

REVENUE DEPARTMENT

3.7 Computerisation of Land Records

Highlights

For the purpose of effective land reforms, the Government of India, Ministry of Rural Development initiated a Scheme for the “Computerisation of Land Records (CLR)” in January 1990. The software was developed by National Informatics Centre. On account of faulty planning, poor implementation and monitoring, the CLR scheme which commenced in 1990 is yet to reach a functional level after incurring an expenditure of over Rs 13 crore. The data organisation was deficient and not conducive for achievement of the ultimate objectives of the scheme. The data captured had a high percentage of error rendering it unreliable. The purchase procedures followed and entrustment of purchase to a third party resulted in avoidable expenditure of over Rs 28 lakh. Unless a better integrity level of data is established by providing suitable controls, the CLR scheme cannot become operational.

- Although a period of three years was fixed initially for the completion of the scheme, it was extended repeatedly without adhering to the target. The scheme is still in the initial stage even after 13 years.

(Paragraph 3.7.7)

- The data computed by the external agencies were with lot of errors. To ensure correctness of the data a fresh check-list was prepared and the process of correcting the errors were commenced in 1998 and still going on and only 65 out of 206 taluks the process of correction is complete.

(Paragraph 3.7.8)

- The system was not provided with adequate controls to ensure completeness and correctness of data rendering the data unreliable. Land Taxes were incorrectly projected. Categories and types of land were not correct. Government lands were declared as private lands and vice versa. Names of property owners were left blank.

(Paragraphs 3.7.19 to 3.7.33)

- 71 per cent of the records required correction, as the relationship (like son of, daughter of, wife of, etc.) was captured incorrectly. The relationship also remained blank in 3.34 lakh records.

(Paragraph 3.7.36)

Introduction

3.7.1 Considering the importance of a computerised land records system and in view of the problems inherent in the manual system of maintenance and updating of land records, the Government of India (GOI), Ministry of Rural Development, Department of Land Resources, initiated

(January 1990) a Scheme for the “Computerisation of Land Records” (CLR). The scheme was fully sponsored by Government of India and in respect of Tamil Nadu it was to commence with a pilot project in Salem District and then to be extended to the rest of the State. The computerisation was intended to store and retrieve land related data with very little processing involved. It was implemented in two phases with the first phase covering 50 Taluks and the second phase, the remaining 156 Taluks. The software for the capture and updation of data and retrieval was developed by National Informatics Centre (NIC). Though the Scheme encompassed digitisation of land details, ownership details, crop patterns, village field measurement books, etc., only two functions viz. land details (‘A’ Register) and ownership details (Chitta) were taken up for computerisation in Tamil Nadu.

3.7.2 The CLR, which commenced in 1990, is still under implementation and Rs 13 crore have been spent upto June 2003. Despite the huge expenditure incurred and the fact that it is under implementation for over 13 years, the scheme is yet to reach a stage where the intended benefits of computerisation could be made available to the general public or even to the department. The reasons for the delayed implementation and the deficiencies observed therein have been brought out in the succeeding paragraphs.

Organisational set up

3.7.3 Department of Survey and Settlement of Government of Tamil Nadu was responsible for implementation of the scheme. It functions under a Commissioner heading the department, assisted by one Officer on Special Duty (Computerisation) at the State level. Each district unit is headed by one Assistant Director for supervision of the functions at the Taluk level.

3.7.4 The Taluk offices, where the data capture/maintenance is carried out, are under the control of the Department of Revenue. The Tahsildar, heading the Taluk office, is in charge of the updation and maintenance of data at the Taluk level.

3.7.5 Both departments viz. Revenue and Survey and Settlement, share the implementation and maintenance of the scheme and are equally responsible for its effective functioning. However, most of the source documents required for the updation of data have to be furnished by the Department of Registration.

Scope of Audit

3.7.6 The nodal office for the implementation of the scheme being the Commissionerate of Survey and Settlement, the planning and implementation related documents held in that office were scrutinised. The purchase documents at the Electronics Corporation of Tamil Nadu (ELCOT) were also examined as procurement worth Rs 7.06 crore was made through that agency. The application software was to be examined for its correctness, suitability and availability of controls. The data in ten selected Taluk offices (out of 65 offices where CLR was declared operational) was downloaded and examined in audit using SQL Queries and specially developed application programs.

