CHAPTER 6

Khajane*:
The Comprehensive OnlineTreasury Computerisation Project

Department of Treasuries, Government of Karnataka

'*KHAJANE*' is a major e-governance initiative of the Karnataka State Government. Basically, it is a government-to-government (G2G) project, except for service pensions and social security pensions, which have an interface with the citizens. This project was implemented mainly to eliminate systemic deficiencies in the manual treasury system and for the efficient management of state finances.

This project is the first of its kind in the country where the entire treasury activity has been computerised. This is the only project where, from the time of approval of the state budget to the point of rendering accounts to the government, the entire activity can be tracked through the system.

Treasury System in Karnataka

There are 216 treasuries functioning across the state. Of them 31 are district-level treasuries (three special district treasuries in Bangalore and one in Hubli) and 185 are sub-treasuries at the *taluk* and sub-*taluk* levels. All the treasuries in the state are banking treasuries, where the cash transaction is handled by agency banks. The treasuries in the state disburses salaries to about 7 lakhs government and grant-in-aid employees, services 4.3 lakh pensioners and 15.7 lakh social security pensioners. From 228 departments, 21,000 drawing officers draw money for 2117 schemes from the treasuries in the state. The treasuries handle about Rs 36,000 crores of receipts and Rs 46,000 crores of payments annually. In addition to state government transactions, the treasuries also handle the *zilla panchayat and taluk panchayat* transactions, which is unique in the country.

Systemic Deficiencies in Manual System

Before computerisation, in the manual treasury system, owing to ever increasing volume of transactions, certain systemic deficiencies had crept in that resulted in over-withdrawal of funds, fraudulent withdrawal of funds, misclassification of expenditure, non-reconciliation, delay in submission of accounts and delay in settling claims.

* CSI Nihilent e-Governance Awards 2005–6, Best Project Overall – Joint Runner-up.

Recommendations on Computerisation of Treasuries in the State

A committee headed by the secretary, finance, studied the working of treasuries and in consultation with software and networking experts from the Indian Institute of Science, Indian Institute of Management and the Software Technology Parks of India (STPI), Bangalore, suggested comprehensive computerisation of all the treasury activities in the state as panacea to eliminate the above deficiencies. The committee suggested that all the treasuries be networked, all the transactions be routed through a central server online and every single bill for payment be cleared by the central server. Effective budget control and ways-and-means control through the system, automated generation of monthly accounts and a comprehensive financial management information system for better management of state finances and for meaningful review of financial progress of various schemes were other important recommendations.

Network Management Centre

An exclusive centre for management of the network (Fig. 1) and all computerisation-related issues was set up at Khanija Bhavan, Bangalore, wherein the central server and the central VSAT hub are also situated (Fig. 2). All budget uploading, problem resolution and new software developments are carried out from this centre.

Fig. 1. *Network management centre*

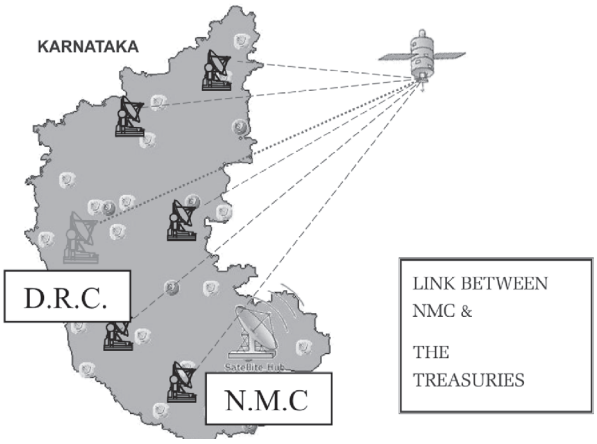

Fig. 2 *VSAT links between treasuries of the state*

Figure 3 shows the network monitoring tool used.

