FINANCE DEPARTMENT

3.3   *Information Technology Audit of Computerisation of Treasuries in Assam*

Highlights

Only one out of the five modules had been implemented (May 2007) even after 4 years of implementation of CTMIS at a cost of Rs.13.3 crore.

(Paragraph 3.3.8)

Back up policy was ineffective and off-site storage of back up was not ensured, thereby exposing the system to risk of non-restoration in the event of a disaster.

(Paragraph 3.3.9)

Non-mapping of business rules and checks prescribed under Assam Treasury Code make the system incomplete and ineffective.

(Paragraph 3.3.11)

Inadequate security policy made the system vulnerable. Network system was also not protected by antivirus programme.

(Paragraph 3.3.12)

Presence of redundant data made the database inconsistent and un-reliable.

(Paragraph 3.3.15)

An expenditure of Rs.2.39 crore on implementation of Treasury Accounting and Application software (TAAS) turned out to be unfruitful.

(Paragraph 3.3.17.1)

3.3.1   Introduction

The Department of Treasuries, under the administrative control of Finance Department, is responsible for receipt and payment of money on behalf of Government and maintenance of accounts relating to these transactions. The Department also acts as the Banker in respect of Local Bodies and others who deposit their revenues in the Treasuries. The Treasuries maintain records of financial transactions and conduct necessary checks as per Assam Treasury Code and Assam Financial Rules on the flow of funds. Computerization of Treasuries in Assam was undertaken initially as per the recommendations of the Tenth Finance Commission to be implemented during 1996-97 to 1999-2000 with a total estimated cost of Rs.2.30 crore (Actual expenditure Rs.2.39 crore).

Computerisation of Treasury Accounts was started in 1998-99 with the help of AMTRON (AMTRON) (Govt. of Assam undertaking) and National Informatics Centre (NIC). AMTRON provided the hardware where as NIC provided application software called "Treasury Accounting Application Software (TAAS)". During implementation stage, it transpired that the computer system could not fulfill the requirements drawn up by the State Government as well as the Treasury. Subsequently, a new System called Comprehensive Treasury Management System (CTMIS) was developed (2002-03) comprising of 5 modules viz. Finance module, Treasury module, Department module, DDO module and Head office module. CTMIS, developed by Tata Consultancy Service (TCS) with Oracle 9i as the database and Developer with Edit Plus as the front end was installed for online operation at Central Data Centre, Kar Bhawan, Guwahati and 2 Treasuries from August 2004. As of May 2007, only the Treasury module of the CTMIS package was operational in all

the 23 District Treasuries and 30 Sub-Treasuries in the State of Assam. The system architecture is a centralized system with all processing centralized in a set of servers located at the Central Data Centre. The treasuries are connected to the Central Data Centre through leased lines/VSAT. At the major treasuries, the leased lines are used as front line connectivity and VSAT as backup connectivity. The minor treasuries and sub-treasuries have only VSAT connectivity.

3.3.2 *Organisational Set-up*

There are 23 District Treasuries and 30 Sub-Treasuries in Assam. In addition, there is a Pay and Accounts Office at Assam House, New Delhi. Of these 30 Sub-treasuries, there are 8 Sub-treasuries functioning as independent treasuries for the purpose of maintenance of accounts and submission of various reports to the concerned authorities. The other Sub-treasuries are working as subordinate to the district Treasuries and have to submit their monthly accounts and other prescribed returns through the Treasury.