Lack of definite time frame

The three year period awarded for completion of the scheme was repeatedly extended and the scheme is in its initial stages even after 13 years of its inception.

3.7.7 Initially, the GOI had set a three-year time limit for completion of the project and reserved the authority for extension of the same. However, when the set time limit was exceeded, the implementation was allowed to take an open ended course with a revised deadline set for implementation with each release of fund by the GOI. Apart from the usual instruction that the amount was to be spent within the financial year, GOI did not set any specific target date for completion of the project. Government of Tamil Nadu (GTN) also did not frame any time bound action plan. This was one of the major factors, which contributed to the indefinite delay in the implementation of the scheme.

Delay in Capture of data and lack of continuous updation

Delay in capture of past data and purification thereof contributed greatly to delay in the implementation of the scheme

3.7.8 The capture of past data from the manual 'A' Register and the Chitta was entrusted to external agencies on a piece rate basis at 15 paise per record. Such payments were made without attention to the correctness of the data captured as the personnel involved in such data capture were not familiar with the departmental records. To ensure correctness of the data, a checklist was sent to the Village Administrative Officers for check and return. The corrections were to be incorporated and a fresh checklist prepared. The process was to be repeated till all the errors were corrected. This procedure commenced in 1998 is still going on and only in 65 out of the 206 Taluks, the process of correction is stated to be complete (March 2003). Since the project essentially was about capturing the land records, correct data entry was key to the successful completion of the project.

3.7.9 The source documents from which the existing data can be upgraded have to come from the Registration Department or from the party acquiring the property. In either of these cases, the Revenue Department, the owner of the data has no control or system to ensure that the receipt of source documents is complete and timely. Audit scrutiny revealed that no procedure has been laid down to ensure that all source documents are received and the data is updated promptly. The accuracy and completeness of electronic data in the Taluk offices will thus always be suspect.

3.7.10 Further, the Revenue Department alone is authorised to certify the Record of Rights in respect of landed property to a court or any other agency on any given date. 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. However, in the computerised scenario, no facility has been created for storage/retrieval of earlier ownerships through the application software. The denial of an essential facility available in the manual system after computerisation reflects a serious lacuna in the application.

Deficiencies in the database design

No provision in computer system to ensure that the extent of available land was not increased or decreased during its subdivision.

3.7.11 In the manual 'A' Register, the total area of land under respective Survey Numbers 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 has been made for the capture and storage of such total. As a result, there was no control to ensure that the areas of all the subdivisions were captured correctly in the computerised system. The system, on the other hand, permitted subdivision of land with total disregard to the area of the original land, resulting in errors. A test-check in audit of 15 survey-numbers in the stored data with the concerned manual 'A' Register disclosed

errors in five cases. As a result of the deficiency, it is possible to have a piece of land added to or removed from the records without the transaction being detected by the computer system.

Deficiencies noticed in the Pilot District not corrected during implementation

Deficiencies noticed in pilot study not supplied while actual implementation.

3.7.12 It was decided to take up Salem as a pilot district for implementing the project and then extend it to other districts. After the implementation of the scheme in Salem District, the departmental officials had cited several deficiencies for correction while extending the scheme to other districts. However, it was observed that (i) in Salem district the address field provided to hold the address of each landowner was left blank, the address column was left blank for the entire State as well; (ii) it was mandatory that there should be only one patta for an individual for all his land holdings in the village. But, the manual records contained more than one patta for the same individual in the same village. This error was captured as such to the computer database. The error was pointed out and required to be corrected before further digitisation. This recommendation was not implemented. In a sample study in ten Taluks, it was seen that in 1.03 lakh instances the same person held more than one patta within the same village; and (iii) it was pointed out after the Salem experiment, that contrary to the expected norms, the software and the data organisation facilitated the issue of only separate pattas for different types of ownerships like individual holdings and joint holdings. This deficiency has not been addressed while extending the scheme to other districts.

