

FINANCE DEPARTMENT

3.4 e-KOSH on-line treasury computerisation system

Highlights

With a view to develop a new system of payments, works accounting, deposit accounts, receipts, pension and stamp accounting in treasuries, Government of Chhattisgarh started an on-line computerization system "e-kosh" in two phases and the scheme was implemented from November 2004. Various stages of system development were not adequately documented. DDO allotment checks were getting bypassed due to incorrect categorisation. There were inadequacies in maintenance of DDO, form, budget masters and various security features.

There was no documented IT Policy. Documentation of various stages of system development was also inadequate.

(Paragraph 3.4.6)

Data analysis of four treasuries revealed that 269 contingent bills amounting to Rs 2.13 crore were passed without allotment check resulting from incorrect categorization of bills.

(Paragraph 3.4.7)

Out of 23.32 lakh and 16.17 lakh transactions in Central Server during the year 2005-07, 44,676 and 17,026 had accounting classifications that did not exist in the budget.

(Paragraph 3.4.7)

Budget figures of 2006-07 on the system did not reconcile with budget book in case of 22 grants.

(Paragraph 3.4.8)

Eighteen bills amounting to Rs 1.04 crore were passed on 31 March 2007 without obtaining Finance Department's orders in contravention of the codal provisions.

(Paragraph 3.4.14)

Bills of Rs 42.68 lakh pertaining to a financial year 2005-06 were passed after close of that financial year.

(Paragraph 3.4.15)

3.4.1 Introduction

TRACIS¹ software developed by (NIC) was being used by treasuries in undivided Madhya Pradesh. After State formation and keeping in view the advancement of technologies and study (May 2003) of similar treasury computerisation project 'Khajane' of Karnataka State, the Government, decided (December 2003) to develop a new system for payments, works accounting, deposit accounts, receipts, pension and stamp accounting. The project was named as '*e-Kosh*' and developed on client server structure using VSAT² based VPN³ technology with common SAN⁴. It was split into two phases, in pilot phase (August 2004) the Data Management Centre (DMC) at the Directorate, office of Joint Director, Pension (JDP) at Raipur, treasuries at Korba, Raipur City and Raipur, their sub-treasuries (eight) and Disaster Recovery Centre (DRC) at Bilaspur were covered and in the second phase remaining treasuries (14), sub-treasuries (38) and two JDP offices were covered.

A Memorandum of Understanding (MoU) was executed (November 2004) between the Director, Treasury Accounts & Pension (DTAP), NIC and NICS⁵ which provided that, NICS⁵ was to facilitate procurement of equipment, hardware and software support for implementation of project through empanelled vendor and NIC was to develop the software for the systems of treasuries. Pilot phase was implemented in November 2004 and the project was rolled out in all 17 treasuries, 46 sub-treasuries and three JDP offices in April 2005.

An amount of Rs 12.66 crore was received from the Centre (Rs 1.55 crore) and State Government (Rs 11.11 crore) during the period 2000-01 to 2006-07 for implementation of *e-kosh* project, out of which Rs 9.67 crore was spent.

3.4.2 Project objectives

The main objectives of the project were to ensure:

- ↘ Faster dissemination of financial data at all levels, streamline and control the processing, drawal of funds and passing of bills strictly in consonance with sanctioned budget;
- ↘ Automation in calculation of pension, gratuity, commutation and their respective orders with monthly reports to JDP and Directorate;
- ↘ Maintenance and updation of deposit accounts of various departments by respective treasuries;
- ↘ Proper inventory control and computerize activities of Strong Room and Stamp Accounting;

¹ Treasury Accounting Information System

² Very Small Aperture Terminal

³ Virtual Private Network

⁴ Storage Area Network consisting capacity of 500GB to one terabyte

⁵ National Informatic Centre Services Inc.

- ↘ Periodic submission of accounts by sub treasuries to respective district treasury and district treasuries to the State Government and the Accountant General Office; and
- ↘ Instant and updated daily, weekly, monthly, quarterly, annual reports through computerised system.

3.4.3 Organisational set-up

The Directorate of treasuries is under the administrative control of Finance department headed by Director Treasury Accounts and Pension (DTAP) and assisted by Additional Director and Deputy Director. The Assistant Director is the State level implementing authority and the three divisional JDPs at Raipur, Bilaspur and Jagdalpur are responsible for pension and Letter of Credit (LoC) related works whereas DTAP is responsible for receipt and payment of money on behalf of Government and maintaining accounts relating to these transactions in treasuries and sub-treasuries.

3.4.4 Audit objectives

The audit objectives were to evaluate how the various controls in the system were ensuring the mapping of Business Rules on the system, System security and Backup and Recovery procedures.