3.3.3 *Workflow of bill processing & accounting in treasury*

The process flow diagram of the processing of bills/challans in the treasury and its accounting is shown below:

WORKFLOW OF BILL PROCESSING & ACCOUNTING IN TREASURY
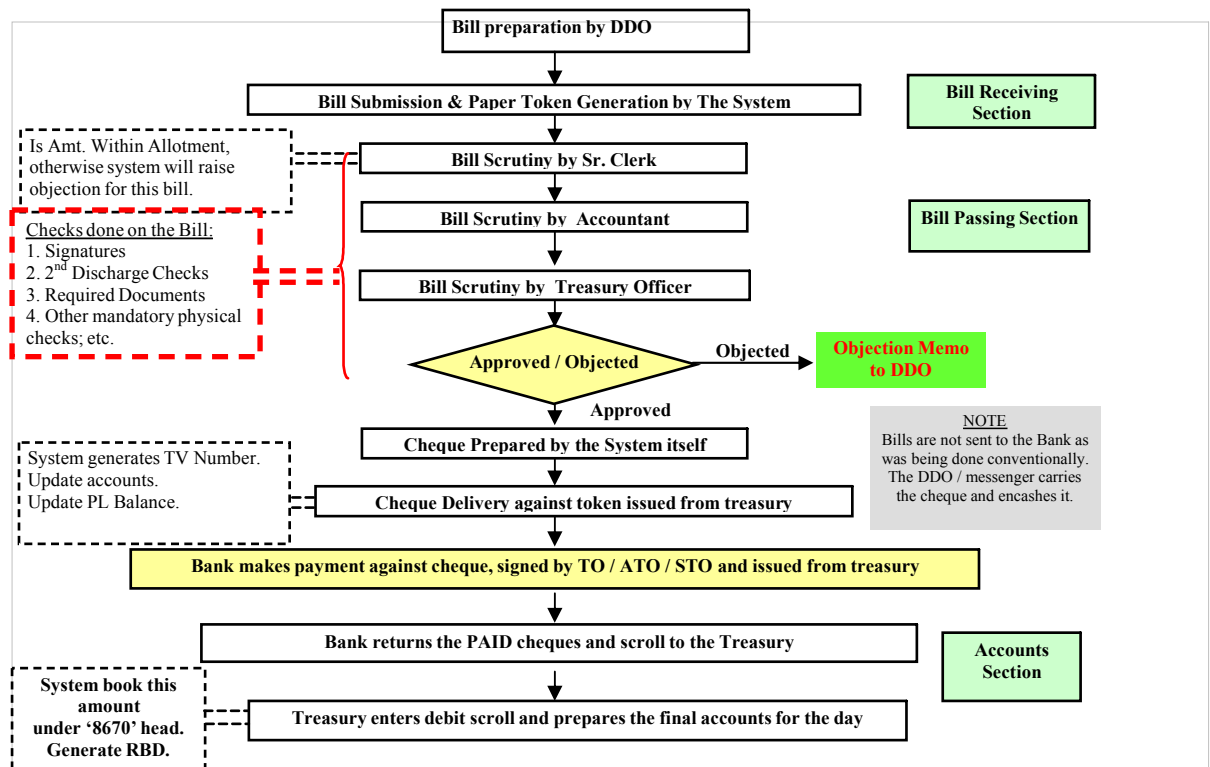
3.3.4 Objectives of computerisation

The major objectives of the CTMIS *inter-alia*, included:-

∗ Allowing the Department to exercise desired control over financial transactions by rational allocation of budget to drawing and disbursing officers (DDOs), thereby enabling treasury officers to have a tight control over expenditure as per the budget allocation.

∗ To make flow of information current, authentic and consistent, thus eliminating any excess or un-authorized drawals, diversion of funds, wrong booking, etc.

∗ Compilation of monthly accounts and their timely submission to Accountant General.

3.3.5 Audit Objectives

The objectives of the review were to assess, whether:

∗ objectives and benefits of CTMIS have been achieved as envisaged

∗ the CTMIS software and its web based application is designed properly with adequate controls and whether the development of the software was in line with the treasury rules

∗ General controls which include control over data centre operations, system software development and maintenance, access security and application system development and maintenance have been properly effected as per the project documents.

∗ Application controls ensure proper authorization and completeness of data input as well as output.