Data design not conducive for attaining set objectives

3.7.13 Computerisation of Land Records has been contemplated with the larger objective of facilitating easy land reforms. Land reforms can be made on

3.7.14 Consolidation of land types, such as dry lands, wet lands and government owned lands under each village, Taluk etc. and

3.7.15 Consolidation of land holdings like, extent of land of different types held by each individual in different places in the State for purposes of land ceilings etc.

Database design not conducive of achieving of the ultimate objectives of the scheme

3.7.16 Though the present database caters to the requirements of paragraph 3.7.14 above, it has absolutely no provision for fulfilling any of the requirements under 3.7.15. For example, while a piece of land could be perfectly identified through the computer system, an individual owner cannot be identified with precision. Thus, the lands owned by an individual cannot be grouped. This will result in non-achievement of objectives such as issue of only one patta per person or compilation of the extent of land held by any individual for purposes of land ceilings. Thus, no additional benefit has accrued as a result of computerisation.

Deficiency in design of application software - Incomplete capture of data

3.7.17 Any updation of the land records data will not be complete unless data in both the Chitta and 'A' Register files have been updated. Hence, the program should have been designed to ensure that, either both these files are updated or no change is effected at all. Against such requirement, it was noticed that the software was designed to capture data in respect of the 'A' Register first, and capture data for the Chitta file through another data entry

screen and save the data separately. This could result in disparities between different data files.

3.7.18 Examination of data obtained from ten Taluks disclosed that in respect of 10,678 cases of private lands in the 'A' Register, ownership details were not available in the Chitta file. Similarly for 60,535 landowners in the Chitta file, land details were not available in 'A' Register.

Discrepancies in the CLR database due to lack of validation control

3.7.19 It is apparent that the key to the success of the CLR Scheme lies in the reliability of data captured. An examination of the sample CLR data (14.88 lakh records in "A" Register and 13.06 lakh records in Chitta file relating to ten Taluks) disclosed several inconsistencies in the data captured rendering the data undependable. Most of the errors were due to lack of appropriate validation controls at the data entry stage.

Data were unreliable due to inconsistencies in data capture. These include wrong taxes, duplicate records, no names for land owners, incorrect land category, junk data etc.

3.7.20 In respect of 48,615 cases, the total land tax to be collected was not the product of the extent of land and the rate of tax, indicating that one of these figures was incorrect.

3.7.21 In 2,229 instances, there were duplicate records in the 'A' Register file whereby issue of Pattas and generation of Managerial Information System (MIS) information from the data file would be faulty.

3.7.22 In 3,475 cases, the Chitta file did not provide the names of the owners.

3.7.23 In 3,629 cases, the names of the owners or relatives contained junk characters, rendering the issue of Pattas or other documents impossible.

3.7.24 Land category was to be indicated by the code '1', '2' or '3' standing for 'Government' or 'Private' or 'Inam' respectively. However in 1,92,133 cases, category was indicated by some other meaningless character or figure.

3.7.25 In respect of 11,085 cases of 'Ryotwari' lands attracting land tax, concerned patta number was not indicated whereby the owner cannot be identified.

3.7.26 Land types such as wet land, dry land, poramboke, etc. are codified under numerals "1 to 7". However, against 1,85,586 cases, the land type was indicated by other meaningless figure or character whereby the land type in respect of these lands was not available in the database.

3.7.27 In respect of 1,976 cases of Ryotwari land, land tax levied was not captured in the data.

3.7.28 In respect of 1,200 records, the extent of land was given as 0; but in 338 of these records some amount of tax was indicated.

3.7.29 In respect of 1,790 cases, lands belonging to private individuals have been declared as 'Poramboke' and in respect of 9,222 some tax was indicated against government owned lands.

3.7.30 In respect of 49 cases, the extent of land was given in the negative.

3.7.31 Provision is available in the computerised 'A' Register to indicate if land under a survey number has been further subdivided. This provision however furnished false information. In 11,717 cases, it contained meaningless characters. In 7.67 lakh instances, subdivided lands were shown as undivided. In 185 cases, land under an undivided survey number has been shown as sub-divided.