3.4.5 Scope of audit

The records of DTAP and seven⁶ treasuries (out of 17) were scrutinized during February 2007 to May 2007 covering the period from 2005-06 to 2006-07 and the databases of the seven treasuries were analysed using SQL⁷.

Audit Observations

3.4.6 Documentation

It was observed that the DTAP did not have any documented IT policy or strategy.

The MoU did not outline stages of system development such as feasibility study, design, development, implementation and post implementation review. User Requirement Specifications (URS) was not prepared and did not serve as the basis for the System Requirement Specification (SRS).

As per the clause 46 of MoU, the DTAP was required to attach at least two domain experts to coordinate development and implementation of the software with NIC, but no such experts were designated.

No records could be produced to audit to show what modifications had been suggested by the Department during the Pilot Project or after implementation under change management although there were a large number of modifications. The test checked Treasuries did not have any record or log of the problems faced during implementation or afterwards.

⁶ Ambikapur, Bilaspur, Dantewada, Durg, Jagdalpur, Raipur District and Raipur City.
⁷ Structured Query Language

There was no documentation to show that the software developed by NIC had been evaluated through trial run and testing before acceptance of the software. Therefore the various stages of system development and the degree of involvement of the users were not documented. It was observed that there were frequent changes in the software⁸ which pointed to inadequacy in assessing requirements at various stages. This could have been minimized by proper documentation at every stage.

3.4.7 Budgeted and non-budgeted bills

The system has categorized all bills into two main categories- budgeted⁹ head and non-budgeted¹⁰ head bills. All bills classified as “budgeted” are linked to the allotment of the DDO in the Central Server using the relevant accounting classification as available in the Budget. The bills are passed if the DDO has adequate allotment and after passing the amount of the bill is deducted from the available allotment so that the balance is available for subsequent transactions. This ensures that the DDO does not exceed his allotments and the expenditure is booked against the correct Budgetary Accounting Head. For non-budgeted bills, the DDO allotment was not required to be checked as per Government policy. Therefore if a “budgeted” bill was classified as “non-budgeted” the expenditure would be booked on the relevant head but there would not be any deduction from the allotment resulting finally in excess over allotment.

It was observed that bills for Rs 15.92 lakh pertaining to 14 DDOs in Raipur city treasury were paid in excess of allotment, as budgeted bills were wrongly categorized as non-budgeted.

The various kinds of bills (Salary, TA, Grants in aid etc.) used by the treasuries are categorized on the system through the field “Form No.”. Form no. 24 was the categorisation for salary bills which were non-budgeted. It was observed that in 269 instances in four¹¹ treasuries, budgeted contingent bills amounting to Rs 2.13 crore were wrongly categorized as Form no. 24. Thus the allotment checks were bypassed and led to expenditure of DDOs exceeding the allotment.

Bills getting wrongly categorized as “non-budgeted” are therefore an area of high risk as allotment checks are bypassed, rendering the budgetary control mechanism ineffective.

A secondary effect of this categorisation was that since the non-budgeted bills were not being linked to DDO allotments, they were also not being linked by the system to the accounting classification available in the budget. It was observed that out of 23.32 lakh and 16.17 lakh transactions in central server during the year 2005-07, 44,676 and 17,026 transactions were posted with classifications that were not available in the budget. The system was required to be modified to introduce a classification check for non-budgeted heads.

⁸ 21 version changes

⁹ TA, Medical, CC Bill, GIA, O.E Bills etc

¹⁰ Salary Bills, pension payment, GPF, GIS, FBF withdrawal, relief pertaining to Natural calamities etc

¹¹ Ambikapur, Bilaspur, Dantewada and Raipur City.

3.4.8 Deficiencies in Budget figures and similar data on the system

Electronic copy of Budget data supplied by the Finance department was being imported to budget tables in the Central Server.

A comparison with the printed budget of 2006-07 showed that in 14¹² demands the database showed excess provision of Rs 344.76 crore whereas in eight¹³ demands it was less by Rs 31.43 lakh. Out of 7,754 scheme codes, 3,374 (44 *per cent*) scheme codes were not having any description. In the year 2005-06 an amount of Rs 1,833.17 crore was shown in invalid demand number '00'. Data, from which the budget was being printed, was uploaded in the system. The fact, that data differences have arisen between the printed budget and the data available in the system, puts a question mark on the safety and security of data in the system.

3.4.9 DDO and Form Masters¹⁴

It was observed that all test checked treasuries had their own DDO masters in addition to the master table in the Central server containing 3,543 DDOs.

In four¹⁵ treasuries the master tables had a total of 1174 DDOs whereas in central server it was 1,059. On being pointed out, the department stated that the central server was correct and updated and the concerned treasuries had been directed to replace the old DDO master with current DDO master available in central server.

