2.2 INFORMATION TECHNOLOGY SYSTEMS IN THE KERALA STATE CIVIL SUPPLIES CORPORATION LIMITED

Highlights

Due to partial computerisation of outlets/depots, the Company could not derive the intended benefit of accurate and timely report on sales and stock despite spending Rs. 2.65 crore.

(Paragraph 2.2.8)

Absence of uniform coding procedure led to 20 *per cent* of sales, valuing Rs.497.10 crore, escaping commodity-wise accounting during the period from 1999 to 2003 which rose to 33 *per cent* in the year 2004.

(Paragraph 2.2.12)

Sharing of login IDs and passwords defeated the very purpose of control as accountability, confidentiality and integrity of data and program would be affected.

(Paragraph 2.2.13)

The system in the Regional office did not capture the short collection of Rs. 28.70 crore and short remittance of Rs.21.73 crore for appropriate follow up. Cash balances recorded in outlets, showed a difference of Rs. 35.41 crore with the figures of short collection/remittance in the database.

(Paragraph 2.2.17)

Introduction

2.2.1 The Company was incorporated in June 1974 with the objective of procurement and distribution of food grains and other essential commodities so as to ensure their easy availability to the public at reasonable prices. The Company was also engaged in distribution of petroleum products, tea, medicine, sugar, etc., as well as public distribution of rice, levy sugar and wheat, distribution of rice and pulses to schools under the Mid Day Meal Scheme.

The Company with its headquarters at Ernakulam has five Regional Offices, supported by 1,050 outlets (August 2005). There is a separate EDP section.

Computerisation

2.2.2 The Company in 1987 started computerisation of its applications and initiated in-house development of software for Payroll, Financial Accounting, Sales Accounting, Sugar Transportation Accounting and Purchase Accounting. Development of software for Depot Management, Super Market Billing and Stock Accounting was outsourced. While the in-house applications were developed using Oracle and Developer 2000, others were developed using FoxPro. The Company had so far spent Rs.2.65 crore (2004) towards computerisation.

Objective of computerisation

2.2.3 Computerisation was taken up with the following objectives:

- To implement an effective database management system
- To increase efficiency in :
  - sales accounting/analysis of outlets by producing accurate and timely reports on sale and stock ;
  - evaluation of stock by determining its age ; and
  - installing a perfect Management Information System (MIS).

Scope of audit

2.2.4 The audit conducted during February-July 2004 covered the functioning of the Financial Accounting System (FAS) and Sales Accounting System (SAS) at Head Office and two* Regional Offices, Depot Management System in three depots**and Supermarket Billing System in six Super Markets/Labham Markets[*] .

Audit objectives

2.2.5 Information Technology (IT) Audit was taken up to ascertain whether the system was designed to ensure data integrity, reliability of inputs and outputs, IT security and adequacy of controls.

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* Ernakulam and Thiruvananthapuram
** Thrippunithura, Valiathura and Beypore
* Supermarkets at Sadanam Road, Panampally Nagar, East Fort, and Kozhikode
Labham Markets at Peroorkada and Thrippunithura

Audit methodology

2.2.6 Data available in Head Office, Regional Offices, Depots, and Supermarkets were analysed using CAAT@ namely IDEA (Interactive Data Extraction and Analysis).

Audit findings

Audit findings are discussed in the succeeding paragraphs.

General IT Controls

2.2.7 A review of the general IT controls revealed that controls were weak in respect of IT access, software acquisition, development and maintenance. As can be seen from succeeding paragraphs, many controls were either inadequate or non- existent.

Non-achievement of intended IT benefits due to partial computerisation

Only some of the retail outlets and depots have been computerised so far

2.2.8 The Company, initiated steps, in 1987, to computerise sales accounting of all retail outlets and depots, to produce accurate and timely reports on sales and stocks and to introduce scientific inventory management, but the progress of computerisation has been slow. As on 1 January 2004, 33 out of 60 depots, three out of 17 super market godowns, 41 out of 102 Labham markets, nine out of 10 Petrol Bunks and 23 out of 38 Maveli medical stores were still not computerised (August 2005). Moreover computerisation has not so far been extended to any Maveli stores (858) and Sub-depots (10). Thus, due to partial computerisation, the Company could not fully achieve the objective of timely rendition of accounts for efficient management decisions and generation of accurate and timely reports, despite investing Rs 2.65 crore.

Due to partial computerisation the objective of accurate and timely reporting was not achieved

The Management stated (April 2005) that a proposal for strengthening the MIS wing of the Company has been approved by the Board of Directors (November 2004) and 56 Depots would be computerized in the first phase with facility for daily transfer of data to Head office/Regional Office. All Medical stores and Labham Markets would be computerized in the 2nd phase. No time frame has, however, been fixed for the purpose.

Government replied (August 2005) that the Company had to ensure sufficient technical support for the computerisation process, the request for sanctioning support officers for computerisation was being examined and the Company had taken steps to identify its own staff to do system support activities.