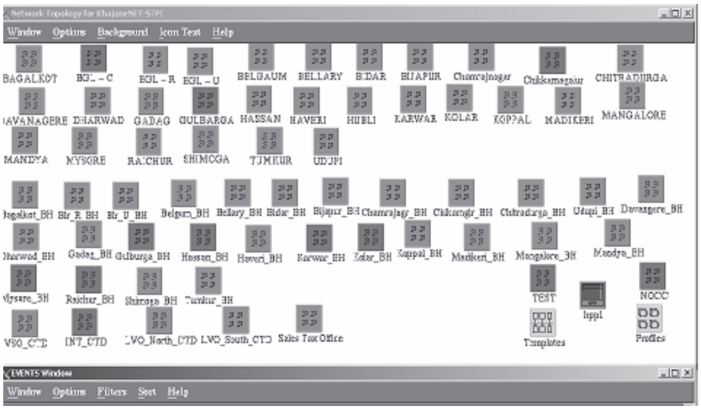

Fig. 3 *Network monitoring tool at NM*

Infrastructure Provided

Adequate hardware like servers, systems, dot matrix printers and line matrix printers, have been provided to the treasuries (Fig. 4). All treasuries have been provided with UPSs with minimum 4 hours battery back-up and dust-free enclosures to station the servers.

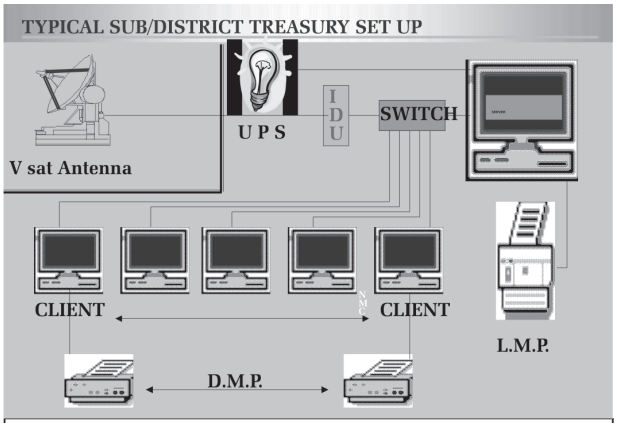

Fig. 4 *Graphic presentation of infrastructure and LAN in treasuries*

Best Practices

The best practices adopted in this project are that all the treasuries are networked to a central server. Every single bill clearance is monitored online by the central server. The time taken for the information flow from remote treasuries to the central server and back is about 4–6 seconds. Strict budget monitoring and ways-and-means control are exercised through the system. Validation of the bill is done through the system. The data captured at the time of bill entry itself is used for generation of classified accounts and various FMIS reports. A comprehensive expenditure report is available on a real-time basis. Transparency has improved with FIFO (first-in-first-out) and IVRS (interactive voice response system) systems in place. The discretionary powers of the treasury officers have been brought down to the minimum, only to the extent of ticking the enclosures and certificates on the bills. Online fund transfer has been provided to urban local bodies and other deposit account holders. With these practices, about 300 vacant posts in the treasury department were abolished, and another 300 in the compilation section of the accountant general's (AG's) office were re-deployed as treasuries started rendering compiled and classified monthly accounts.

Best practices that have lead to the success of the project are:

- An elaborate study of the existing system and deficiencies in it by a committee headed by the secretary (Resources), finance department helped the department in determining the exact direction to be followed and objectives that had to be achieved by computerising the departmental processes. The objectives were clearly spelt out in this report and the project is based on these recommendations.
- A team of officers from finance and treasury studied the Andhra Pradesh, Maharashtra, Tamil Nadu, and West Bengal treasury prac-

tices. The study of best practices in these treasuries also have helped in formulating the project.

- Systematic re-engineering was undertaken by standardising the formats and the procedures, eliminating all redundant processes. Large verities of bill formats in use in the manual system were rationalised for the computer environment, and finally the number was brought down to nine standard bill formats. Redundant procedures like entering the bill details in multiple registers were eliminated. The number of drawing officers was brought down to around 21,000 from 40,000.
- A procedure manual (Fig. 5) detailing the departmental procedures was brought out. The manual contained details about the activities of the department and the procedures followed and the various formats of reports in use. This gave a clear picture to the bidders about the expectations of the department.