Similarly, the Form master in the Central Server had 25 types of Forms¹⁶. The seven test checked treasuries had their own form masters having between 22 to 28 Forms. It implied that reports based on bill categories would be inaccurate. Moreover, permitting different treasuries to operate different sets of bill categories weakened the internal control mechanism.

It was necessary to use identical master tables everywhere to maintain uniformity in the system.

3.4.10 Modifications in Cash account

It was noticed that the monthly accounts were being generated using Reporting facility of the software and the final output communicated to Accountant General's office for compilation of accounts. During scrutiny, it was observed that, corrections and alterations were made in the closed accounts using the Voucher Edit Facility without the consent of AG in contravention of the provisions of Chhattisgarh Treasury Code Rule 37 (b) & (c). On being pointed out, the department stated that this was necessary because the Cash account generated by the system didn't incorporate the transactions of 'by Transfer items' (Treasury Deductions). This was required to be rectified to ensure that the system accurately reflected the monthly accounts sent to the AG for compilation.

¹² Demand nos. 03, 10, 12, 20, 23, 24, 27, 41, 45, 55, 58, 64, 67 and 80.

¹³ Demand nos. 06, 08, 13, 19, 34, 47, 49 and 79.

¹⁴ DDO master: Table containing all DDOs with codes
Form master: Table containing all categories of bills with codes

¹⁵ Ambikapur, Durg, Jagdalpur and Raipur City

¹⁶ The different categories of bills are ascertained by a unique form no. like 24- Pay Bill, 33- Contingent Bills, 44- Refund of Revenue Bill, 24P- Pension Bill etc.

3.4.11 Gross Amount was shown as less than the net amount

During 2005-06 and 2006-07, in 96 bills the gross amount of the bill was recorded in the database as less than the Net¹⁷ amount which was not possible. This showed that some anomaly in the software permitted acceptance of these incorrect figures in some cases. On being pointed out, the treasury officers replied that this was due to technical errors in the software. A direct consequence was that the data as recorded in the database could not be termed as reliable.

3.4.12 Check total not used in Bill Entry

A DDO sends a set of bills through Bill Transit Register (BTR) to the treasury counter. Bill wise details are entered by Treasury in the "Counter Bill Entry Form". It was stated that after this the total of bills entered was checked manually with the total shown in the BTR. However, this validation could be done easily by the system by capturing the BTR total as a check total in the Counter Bill Entry Form.

On being pointed out the Department replied that validation of BTR entries at the Counter Bill Entry stage could not be done owing to staff shortage. However, trapping the errors at initial stage would cut down the subsequent work of rectifying the original entries which would be more time consuming.

3.4.13 Delay in passing of bills

The objective of e-kosh was to expedite the process of passing of bills timely and within three days of its submission. Audit scrutiny revealed that 3214 bills were passed in test checked treasuries with a delay ranging from five to 300 days during the year 2005-07. On being pointed out in audit, TO Bilaspur clarified that the software did not have the feature of capturing resubmission dates of bills returned to DDOs for clarifications and they appeared to be pending for long. This indicated that requisite modification was necessary in the software.

3.4.14 Irregular passing of bills without obtaining FD orders

According to Finance Department order dated 21st March 2007, no bills were to be accepted or passed after 30th March 2007 without its approval. But no provision was made in the software to incorporate a suitable check.

For instance, during data analysis it was found that 18 bills amounting to Rs 1.04 crore were accepted and passed on 31 March 2007 by TO Bilaspur and Ambikapur without obtaining the orders of finance department.

3.4.15 Passing of bills after closure of financial year

It was observed that 79 cheques amounting to Rs 42.68 lakh were issued against bills passed after closure of financial year 2005-06, between 1 April to 10 April 2006, by five treasuries which was irregular. On being pointed out in

¹⁷ *Gross amount of the bill minus treasury & AG deductions*

audit, the DTAP stated that departmental action would be initiated against the responsible officers and necessary provisions in the software would be made to avoid such occurrences in future. Details of modifications to block such transactions were awaited (July 2007).

3.4.16 Non-functional Modules

3.4.16.1 Deposit Module

In the test checked treasuries, it was observed that in the Deposit module, the system provided for passing of bills subject to availability of balance. As cumulative balances had not been entered on the system, the bills were scrutinised against balances available in manual records and after manually passing the bills they were being passed by the system by first entering the bill amount as Opening Balance. This was a system of permitted bypassing of a key validation and open to risk of manipulation as the balances were kept manually while transactions were posted on the system. In Bilaspur, even the manual records were not being maintained after computerisation and there was high risk of overpayments. The plus/minus memoranda sent to the AG Office were being prepared manually. It was necessary to make the module fully operational by feeding requisite balances.

On being pointed out the TOs stated that the Deposit module was not implemented and it would be taken up at DTAP level to modify the software through NIC. In view of the shortcomings, this work should have continued manually instead of partial implementation which had weakened the control mechanism.