3.7.32 There were around 1.7 lakh duplicate entries in the Chitta file. Duplication in this file also had several consequences like incorrect generation of Pattas and provision of faulty information for MIS.

3.7.33 Though the patta number should be unique, the same patta numbers were given to more than one landowner in more than 4400 instances. This will result in the computer system assigning wrong ownership to certain pieces of land.

Mix-up of relationship due to error in program logic

3.7.34 In respect of land records, the name of a male owner is always associated with the name of his father and the name of a female owner is linked to the name of her father or her husband and referred to as "Son of" or "Daughter of" or "Wife of" respectively. Contrarily, the designers of the CLR software planned to have seven different types of relationships namely Father, Mother, Husband, Wife, Son, Daughter and Guardian in their system, of which four were without authority and against established norms.

3.7.35 Even though, the name of the owner and the name of the relative were captured correctly, relationships like father/son, father/daughter, husband/wife were inter-changingly captured. For example where 'X' is the father of 'Y', the same relationship has been captured as 'father' in some instances and as 'son' in some other instances. Correcting the software to allow the capture of permitted relationships viz. "Son of", "Daughter of" and "Wife of" alone would eliminate such error.

Wrong and incomplete capture of relationship made it impossible to identify a land owner with the name of his father, husband etc.

3.7.36 A test-check of 13 lakh records in Chitta file disclosed that (i) 3.34 lakh records did not furnish the relationship details at all. Apart from a few stray cases of institution owned properties, this is a serious omission on the part of data capture; (ii) in respect of 7248 cases, the relationship between the individuals was furnished without the name of the relative; (iii) in 4.44 lakh cases, the relationship was given as 'Father' which in fact should have been either 'Son of' or 'Daughter of'. All these records would require manual correction; (iv) in respect of 44,000 records, the relationship was given as 'Mother', which should again be corrected manually as 'Son of' or 'Daughter of'; (v) in respect of 95,000 cases, the relationship was given as 'Husband'. In all these cases, the relationship should be corrected as 'Wife of'; and (vi) in order to ensure data integrity, about 9.14 lakh (4.88 + 0.95 + 3.34) records representing 71% of the total records in the Chitta files will have to be corrected. Such large scale error has been overlooked by the user departments and also by NIC. It will not be proper to issue Record of Rights (Pattas) to individuals with such faulty data.

Deficiencies noticed in the utilisation of GOI funds

3.7.37 Though the GOI had sanctioned funds against specific proposals from the GTN, it was observed that huge savings were made by short purchasing. Such savings were diverted for other purposes not provided in the scheme.

Incorrect procedure followed in the utilisation of GOI funds

3.7.38 Government of Tamil Nadu permitted Government Departments to use the assistance of ELCOT for procurement of Computer Hardware and Software for a service charge of up to five *per cent* for which advance payment can be made. Based on this ruling, Rs 7.06 crore released by the GOI under the CLR Scheme was released to ELCOT during the period February to November 2002. ELCOT had spent only Rs 4.61 crore on the purchase of hardware and software for the 206 taluk offices. The entire saving of Rs 2.45 crore was allowed to remain with ELCOT for the purchase of any future requirement of the department.

Surplus scheme funds of Rs 2.45 crore allowed to remain with ELCOT for purchases not contemplated under the scheme.

3.7.39 From this saving, purchases like furniture, vehicles, stationery etc. were made for the Commissionerate, the Secretariat and other offices. Expenditure on telephone bills, salaries etc. were also incurred from the savings. Thus Rs 1.69 crore was diverted from the saving, leaving a balance of Rs 76 lakh (June 2003) with ELCOT.

3.7.40 The stipulations of purchasing only specified items and within a specified timeframe were both circumvented. Funds relating to the CLR Scheme were diverted for several other purposes misusing the facility of ELCOT.

Furnishing incorrect information to GOI

UC furnished to the GOI after depositing the scheme funds with ELCOT.