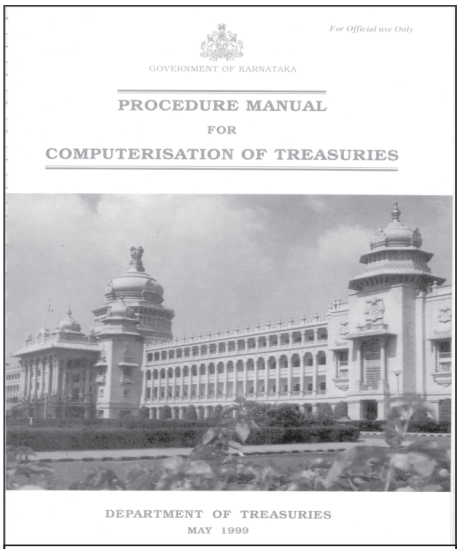

Fig. 5 *Procedure manual*

- Motivating the staff and keeping them informed and involved has helped the department in successful implementation of the project. Their feedback was also considered before finalising the application software. User friendliness of the software, simplification of processes, elimination of the drudgery of preparing and tallying the accounts has helped the easy acceptance of the system by the employees. The attraction of simplified accounting procedure, which required no separate effort on preparation and tallying of accounts, was one of the main points that caught the imagination of the staff members.
- Though an open bidding system was followed, the participation was limited to pre-qualified 'total solution providers' only. The pre-quali-

fication was carried out by the then Karnataka Government Computer Centre (present e-Governance Secretariat), which empanelled service providers under various categories after due evaluation of the capabilities of the firms. This helped the department in avoiding unhealthy competition and participation of incompetent firms in the bidding process. Strict pre-qualification criterion ensured that only reputed, capable and competent service providers were empanelled as service providers.

- Number of service providers for implementation of the project were limited to just two: (1) CMC Ltd., as service provider to develop the application software, supply hardware, bring out software (O/S and database), UPS, LAN, training and maintenance and (2) STPI, Bangalore as the network provider for providing wide area network using VSAT technology; this helped in smoother coordination. This limitation was due to the lessons learnt by the department in their previous endeavour of district treasury computerisation where, because of the multiplicity of vendors involved like hardware provider, O/S providers, UPS supplier and application software developer, and lack of cooperation and coordination between them, implementation was very hard.
- Technical documents (system requirement specifications and system design documents) leading to developments of software were thoroughly scrutinised. The whetting of module-wise SRS was entrusted to different teams of senior treasury officials to ensure that the document covered all the processes envisaged in the project. This has helped the application software developer to understand these processes and the requirements of the department more precisely.
- Software has been made modular and highly user friendly. The development of each module was supervised by a separate treasury team. The modular nature of the application software has helped the department in adding many new features to the project without disturbing or re-structuring the existing basic software.
- The pilot testing of the application software was carried out in five sites, which covered all types of treasuries like district treasury, subtreasury, banking treasury and non-banking treasury (which existed at that time). The trial run covering all verities of treasury transactions in full scale and for sufficiently long periods enabled the department to fine-tune the application, to modify and make it more user friendly and fix a large number of bugs.
- Selection of pilot sites was done based on good environment, positive staff response, enthusiastic and confident officers and proximity for interaction. This enabled the department to improve the existing system, as proactive staff and officers offered feedback that was of great help in the final roll out.
- The progress of the project was very closely monitored by the two committees (steering and implementation) formed exclusively to

oversee the implementation of project. The steering committee headed by the secretary, Finance, and experts from IISc, and IIM met once in a month and took decisions on policies and major technical and software issues. The implementation committee under the chairmanship of deputy secretary (B&R), Finance, with representatives from the treasury, the accountant general, system providers and network providers met at least once a week or as and when required to resolve the implementation related issues. Such regular and close monitoring led to timely completion of the project as all the decisions required were taken in the committees after due deliberations without any delay.

