. It was noticed that the UPS purchased were of higher capacities (Katihar and Saharsa) and the computers purchased were used for other office work (Darbhanga and Kishanganj). In Katihar, Patna and Saharsa, printers were purchased though not required.

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[12]     *Bihar State Electronics Development Corporation Limited.*
[13]     *Darbhanga, Katihar, Kishanganj, Patna and Saharsa.*

### 1.4.3.4 Digitisation of cadastral map

As per the scheme guidelines, all cadastral map sheets[14] were required to be digitised. The digitisation of map sheets of Musahari *sadar anchal*[15] started as a pilot project in 1998-99, was to be completed by the end of 2000. All the 1152 map sheets were digitised. However, only 1083 map sheets were verified with the original maps as of July 2009. The rest of the maps could not be verified as the original maps were in damaged/torn condition.

In the second phase, 14672 maps of Ara, Buxar, Rohtas and Kaimur districts were digitised between November 2008 and August 2009. However, none of these maps were verified with the original maps as of August 2009. This indicated slow progress of the project and the task of digitising the entire 1.20 lakh map sheets of the State appeared distant.

## 1.4.4 Application Controls

### Input controls and validation checks

Input controls and validation checks are vital for integrity of data and are essential to avoid incorrect data entry. Adequate inputs and validation controls ensure that the data entered is complete and correct. The following deficiencies were noticed due to lack of input controls and validation checks:

### 1.4.4.1 Data entry from old records

As per the State Government's instructions (2006-07), data entry was required to be done from up to date *continuous khatiyan*[16] and if the *continuous khatiyan* was not updated, the data entry was to be updated from Register-II and *Khesra Panji*.

However, it was observed in five[17] out of the 12 districts test-checked that the data adopted for entry was 37 years old (base year: 1971) from r*evisional survey khatiyan*[18] instead of *continuous khatiyan*.

Since the records of r*evisional survey khatiyan* were not current, the purpose of capturing the up-to-date land records was defeated.

Scrutiny of the database in test-checked districts disclosed the following deficiencies, indicating weak input control:

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[14]     *Map of the land of concerned panchayat/halka*
[15]     A*nchal of the district headquarter*
[16]     *Updated land records register of raiyats (public) which was updated after every mutation.*
[17]     *Bhojpur, Darbhanga, Kishanganj, Muzaffarpur and Vaishali.*
[18]     *A register (khatiyan) which was made in 1971 after land survey.*

- Landholders' names (9440 cases), fathers'/husbands' names (56652 cases), caste (407378 cases), addresses (146518 cases), land details (623550 cases), *khata* numbers (37565 cases) and *khesra* numbers (38035 cases) were not captured or contained only dots or junk characters or one or two character.

- Landholders' names (1801 cases), fathers' names (35849 cases), caste (268458 cases) and addresses (93822 cases) of the other shareholders were not captured.

- Circle ID was indicated as zero in 2376051 out of 2529373 cases while in 65577 cases, *mauza*[19] ID was indicated as zero.

- *Lagan* paid/received against land was not captured in 1,13,82,480 cases. It was seen that the source document i.e., the r*evisional survey khatiyan,* which was used for data entry did not have details of *lagan* in many cases. Absence of *lagan* details in the database, made it unusable for the purposes of collection of land revenue.

### 1.4.4.2   *Uniform coding pattern*

District Identification numbers (ID) were the primary identifiers of landholders while circle IDs were the secondary identifiers. Analysis of the captured database disclosed that same district IDs were found to have been adopted in Patna and Nalanda. In Muzaffarpur district, two district IDs were being used. One of these IDs was also being used for the district of Gopalganj. In 262 cases, district ID was entered as zero in Madhubani district.  Similarly, the same circle IDs were used within the districts of Buxar, Darbhanga, Madhubani, Nalanda, and Saharsa.  Thus, the data entered was inconsistent across the districts and *anchals* and its integration at the State level as planned in NLRMP would result in input and maintenance of an unreliable database.