3.7.41 The placement of entire scheme funds outside government accounts with ELCOT gave room for the department to project to the granting Government that the amount of grant was fully spent. A specific instance is given below.

3.7.42 An amount of Rs 1.33 crore released (March 2000) by the GOI for purchase of computers for the CLR Scheme was placed with ELCOT. Equipment for Rs 1.17 crore was procured leaving a balance of Rs 15.69 lakh. At this stage, a communication was sent to GOI stating that the entire amount of Rs 1.33 crore was fully utilised. Furnishing of a utilisation certificate (UC) to the GOI, after placing the amount with an intermediate agency, amounts to furnishing incorrect information to the GOI.

Interest realised on unspent balance not passed on to department by ELCOT

3.7.43 The funds released by the GOI for the CLR Scheme were placed with ELCOT for purchase of hardware and software. However, consistent short purchasing generated a huge balance of fund remaining with the agency. The funds were invested in short-term deposits by ELCOT and the interest realised thereon appropriated by them. The interest realised by them could not be quantified as no separate accounts have been maintained in respect of each scheme. Placing of GOI funds with an intermediate agency for indefinite periods and allowing them to utilise the interest realised thereon are against the canons of financial propriety.

Deployment of computer touch screen Kiosks

3.7.44 The Department generated a saving from the CLR funds by scaling down purchases after obtaining requisite funds. Utilising the saving, Computer Touch Screen Kiosks were introduced in 30 Taluks at a cost of Rs 61 lakh, claiming this to be a 'Logical extension of the Scheme'. The

Kiosks were expected to provide the public, direct access to data relating to Land Records, Birth and Death, Old Age Pensions, Guide Line value for land, etc.

In this connection, it is observed as follows:

3.7.45 Though, Kiosks were introduced in April 2002, only data relating to land holdings was available in the computer system for viewing and no other data had yet been captured.

Expenditure of Rs 61 lakh used on the introduction of touch screen kiosks remained unfruitful. Kiosks were used for purposes other than CLR.

3.7.46 It was originally planned to provide a printer along with each touch screen computer for the public to get copies of documents, without intervention of the departmental staff. However, based on later decisions, the kiosks were to be used only for viewing and the public could get documents only through regular channels.

3.7.47 Inclusion of details of Birth and Death, Old Age Pensions, Insolvency details, etc. in the computer systems is not in line with policies or guidelines issued by the GOI.

3.7.48 It has been established that the data in the CLR scheme lacked integrity on several counts. Such data will not permit successful use of Kiosks.

Lack of documentation

Non furnishing of documentation by NIC for its software resulted in several long term impediments to the department.

3.7.49 NIC has been involved in the CLR scheme right from its inception in 1990 as the technical partner and developer of software. The district units of NIC were made in charge of assisting/supervising the implementation of the CLR in various Taluks and even on date, they were technically in control of the implementation of CLR. They have however not developed technical documentation like data organisation, data flow, structural design, modular structure etc. Lack of documentation will make the dependence of the Land Records department on NIC inevitable and system support or updation will not be possible in-house or through any other agency.

Deficiencies in procurement

3.7.50 Procurement of hardware, software, etc. for the CLR Scheme was entrusted to ELCOT for a service charge of four to five *per cent* of the purchase value. A scrutiny of the purchase files disclosed losses and overpayments to the tune of Rs 28.32 lakh as brought out in the following paragraphs.

Incorrect selection of supplier - faulty comparative statement – loss Rs 23.95 lakh

A faulty comparison of costs quoted resulted in the supply order being awarded to HCL whereby the department suffered a loss of Rs 23.95 lakh.

3.7.51 During the comparison process of tenders, for procurement for the first phase of the CLR Scheme, the quote offered by HCL was for computers without operating systems, and the quotes offered by others were with operating systems. The rates were compared alike and the order for supply was awarded to HCL for a total cost of Rs 95.95 lakh. The bids were levelled with the cost of the operating system reduced from all other quotes and compared in Audit. It was noticed that HCL was not the lowest bidder. Due to faulty comparison, HCL had bagged the order, despite its rate being higher than that of the lowest bidder by Rs 16.84 lakh. Lapse on the part of ELCOT had resulted in avoidable expenditure to the department.