- The feedback from the pilot run carried out for 6 months was used to modify the software suitably. As the pilot project continued for a reasonably long time, the correctness of all input parameters and outputs could be compared and ensured with the manual accounts prepared in parallel.
- Nearly 2000 staff members were trained to handle the software, and even trainers training was provided before roll out. A core team of 25 officers was trained thoroughly by CMC team regarding the use of the application software, preparation of accounts, system administration, etc. At least one experienced officer was included in this core team from each district. They acted as nodal officers for training at the districts. About 1400 staff members were trained in the basics of computerisation, mainly data entry and 600 officials on use of application software. About 75 officials were imparted with system administrator training. They were also used as trainers at the district level. Refresher courses are held regularly, and as and when any important modifications or additional modules are introduced, trainings on operating these modules are conducted to keep the knowledge base updated.

Periodic trainings are being conducted for officials who are newly recruited and those who have come back from deputation from other departments.

Training is given to departmental officers regarding:

1. Providing data in the prescribed form for creation of master files
2. Providing budget release information in the prescribed software for direct uploading at central/district server
3. Reconciliation process

- A concise user manual, in the local language, is also provided to treasury officials to navigate through the application software easily.
- Team spirit and cooperation was maintained between the treasury, CMC Ltd., and STPI throughout the project implementation. Many a crisis and testing times have been overcome with mutual help of all the participating players.
- As the project is fully operated and run by the departmental staff and most of whom were never exposed to any kind of information tech-

nology, the implementation was quite a formidable challenge. Grit, determination and hard work of the staff members of the department has had a major role in the success of the project.

- Networking of all the treasuries has been a great boon as hundreds of minor and major modifications, bug fixings and enhancements are carried out centrally, and the updated versions or the new releases are pushed to the remote servers automatically through version control mechanism. A problem reported from one site may result in fixing a bug and releasing of corrected version to all the sites in the state within a few minutes. The nightmare of updating the software versions in an application containing 630 forms, 800 tables and nearly 300 reports without the support of an efficient network could only be imagined. With the help of network, speedy problem reporting and resolution has been possible, which had a major bearing on the successful implementation of the project.
- An online problem-reporting facility enables the users to report any operational, software or hardware problem to the network management centre instantaneously. This facility has gone a long way in helping the remote sites highlight the problems and seek immediate resolution from the help desk situated in NMC, Bangalore.
- Though there were a few changes at the highest level of officers, the regular and clear documentation and continuity of officers involved in the project at the field level during the developmental and implementation stage has had a major impact on the success of the project. Reasonably long tenures helped in maintaining the momentum generated initially till the successful completion of the project.

Khajane Application Software

The application software 'KHAJANE' has been developed by CMC Ltd., selected through competitive bidding. This software is modular in nature and covers the entire treasury activity. The following modules (Fig. 6) are present in the software:

1. Receipts
2. Payments
3. Deposits
4. Stamps and strong room
5. Pensions
6. Social security pensions
7. Accounts
8. Returns
9. House keeping
10. Master maintenance

Fig. 6 *Main menu of the application software*

Bill Clearance in the New System

In the computerised system, the role of the treasury officials is limited only to entering the details of the bills into the system. The validations of the bill against the budget availability, requirements regarding the provisions of financial code and treasury code, and manual of contingent expenditure will be validated by the system itself (Fig. 7). The system checks for the validations and the genuineness of the drawing officer, his or her authority to draw the money for the scheme and whether it is within the financial powers. The budget availability will be validated by the system itself. If the system raises any objection, the treasury officer has no discretion to overrule it. With these system validations, the compliance and strict adherence to the provisions of various codes is ensured.