∗ Adequate trained manpower is available at various levels exits and its proper utilisation

∗ Policy for IT security has been formulated and implemented

3.3.6 Audit Scope and Methodology

The records of the Directorate of Treasury were analyzed to review the initial planning for computerisation and the SDLC process of system development (April-June 2007). Discussions were held with the software developer, hardware provider and treasury officials. Records from the central server, facilities management provider, Kamrup and Dispur treasury were also scrutinized. The data was analysed through an audit software tool namely Interactive Data Extraction and Analysis (IDEA) to ensure completeness, regularity, authenticity, consistency and reliability. The on-line software at Kamrup and Dispur Treasury was studied for verification of the controls.

Audit Findings

3.3.7 Project proposal, planning and documentation

The Department had not conducted any feasibility study before taking up the computerization of treasuries. Documentation relating to User's requirements, programme specifications, testing etc. did not exist. Documentation relating to various stages in the SDLC had also not been prepared. Thus, the system development

methodology adopted was not discernible and was ad-hoc. The Director of Accounts and Treasuries (DoAT) stated (August 2007) that a feasibility study was conducted by the Technical Advisor before taking up the new software and SRS was also prepared by the vendor but scrutiny revealed it was only a proposal submitted by the Technical Advisor. The DoAT stated (August 2007) that system documentation is maintained by the software vendor only. The DoAT could not furnish the User Requirement Specification also.

3.3.8   *Delay in completion & implementation*

Initially computerization of treasuries was attempted in 1998-99 but after its failure, a new project viz. CTMIS was started in 2002-03. However, despite lapse of 4 years (target date June 2003) and incurring Rs.13.3 crore, only one module out of the five modules has been implemented (May 2007) and the other four modules are still under implementation. The delay was attributed to delay in procurement and installation of the related hardware.

3.3.9   *Disaster Recovery Policy & Business Continuity Plan*

The Department had not formulated and documented any Disaster Recovery Policy and Business Continuity Plan. In the absence of adequate back up and off-site storage of data, it would be difficult to restore the system in the event of a disaster. The DoAT stated (August 2007) that Disaster Recovery Centre has already been planned and is likely to be made functional shortly. No fire fighting equipments were found installed in Dispur as well as Kamrup Treasuries.

3.3.10   *System design deficiencies*

Analysis of the system through data entry screens of the treasury module of CTMIS at Kamrup and Dispur Treasury revealed the following shortcomings:

a.   There is no provision in the system to record the AC bills with sanction no. and date. There is also no provision in the software for the pairing off of the AC bills with the DCC bills. Thus receipt of DCC bills and previous AC bills pending adjustment are not being monitored in the system at the time of approving the subsequent AC bill. The DoAT stated (August 2007) that the provision of recording of DCC bills is not provided in the system since DCC bills are neither routed through the treasury nor recorded in the treasury.

b.   There is also no provision to check frozen amount (lapsed deposit) before passing a bill. This is done manually.

c.   The data entry form for deposits as well as report generation is incomplete. The lapsed deposits are still being monitored manually. The DoAT stated (August 2007) that though the system has a provision for tracking lapsed deposits, the full functionality is not being used, as transferring of records of all types of deposits from manual register to computer system is not yet completed.

d.   There is no provision to generate a report on the details of stamps issued on a particular day or stamps issued to a particular vendor and also for automatic deduction of income tax from a stamp vendor whose commission exceeds Rs 2,500 in a financial year. The DoAT admitted (August 2007) that the stamp module is not being fully used in any of the treasuries till date.

e.   Huge number of deposits lapsed, as they were lying in "8443 Civil Deposits" for more than 3 years. The software does not have any provision for tracking such deposits. The DoAT stated (August 2007) that capturing of deposit details made at treasuries prior to the implementation of the system is yet to be completed.

f.   Since the checking of the pay bill in the system was not implemented till date, there were errors in calculation of GPF, Professional Tax etc. The DoAT stated (August 2007) that the Government is considering the inclusion of employee level salary break up as a part of the salary bill details, to remove the errors.