3.7.52 Similarly, fifty numbers of HP make DAT Drives were purchased for Rs 19.66 lakh from HCL with the computers. The quote of another supplier at Rs 12.55 lakh for the same item was rejected on the ground that the device had to be procured only from the supplier of computers. It is construed in Audit that, since the drive is of HP manufacture fitted on to a HCL machine, it need not necessarily be procured from the supplier of computers.

Unauthorised profit made by ELCOT in purchase of software – Rs 4.37 lakh

Unauthorised sale of software by ELCOT making a profit in the process, resulted in a loss of Rs 4.37 lakh

3.7.53 The Government of Tamil Nadu, considering the technical expertise of ELCOT, nominated them to play a supporting role in all purchases of hardware and software for it. As the Government routed all purchases of computer hardware and software through ELCOT, the latter was able to get attractive prices in consideration of the huge and continuous purchases. Accordingly, Microsoft had supplied their products to ELCOT at comparatively lower prices. ELCOT posed itself as a dealer started buying the software from Microsoft and selling it to the Government with a ten *per cent* profit margin, claiming that in spite of the profit, their cost was the lowest. Over and above their selling price, they also charged four *per cent* service charges on the selling price.

3.7.54 The manoeuvre enabled ELCOT to make a profit of Rs 4.37 lakh on the sale of 156 copies of NT Server and 312 copies of Windows Workstation to the Department, as furnished below.

Profit on Server software	Rs	2,77,680
Service charges on the profit	Rs	11,107
Profit on the Workstation software	Rs	1,42,272
Service charges on the profit	Rs	5,691
Total	Rs	4,36,750

Excess number of staff trained under CLR Scheme

3.7.55 The funds sanctioned by the GOI for CLR did not include any allocation for training. But the department, taking advantage of the huge surplus fund available, trained 40 persons per Taluk Office at an overall cost of Rs 38.96 lakh.

3.7.56 In addition to the above expenditure, GTN proposed (October 2001) to GOI and obtained a sanction for Rs 68.36 lakh for training its staff in Taluk offices under the CLR Scheme. While the expenditure required for the training was already arranged for from the savings in the CLR Scheme in September 2001 itself, demanding and accepting a sanction from the GOI and placing the fund with ELCOT is a gross violation of financial discipline. The fund remains idle with ELCOT as on date.

Conclusion

3.7.57 Thus, on account of faulty planning, poor implementation and monitoring, the CLR scheme which commenced in 1990 is yet to reach a functional level after incurring an expenditure of over Rs 13 crore. Even in respect of a small segment of the scheme taken up for implementation, the data captured had a high percentage of error (over 35 *per cent* records in the 'A' register) rendering the data unreliable and not fit for immediate benefit to the public. Hence, the manual system is still in use for all practical purposes.

The software developed by NIC was devoid of system controls and the application programs were yet to stabilise. The data organisation was deficient and not conducive to the achievement of the ultimate objectives of the scheme. The purchase procedures followed and entrustment of purchase to a third party resulted in avoidable expenditure of over Rs 28 lakh.

3.7.58 In view of the foregoing, it is concluded in audit that unless a better integrity level of data is established and the general and application controls are toned up to ensure correctness and completeness of data capture and updation, the CLR scheme cannot be said to have become operational.

3.7.59 The above points were referred to Government in June 2003; Government's reply (December 2003) has been taken into account in the above discussion.

Recommendations

3.7.60 Ensuring integrity of data is vital for the successful computerisation of any function. It is more so in respect of the CLR scheme in view of the criticality of the data involved. It is hence recommended that the data already captured may be purified 100 *per cent* in addition to ensuring completeness.

3.7.61 It is also essential that proper arrangement be made with the Registration Department for continuous and timely furnishing of land transfer details.

3.7.62 Now that the department has sufficient number of trained computer personnel, purchases relating to the scheme may be done direct without the involvement of intermediate agencies.

3.7.63 Time bound targets may be fixed for implementation of the scheme and its progress ensured through adequate monitoring.