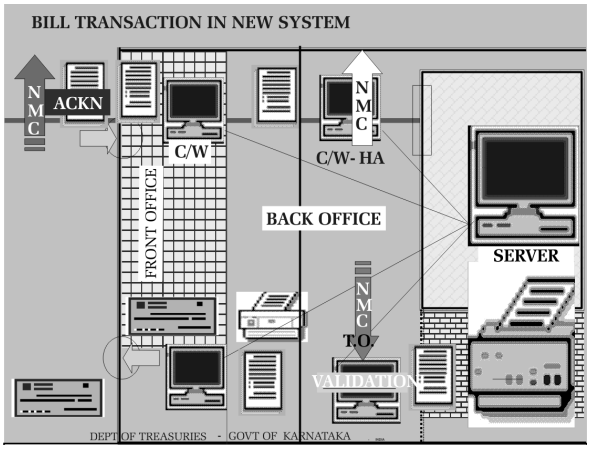

Fig. 7 *Graphic presentation of movement of bill in the treasury*

New Features in Khajane

Budget Control

The system handles budget monitoring (Fig. 8), which is an important feature of this project. The budget releases by the heads of the department (CCO) to COs is uploaded to the central server at the Treasury Network Management Centre after due verification by the system. They are immediately transferred to the COs across the state in the district treasuries.

A similar budget distribution by the COs at the district level to their implementing officers (DDOs) is uploaded at the district treasuries, which is again, after system validation, passed on to the *taluk* server immediately. This budget distribution is released with full particulars up to the last item of expenditure (details containing 17 digits major, sub-major, minor, group head, sub-head, object code, plan/non-plan, voted or charges). By the time the treasury officer captures the details of the bill in the system, the system already has the information regarding the funds released for this particular scheme and DDO. If the fund is available, the bill will be cleared; otherwise the system raises an objection. This has eliminated the over-withdrawal of funds and misclassification.

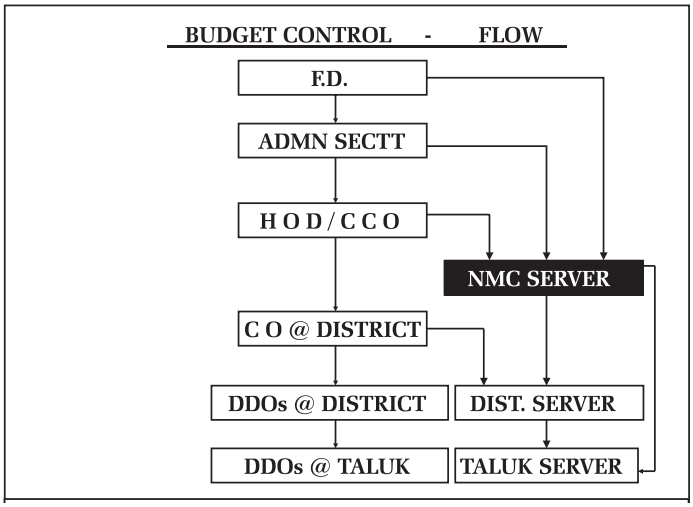

Fig. 8 *Chart showing flow of funds in budget control system*

Ways-and-Means Control

The finance department can upload ways-and-means instructions directly on to the central server after taking into cognisance the cash availability for

the day. The system will restrict the clearance of bills across the state for this financial limit given by the finance department. This helps in better cash management of the government.

Online Funds Transfer

In the manual system, the funds released to urban local bodies used to take minimum 4–6 weeks to reach the urban local bodies across the state and there were several stages of passing of orders and bill processing at state, district and *taluk* levels. In the new system, the secretary, Urban Development, presents the bill at Bangalore and gives a list of urban local bodies and the amount to be transferred. The bill is cleared in Bangalore and the same day, the money is transferred to urban local bodies accounts in treasuries across the state, eliminating all the intermediary steps and delays. This online funds transfer facility (Fig. 9) is also extended to the deposits of the deputy commissioners. This facility could be extended to all the deposit accounts that are held in the treasuries.