g.   Since the Budget module was not implemented till date (May 2007), porting of annual budget provisions in the central server for the year 2005-06, 2006-07 and 2007-08 was incomplete. Thus, checking of expenditure figures against the budget was still being done manually. The control for passing the bill after adequate budget provision has been deactivated and thus may lead to excess expenditure. The DoAT stated (August 2007) that it has planned to implement the Budget module in October 2007 and preparation of State budget for the year 2008-09 will be done through the system.

h.   Since the Department and DDO module were not implemented, allocation of funds to the Department and further DDO wise allotments were not available on computers. The Treasury has to verify that the bills are within the allotment based on DDO's self-certification at the back of the bills and DDO registers maintained in the Treasuries. The DoAT stated (August 2007) that after completion of capturing of State budget information into the system, automatic checking of budget availability will be made mandatory, which is now optional.

i.   The employee data, which is a part of the department module, is still pending. Thus no computerized validation for employees for pay bills and other entitlement bills is being done. The DoAT stated (August 2007) that building of employee database is going on.

3.3.11   Non-mapping of Business rules

Non- implementation of the other modules has inactivated a number of checks prescribed under Assam Treasury Code which have to be still carried out manually at the Treasuries. These are as follows:

∗   There is a provision in the software to edit the errors of accounting. Scrutiny revealed that errors pertaining to the past months can be rectified directly by means of updating in the account of the month in which the error occurred. This is a violation of the Assam Treasury code wherein it is clearly stated that the accounts once submitted to AG office, cannot be modified. Only a note of correction may be made after informing AG office and necessary transfer entries would be subsequently made. Thus manipulation of accounts after closure can be done in the system, which is irregular. The DoAT admitted (August 2007) that though month end closing process exists in the system, there is no provision for subsequent adjustment entry in the system. Closing of month's accounts is done only after acceptance of the accounts by the AG.

∗   As per codal provisions, if a final bill for advance drawn is not presented within 3 months of its drawal, the entire amount of advance is to be recovered

from the next salary bill of the Self Drawing Officer (SDO) concerned with interest. But there is no provision in the software to recover such advance with interest. The DoAT stated (August 2007) that the Government will consider including this aspect in the system, when the preparation of employee database is completed.

3.3.12 IS Security

Since the data is transmitted over the net using dedicated leased line, satellite link and normal broadband provided by BSNL, net security is very essential. No configured firewall was found in the server though Antivirus program exists. The DoAT stated (August 2007) that the process of procurement of firewall is underway and that it is expected to be deployed by September 2007.

* No password policy was documented and applied. As such, many users were using the same passwords and many super users were still using default passwords of the system.

* Analysis of login screen revealed 2 to 5 login attempts by users due to absence of provision to restrict unauthorised log on and/or provision for automatic terminal shut down after 2 unsuccessful login attempts. This increases the risk of unauthorized access to the system.

* The operation of the system is in the hands of contractual staff since no formal Database/System administrator is appointed by the Department. One Assistant System Administrator was appointed (April 2007) without any defined job description. Depending entirely on contractual expertise may lead to risk, as their continuous existence in the organisation is unpredictable. The Department admitted (August 2007) its dependency on TCS (software vendor) for support works and stated that attempts are being made to strengthen the technical team with own resources to reduce dependency on TCS.

* The system does not maintain any logs of actions performed by the three levels of users in the Treasuries to verify when and by whom changes in the system are carried out. The DoAT stated (August2007) that maintenance of log files for longer period has been stopped temporarily because of the high disk storage requirement. It was seen that in case of any modification to be done in the transactions after its approval by the Treasury Officer, the vendor of the software (TCS) is requested to do the same from the back end, since provision for modification after its final approval is not allowed by the software. This could lead to risk of data manipulation and inconsistency since the treasury officer will be totally unaware in case any data is deleted or modified in the central data server by mistake. The DoAT stated (August 2007) that the changes are done by the administrator and audit trail is generated and stored in respect of such transactions. The reply is not tenable, since the modification to the database is stated to be done from the back end, as such no log could be generated in the system.