3.4.16.2 Strong Room and Stamp Accounting

The activities of Strong Room and Stamp Accounting had not been computerised although targeted in the objectives of the project.

3.4.16.3 Non inclusion of provision for passing of AC/DC Bills

Abstract contingent bills can be raised in case of emergencies and at the time of clearance such AC bills should supported with detailed contingent bill containing sanction no and date, allotment and balance etc. Further, the DC clearance certificate would enable the DDO to draw the claims for the next three months from the treasury. The provision was not incorporated in the system to record the AC Bills for sanction number and date which was being done manually. Besides this, there was no provision in the software for the pairing of AC Bills with the DC bills and subsequently issuing the clearance certificate to the DDOs.

3.4.17 Business Continuity Plan

Business continuity planning ensures quick recovery of key business processes following disasters. It was observed that though a Disaster Recovery Centre was established at Bilaspur with the same configuration as that of the Central Server, no records were produced to audit to show that the readiness of the DRC to take on the functions of Central Server was tested after commissioning of the whole system.

3.4.17.1 Backup Policy

Every Treasury was provided with two identical servers- primary and secondary. In the test checked Treasuries different RDBMS were installed in the two servers¹⁸. There was no documentation or manual for taking backup in the Treasuries. The data backup was being done on a daily, weekly and monthly basis in the local server and transmitted to the Central server but it was not possible to upload into the Secondary Server. Therefore, in the case of exigencies the server would be restored by last back up from the Central server. Thus the purpose of installing the secondary server was totally defeated.

On being pointed out, the Department expressed its ignorance and replied that the maintenance, control and upkeep were under the control of the NIC officials in the absence of designated Database Administrators.

3.4.18 System Security

3.4.18.1 Physical and Logical Access

In Ambikapur treasury there was no separate room for server. As such the restriction to entry in server room cannot be ensured. Further, there were no alarms or fire detectors in the server rooms in all treasuries covered by audit.

Logical access to server is particularly not restricted. Though there were module wise user permissions, there was no uniformity and they were different in different treasuries. There was no standard documented policy for securing access.

3.4.18.2 Activity Logs

Activity Logs are maintained to identify unauthorized or exceptional activities and fix responsibility in case of errors, malfunction etc.

Audit of the seven test checked treasuries revealed the following shortcomings:

- * A detailed listing of date & time of input, user id and terminal location, which permits the system administrator to fix the responsibility in case of unauthorized access, was absent in the treasuries.
- * The daily activity registers like the terminal log on, logout, activity of users etc. were also not found maintained in any of the treasuries covered by audit.

3.4.18.3 Password Controls

Any web based payment system should have a strong password policy to make the system secure and foolproof.

It was observed in test checked treasuries that the password controls were deficient as detailed below:

- * All the seven treasuries had the same user ID and password for accessing the database.

¹⁸ Oracle was installed in primary server and SQL server in the secondary server

- * In Bilaspur and Ambikapur treasuries, the User ID and password of the Treasury officer was widely used by the staff. Thus many persons had access to the restricted features of the software.
- * The system does not have the provision to restrict password guessing attacks, like after 3 unsuccessful attempts to enter password, the involved User ID must either be suspended until reset by the system administrator or temporarily disable the User ID for not less than 10 minutes.
- * There was no time limit for expiry of password. Recommended good practice is that all users must be automatically forced to change their passwords at least once in 30 days. It should also be ensured that the initial passwords issued by the security administrator are changed after first on line session.
- * Another recommended best practice is that length of the passwords must be checked automatically at the time of creation. All passwords must have at least six characters (alpha-numeric).

3.4.19 Training

Under the project, training was to be provided by NIC to Executive level (one week), system administrators & resource persons (one month), Operators (15 days) alongwith hardware training of three months was to be provided by NIC. It was noticed that except training to Operators no other training was imparted. The records relating to training of personnel were not produced to audit.

3.4.20 Conclusion

The e-Kosh online treasury computerisation system was implemented to ensure overall control on flow of funds and to assess the financial position of the state at a given point of time. Various stages of the system development were not adequately documented. Due to incorrect classification, DDO allotment checks were getting bypassed and there were inadequacies in maintenance of DDO, form and budget masters and various system security features.

3.4.21 Recommendations

- ↘ All change management requests should be fully documented and issued to consultant (NIC) with approval of appropriate authority.
- ↘ Categorisation of bills as Non-budgeted should be validated
- ↘ Classification check must be introduced for non-budgeted bills.
- ↘ The DDO master, form master, Budget master available in Central Server should be reconciled and replicated in the Treasury Servers as per approved regular schedule.
- ↘ Reasons for discrepancy in net and gross amounts to be ascertained and corrected.
- ↘ The password controls may be strengthened.
- ↘ Appropriate activity logs should be introduced.