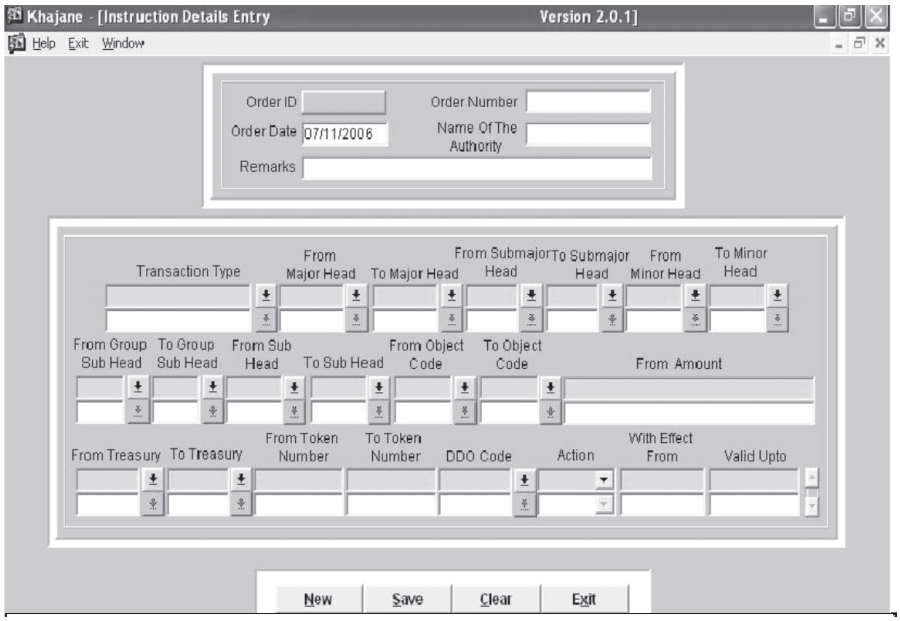

Fig. 9 *Screen shot showing ways and means data entry form*

Zilla Panchayats and Taluk Panchayats Fund Control

Karnataka State Treasuries in addition to state government transactions also conducts the financial transactions of *zilla panchayats* (ZPs) and *taluk panchayats* (TPs) and renders monthly accounts (Fig. 10). These ZP/TP funds are maintained in three categories. Category I funds are fully meant

for implementation of centrally sponsored schemes/central plan schemes. Category II funds are meant for implementation of various state government schemes. Category III is the ZP/TP's own fund.

GOVERNMENT OF KARNATAKA

Department of Treasuries

ZP/TP Fund Balance Report

Run Date : 07-NOV-06 Page No : 1

Financial Year : 2006

Category	Nodal Treasury	Fund Type	Fund Balance
TALUK PANCHAYAT	2200	1	1,31,21,453.00
TALUK PANCHAYAT	2200	2	8,93,31,808.00
TALUK PANCHAYAT	2200	3	0.00
ZILLA PANCHAYAT	2200	1	27,75,08,161.00
ZILLA PANCHAYAT	2200	2	47,65,37,689.00
ZILLA PANCHAYAT	2200	3	9,30,152.00

Fig. 10 *Screen shot showing ZP/TP balances*

In the manual system, it was an almost impossible task to stop over-withdrawals from the ZP fund as the balances were maintained at the district treasury and the transactions happened in all the *taluks* of the ZP. When a ZP/TP bill is presented at the treasury, the system automatically checks for the availability of funds and clears the bill if the funds are available; otherwise it is returned. without further processing. This eliminates the scope of over-withdrawal of funds from the treasuries.

Monitoring of Non-payable Detailed Contingent (NDC) Bills (Settlement of Amounts Drawn in Advance)

In the manual system, there was no way of tracking the pending NDC bills as controlling officers were directly sending the NDC bills to the accountant general. A large number of cases of non-submission of NDC bills were observed by the AG. Now the government has implemented the procedure by which NDC bills are being routed through the treasuries. New provision has been made in the KHAJANE software so that the system will track the pending NDC bills, and will not allow the next AC bill (for withdrawal of amounts in advance) to be drawn if the NDC bill for the previous AC bill is not cleared within 30 days. Now the DDOs have no option but to submit the NDC bills within 30 days if they want to draw the next AC bill.