* Server room is kept open and could be accessed by operators and others.

3.3.13 Failure to monitor Audit Trail

As per standard computer control practice, audit trail is incorporated into an IT System for tracing an item from input through to its final stage. CTMIS has the facility to capture details of terminal log on, start up time, activities of user etc.

However, this facility was disabled by the system administrator at the central data server.

3.3.14 *Contract management*

3.3.14.1 Avoidable payment of Rs.3.20 lakh for FMS

Wipro Limited was engaged for rendering Facility Management Service (FMS) to Treasury Computer System from October 2005 to March 2006. The contract for six month period was for Rs.3.20 lakh. Scrutiny revealed that the items that were to be covered under the FMS were mostly covered by the warranty clause of the agreement with different vendors for the above mentioned period. For instance, all hardware were supplied by M/s Wipro limited in December 2003 and it was covered by a comprehensive warranty and on-site maintenance for three years (i.e. upto December 2006) from the date of installation (clause 4.1 of the agreement). Further, Annual Technical Support for Oracle products was also obtained by paying around 15 lakh to Oracle inc. for application software management. TCS was also engaged during that period for annual on site service/maintenance of the CTMIS Software/database management. Thus, requirement of FMS was duplication of existing contract and was unjustified which resulted in avoidable expenditure Rs.3.20 lakh.

3.3.14.2 Non-compliance of Government's directions

In October 2001, Government of Assam directed all Departmental heads to procure electronic equipment like computer hardware, repairing and servicing including AMC, installation of WAN/LAN, software development, consultancy service, education and training of manpower in computers from AMTRON, a State Government undertaking so that uniformity is maintained in the computer and software procured by different departments. However, these directives were violated by DoAT without assigning any reason.

3.3.14.3 Training

As per clause 1.6 of the agreement with M/s TCS, the software vendor was to provide application software related training with "train the trainers" approach for which, it was paid Rs.13.3 lakh (10 *percent* of total agreement value). DoAT, Assam stated (May 2007) that training relating to operation of Treasury module was imparted to the staff of Dispur and Kamrup Treasuries at the time of testing of the module with live data. However, dependence on TCS for small corrections or problems faced during day to day operations, itself implies that the staff/manpower were not fully trained in CTMIS application.

3.3.15 *Analytical* review of data

Analysis of master data and transaction data for all treasuries for the period from August 2004 to May 2007 revealed the following inconsistencies:

3.3.15.1 Master data

a)   A number of test or dummy data existed in the database as a number of TCS personnel had administrator access.

b)   The DDO master table has 8044 records. In all records, the DDO name and designations have identical entries viz. description of the DDO. This data is

redundant and a wastage of storage space. The DoAT stated (August 2007) that removal of DDO designation description appearing in the DDO name field is being done.

c)   Further, the same table contains two records which have been modified later, but the user who has modified is not available. This indicates absence of audit trail. The DoAT admitted (August 2007) that this was due to modification works being done centrally from the back end.

d)   Further, 194 dummy records were found in this table, which may have been used for testing purpose but had not been deleted before going on-line. The dummy records have treasury code as 'XXX'. The DoAT stated (August 2007) that the 'Test' Treasury has been provided for the purpose of on line training/testing/demo etc.

e)   The DDO code consists of the department code and a three digit serial number. The department code is of two or three digits, thus, DDO code is of variable length. Further, the DDO code is not independent and unique as the same code exists for different treasuries. Thus in the central database, the combination of treasury code and DDO code is unique for Assam. This is in contravention of established norms for codification, where codes are given to uniquely identify the DDO. The DoAT stated (August 2007) that this codification structure is followed across most states in India.