### 1.4.4.3   *Stabilisation of Bhu-Abhilekh-2*

The IT audit of the Window-based version of software, *Bhu-Abhilekh*-2, with visual studio as front end and SQL Server as back end, which was to replace the UNIX based *Bhu-Abhilekh* disclosed that:

- The *Bhu-Abhilekh-2* designed to replace *Bhu-Abhilekh*, had not been installed in five[20] out of 12 test-checked districts.

- The system of *Bhu-Abhilekh*-2 failed to generate copies of *khatiyan* in some of the *mauzas*, which could be used for verification of data entry. In cases, where copies of *khatiyan* were generated, the system was not able to carry out corrections, indicating system deficiencies.

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[19]   *A village as recognised and separately mapped at the time of the revenue survey.*
[20]   *Buxar, Darbhanga, Madhubani, Patna and Samastipur.*

- Details of log in/log out were not captured even though the provisions for capturing logs were available in the software. All users were using the same user ID for database administrator, thus rendering the activities of user and database administrator not sufficient for monitoring an audit trail, which was not in conformity with the best practice of IT security.

- NIC, though involved in the CLR scheme right from its inception as the technical partner and developer of software and for implementation of CLR could not develop technical documentation like data organisation, data flow, structure design, modular structure etc. in *Bhu-Abhilekh*-2. Lack of proper documentation was bound to make the department dependent on NIC for system support/updation which may not be possible in-house or through any other agency.

### 1.4.4.4  *Business continuity plan*

Test check of the CLR project disclosed that back-ups of available data were not retained by the department.  Back-ups were not taken at regular intervals and were also not tested though as per the agreement between the department and the vendors, the vendors were to supply back-ups for final data entry only.

It was noticed in Bhojpur and Vaishali districts that data of 446 villages required  re-entry as the data already entered was not provided by the vendors who had abandoned the work midway.

## 1.4.5    Training

As per GOI guidelines for the CLR scheme, the department was required to build up an IT Management group to implement the project effectively by imparting training to the staff dealing with the computerisation. All training programmes were to be completed by the year 2003 and a core group of staff was to be created for imparting training to trainers who in turn would train the field staff.

It was, however, seen that training programmes were conducted in only two[21] out of 12 districts test-checked. These trained personnel were also not utilised for the CLR project. The department also failed to constitute a group of core staff.

In six[22] out of 12 districts test-checked, the State implementing authority approached NIC for training its staff. But, none of the staff members was trained by NIC though the payment for the same was made to NIC in 1999-2000 and the said amount remained unutilised with NIC. Four test-checked districts[23] had not even approached NIC for training of their staff.

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21      *Buxar and Darbhanga.*
22      *Ara, Katihar, Madhubani, Muzaffarpur, Nalanda and Patna.*
23      *Kishanganj, Saharsa, Samastipur and Vaishali.*

## 1.4.6    Conclusion

Under the CLR project, GOI provided the necessary funds and support to the State for effective Information and Communication Technology, but the State could not utilise this support and was not able to complete the primary work of capturing data for its entire area. In cases where data was entered, it was not reliable since it was captured from 37-year old records. The CLR project also lagged behind due to deficient software, inadequate input controls and validation checks, use of inconsistent codes and inadequate supervision of data entry work and verification of the data entered. *Bhu Abhilekh-2* was not installed in all the districts. The computerisation of land records in the State was tardy and required to be monitored regularly by the Revenue and Land Reforms Department to sort out the problems.

## Recommendations:

The Government/department may consider the following recommendations:-

- Computerisation at the *anchal* level should be given priority and the revenue staff of the concerned *anchals* should be trained for data entry and retrieval.

- The nodal agency should ensure proper co-ordination between the district level executing agencies including vendors and NIC for technical support and guidance.

- Time schedules for entry and updation of data should be prescribed and scrupulously followed. Similarly, a back-up and security policy should be prescribed and followed.

- Data should be captured from the *continuous khatiyan*, Register-II and *Khesra Panji* to ensure the latest data available in the system.

- *Bhu Abhilekh-2* should be implemented in all the districts and its deficiencies addressed beforehand to ensure uniformity of data captured and its subsequent utilisation.

- Value added services like making Records of Rights available on the website, grievance redressal, online mutation through establishment of connectivity with registrar offices etc. should be ensured through the use of updated, complete and integrated data.