Social Security Pension Payment

The state disburses about 15.7 lakh social security pensions like old-age pension/physically handicap pension/destitute widow pension every month

across the state. Each pension is of Rs 400 per month. With computerisation of treasuries, the printing of this voluminous number of money orders have been decentralised up to the sub-treasury level. Now the money orders are printed at the sub-treasury level and disbursed to pensioners during the first week of every month. The number of beneficiaries is as follows,

OAP : 5.1 lakhs
PHP : 3.9 lakhs
DWP : 6.7 lakhs

Transparency in Treasury Transaction

To improve the transparency in treasury transactions the FIFO System has been introduced in all treasuries. The system will decide the seniority of the bill as soon as the bill is entered and clears it on an FIFO basis. IVRS has been introduced to facilitate the DDOs to monitor the status of the bill in treasuries by a mere phone call.

Financial Management Information System

The details captured at the time of bill entry itself is utilised for preparation of classified accounts and also to generate various financial MIS reports.

Daily Reports to Finance Department

Some of the reports that are sent to the finance department online are Reserve Bank Deposit (RBD) statement giving the details of cash received and cash disbursed (Fig. 11) for the day, the number of cheques issued by the treasuries and the number of bills presented, and the number of bills pending in the treasury. This helps in better management of the state finances. The finance department is in a better position to monitor the ways-and-means position with the help of following information

1. Daily RBD statement
2. Daily position of bills/cheques issued
3. Daily position pending bills/cheques

Monthly Reports to the Finance Department and Heads of Departments

The following reports are generated on the second/third of every succeeding month and shared with the secretaries/heads of the departments. Tax and

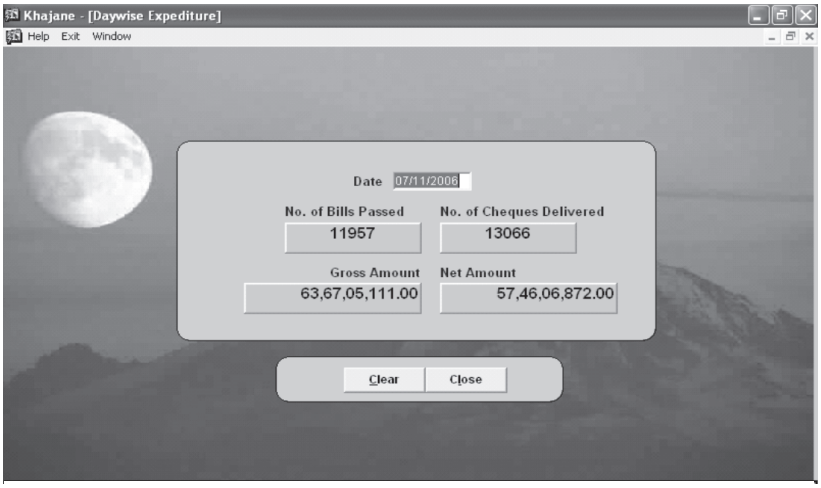

Fig. 11 *Screen shot showing online expenditure details*

non-taxes receipts of major departments with day-wise and district-wise details are also provided to the departments. Major-head-wise expenditure, scheme-wise expenditure, object-code-wise expenditure, ministry-wise/department-wise/scheme-wise expenditure reports for the review of the plan schemes of the Karnataka Development Programmes are generated. The fund balances of ZPs and TPs, reports on budget provisions, fund releases and expenditure incurred on district sector plan of ZPS and TPs are also made available. The treasuries also provide the details of bills drawn from the treasuries by the individual DDOs before the fifth of the month in a soft copy (Karnataka Finance Code 62B). This is to facilitate the reconciliation process.

Some of the important reports generated are as follows,

1. Staff strength details department-wise/ scale-wise
2. Statement of OAP/DWP/PHP
3. KDP progress for the month
4. Object-head-wise expenditure
5. Grant-wise/object-head-wise expenditure
6. Receipt and expenditure under ZP funds
7. Receipt and expenditure under TP funds
8. Receipts and expenditure under GP fund
9. Balance report of calamity relief fund
10. Classified accounts to AG ZPs
11. Major-head-wise expenditures
12. Scheme-wise expenditures
13. Scheme-wise expenditures (share details)
14. Scheme-wise expenditures (demand-wise)

Future Programmes

Future programmes of the department include (a) hosting of web site, wherein it is planned to provide the drawing officers, controlling officers and the heads of the departments with all details of revenue and expenditure details, (b) payment of salaries of all the government employees directly from treasuries, which will be effective after the completion of data capturing of details of employees through HRMS system that is under way, (c) direct payment of pensions from the treasuries replacing the existing public sector bank system, which has resulted in excess payment of family pension in several cases (for this, data capturing is in an advanced stage), and (d) extension of connectivity to all the heads of the departments and the controlling officers are other future programmes.