f)   The DDO table has 54 records where 20 DDOs are given multiple codes to identify the Department. For instance, Deputy Commissioner, Bongaigaon has DDO codes of SWD/001, POL/001, LRA/001 and DA/001. This further frustrates the objective of uniquely identifying the DDO. Further there are also cases of duplicate records viz. Prin. Kuthari HS School has two DDO codes SE/015 and SE/003 for the same treasury Karbi Anglong, (KLB). This clearly indicates inconsistencies in the master table. The DoAT has noted (August 2007) it for correction.

g)   The DDO table has 217 records having blank date for entry in the system and 177 records wherein the person who entered in the software is not known. The DoAT has noted (August 2007) it for guidance.

h)   The table for the department master has two digit numbers from 00 to 99. There are 6 records wherein the department name is blank and also 26 missing sequences. The DoAT has noted (August 2007) it for rectification.

i)   The table to store the roles created, has 13 roles with no create date, user id. The DoAT stated (August 2007) that the data was uploaded at the time of initial set up and were not entered through the application. Entering data from the back end was however, irregular.

3.3.15.2   Transaction databases

The transaction data for vouchers and challans are stored separately in the software. The basic details of the voucher are stored in one table whereas the bill type wise details are stored in different tables. Since there is no provision for segregation of records year wise or by any other parameter, the transactions are accumulating in the respective tables. The table containing challan details has 36,74,321 records whereas

the voucher table has 10,36,388 records . This makes retrieval difficult. Thus, for analysis, data on Dispur treasury was extracted and analyzed.

a.   In the table meant for capturing details of all the sanctions granted by the government, date of sanction ranged from 21-8-1900 to 13-11-2989. These dates were much prior to computerization. Thus, validation of the date field in the master table was absent. The DoAT stated (August 2007) that the data may have got in as a part of initial data loading carried out at the beginning of testing.

b.   In the table storing data for employee pay bills, there were 59 records where the gross pay was less than net pay which indicates lack of basic validation checks in the system.

c.   There were 164 records where voucher date of the bill was prior to the date of entry of the bill in the system. 39014 records contain voucher date prior to the date of entry of the bill. Records relating to Dispur Treasury are shown as an illustration.

d.   8 duplicate PPO codes were found recorded.

e.   There were 40 records where the challans were deposited with zero amounts.

f.   101 records were found with zero amounts.

g.   416152 records had blank date fields and 19123 records exist without any voucher number.

h.   The data for Token number was blank in six cases in the table for entry of pensioner's bills.

i.   The table for details of pensioners revealed that there were 90 cases where the pension was drawn even after the death of the pensioner.

j.   The table for details of pensioner's payments had 214 dummy records wherein treasury code was 'XXX'. The DoAT stated (August 2007) that the Test Treasury has been provided for the purpose of on line training/testing/demo etc.

The DoAT has noted (August 2007) these observations.

3.3.16   *Procedural & General Issues*

3.3.16.1   **Accounts rendered to AG(A&E)**

Scrutiny of receipt of accounts and interaction with A&E officials revealed the following deficiencies:

a.   There had been extensive delay by most of the treasuries in rendition of monthly accounts to the AG (A&E) office. Kamrup treasury delayed submission from a minimum period of 68 days (for the month August 06) to a maximum of 147 days (for the month of Dec 05) even after implementation of CTMIS. The DoAT stated (August 2007) that the delay was due to clearing of backlog months of earlier manual treasury operations.

b.   There are differences in the figures of List of Payments (LOP) and Cash Account. The DoAT stated (August 2007) that this was because of initialization problem in the month end compilation process which is rectified

now.

c. In some major heads, classification up to object head has not been submitted by the Treasuries. The DoAT stated (August 2007) that the classification of all expenditure has been made according to the budget provision provided in the State budget. The reply is not tenable because in any case, seven tier classification is mandatory.