Technical Details

Technical Specification of Systems

Architecture	Two-tier architecture with a semi-centralised and distributed database
Hardware installed make/ model	Servers (Fig. 12): Sun Ultra SPARC I Number: Two Intel Pentium III 600 MHz CPU at *taluks* and districts Nodes : Intel P III Number: 1000
Operating software	D2K as front end, Oracle 8i as the RDBMS
Network topology	LAN at the local units. WAN (VSAT) for connecting treasury sites
Programming languages	SQL
Disaster recovery technology	Oracle standby database technology
Security features	Password-based and role-based access to functions and maintenance of audit trails

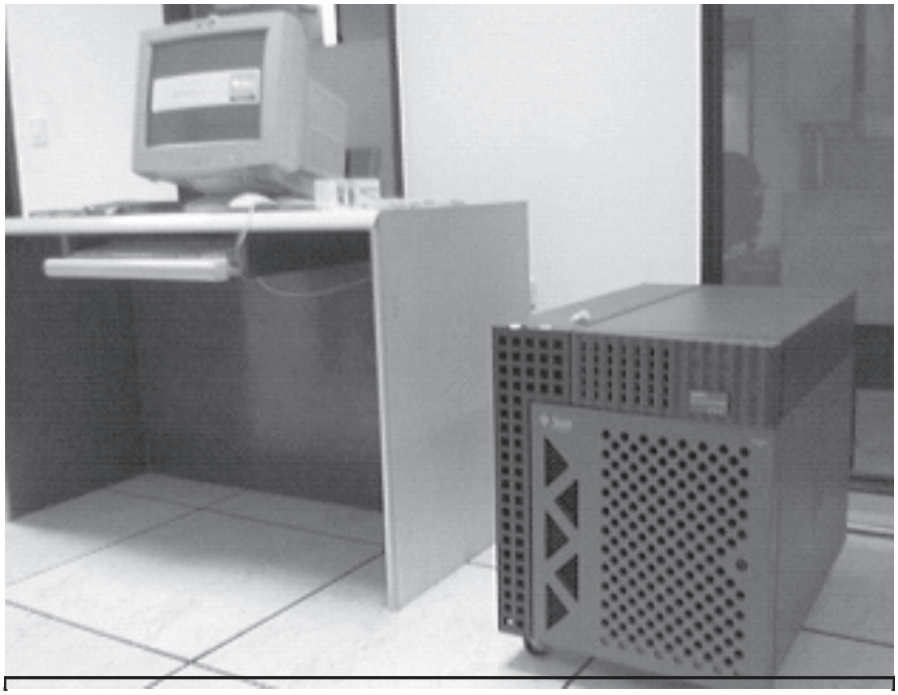

Fig. 12 *Server at NMC*

Technical Specification of the Network

Topology	Star-based VSAT Network
Architecture	Consists of satellite segment, hub and remote VSAT terminals
Space segment	KHAJANE network is assigned 18 MHz space segment on INSAT 3B Ku Band transponder No.2 for its transmission
Out bound capacity	4 Mbps
Inbound capacity	10×307.2 Kbps
Antenna	9.3 metres at NMC and 1.8/2.4 metres at remotes

Figure 13 shows specific network equipment used for KHAJANE

Fig. 13 *Network equipment*

Awards

The best practices adopted by the Government of Karnataka in the KHAJANE project has been appreciated by the Government of India and has been awarded 'Silver Icon' under the Professional Service Category at the Ninth National Conference on e-Governance at Kochi on February 2, 2006 (Fig. 14).

Fig. 14 *Award distribution during 9th e-governance conference*