3.3.16.2 DDO Reconciliation

Prior to submission of accounts to the AG (A&E) office, the treasuries are required to reconcile the figures with the concerned DDOs and once accounts are submitted to the AG(A&E), the accounts should be automatically closed for modification. Scrutiny revealed that accounts were modified on the basis of DDO reconciliation after the accounts were submitted to the AG (A&E) office. This could lead to misrepresentation of facts and figures. For instance, in case of Belsor Treasury there was a difference of Rs.8,64,645/- in the LOP generated(17/5/07) from CTMIS for the month of Feb 07 and LOP submitted (13/3/07) by the Treasury. The DoAT stated (August 2007) that provision for rectification of errors by adjusting entry is being provided in the system and on operation of the system, the closing of month end account on submission to AG will be made mandatory.

3.3.16.3 Absence of Internal Audit in computerised Treasuries

Internal Auditors have an important role in protecting the IT Systems by detecting deviations in prescribed procedure, identifying threats to information system, suggesting safeguards for timely rectification. Scrutiny of records revealed that there was no inspection/review of the system at various stages of development or even at post-implementation stage. Thus, shortcomings/deficiencies could not be identified and rectified till date. The DoAT stated (August 2007) that the system architecture is the central server base system. Internal audit for any type of issues can be performed at the central site. Monitoring of the system has also been done through FMS group from central site. The reply is not tenable since the DoAT could not produce any inspection report/review of the system at different stage to identify and rectify the shortcomings/deficiencies.

3.3.17 *Other points of interest*

3.3.17.1 Unfruitful expenditure

Computerisation of Treasury Accounts was first carried out in 1998-99 with the help of AMTRON (a State Govt. undertaking) and NIC. AMTRON provided the hardware whereas NIC provided application software called Treasury Accounting Application Software (TAAS). The total cost of the project was Rs.2.39 crore: The TAAS system was implemented (during the year 2001-02) only for preparation of monthly accounts and maintenance of records thereof. However, during implementation it was found that the computer system could not cover the entire gamut of treasury functioning and had serious limitations. Thus, the treasury computerization was reviewed and a new Project called Comprehensive Treasury Management System (CTMIS) was developed (2002-03) comprising of 5 modules viz. Finance module, Treasury module, department module DDO module and Head office module. Failure to implement the TAAS project fully in time and non fulfillment of the requirements of the treasuries as well as the government rules resulted in an unfruitful expenditure of Rs.2.39 crore.

Further, hardware[1] procured for the projects were also lying unutilized as those were not compatible with the new projects. There was nothing on record regarding disposal of old hardware. The DoAT in its reply (August 2007) admitted that except the dumb terminals other hardware was reused in the new system.

3.3.18 *Conclusions*

There is considerable delay in implementation of the various modules of the CTMIS. Though the TCS (Software vendor) installed and handed over the CTMIS software in March 2004, only one module viz. Treasury module could be implemented till date (May 2007). Thus, the full potential of the software has yet not been realized. Further, the controls and validation required as per Rules could not be fully implemented. This has adversely affected macro level budget monitoring for effective Ways and Means control. Also, since there were delays in receipt of Treasury accounts, one of the objectives for timely rendition of accounts is defeated. The system also remains vulnerable due to inadequate application controls.

3.3.19 *Recommendations*

* Structured procedure and documentation for the development, modification and implementation of the system should be followed to achieve the objectives and user requirements.

* All other modules should be implemented at an early date to ensure proper controls and validation in the modules.

* Policy procedure regarding data security, documentation of data, backup and restoration should be prepared and implemented accordingly.

* Security of data and ant-virus measures should be immediately implemented to prevent data loss and corruption.

* Changes in data after passing of bills and changes in data after submission of accounts to AG should be dispensed with immediately and necessary modifications be made to the software to record any such discrepancy noticed strictly as per ATC.

* The provisions for AC/DC bills, issues in entry of PD accounts should be incorporated in the software.

* The DoAT may train its own technical persons for project management and data management instead of fully depending on the TCS and the facility management vendor.

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[1] Servers, Dump Terminals, Printers, UPS etc