Lack of systems development controls

Delay in development of software

Essential modules of software yet to be developed.

2.2.9 Despite having an in-house software development team, all modules of FAS and SAS were yet to be developed. Thus, MIS reports on age-wise analysis of stock of commodities, sales analysis of retail outlets and commodity-wise analysis could not be generated as planned, and hence could

@ Computer Assisted Audit Technique

not facilitate the decision making process. As the Company failed to set up a proper network, the transfer of data from retail outlets to Regional Offices and Head Office needed for timely generation of reports, was affected. A proposal (January 2004) to develop a network through CUSAT* also did not yield results and hence was dropped.

Network connections essential for timely transfer of data to be set up.

The Management stated (April 2005) that steps have been taken to develop software, for web enabled data transfer and that more technical persons would be recruited as System Support officers. The Government also stated (August 2005) that computers had been provided in all 56 depots and the software for inventory maintenance was being implemented and the depots were using the internet facility.

Lack of systems development methodology

2.2.10 Organisations implementing IT Projects should decide upon a standard methodology to design and develop a system. There should be proper documentation on various processes involved in systems development, indicating, *inter alia*, personnel authorised and responsible to manage application development and its implementation. Audit scrutiny revealed that no such documentation existed in the Company. Further, documents such as User Requirement Specification, System Requirement Specification, User Manual and logs of tests made and acceptance of software relating to the FAS and SAS developed in-house were not available with the Company.

Documents such as user requirement specification, user manual, records of testing were not available.

In the absence of the above, Management could not ensure that all requirements have been incorporated in the system developed in-house.

Government stated (August 2005) that these would be taken care of in the software being developed and implemented in depots and in the future software developments.

Instances of deficient system development process reflected in the functioning of the software noticed in audit are discussed in paragraphs 2.2.11 and 2.2.12 *infra.*

Improper design of retail outlets/depots codes.

The Company has not adopted a uniform scientific coding system.

2.2.11 The Company assigned 4-digit codes for outlets/depots, the first digit indicating the region, the second digit indicating the district and the next two digits identifying the outlets under a district. No uniform and scientific system of coding was, however, followed and there was a mix up of numerical codes and alphanumerical codes.

The system at Tea division, however, accepted the first four alphabets of the depot names as depot codes, which were entirely different from the codes adopted for the sales accounting system.

* Cochin University of Science & Technology

The Government stated (August 2005) that the 7-digit outlet code had been introduced in 56 depots and would be incorporated in other outlets, after re-designing/developing the software.

Absence of uniform commodity codes

2.2.12 The commodities dealt with by the Company's outlets are broadly classified as Maveli items* and Non-Maveli items**. The non-Maveli items are procured centrally, regionally or locally. They may include consignment items, which are not taken to stock, but sales are billed.

Common commodity codes were not designed. Commodity code for a particular item varied from outlet to outlet.

As per the system of coding for commodities, Manager of an outlet could allot any code number below '9999' to any item including the consignment items. Thus, there was a mismatch of codes given by various outlets. While the Supermarket at Sadanam Road, Ernakulam classified the commodities into five categories of 65 groups, the Supermarket at Panampally Nagar, Ernakulam had 10 categories of 47 groups. The categorisation and grouping had no basis and there were cases of overlapping/ duplication. The depots and supermarket godowns followed their own system of coding for the commodities.

20 *per cent* of sales escaped commodity – wise accounting

The Regional offices conducted monthly consolidation and annual physical verification of commodities whereby the value of all the items other than Maveli items were consolidated and classified under one code '105-supermarket items'. As the coding for non Maveli commodities was not uniform it led to 20 *per cent* of sales, valuing Rs 497.10 crore out of Rs 2400.40 crore, escaping commodity-wise accounting for the five year period (April 1999-March 2003). The sale of supermarket items escaping commodity-wise accounting during 2003-04 was 33 *per cent* of total sales.

Commodity-wise consolidation of sales and stock not possible

Absence of uniform codes, affected consolidation of the sale and stock of all commodities at Regional/Head Office necessitating re-entry of data at Regional Office. Thus, one of the main advantages of any computerisation project i.e. transparent processing of transactions to serve as an MIS aid to management to effectively monitor procurement, pricing and storing materials, could not be derived by the Company.

Government stated (August 2005) that the 6-digit commodity codes were already in use in 56 depots, and would be introduced in other outlets after re-designing/developing the software.

Lack of segregation of duties and poor access controls in EDP section

Duties of EDP staff are not clearly defined and properly segregated

2.2.13 In any major IT system, the duties of various IT staff are required to be properly defined and segregated, with clear responsibilities. Audit analysis, however, revealed (June 2004) that the IT staff in the Company did not have

* Essential commodities and their product derivatives most of which are procured centrally and marketed in the company's brand.

** All other items such as provisions, stationeries, bakery items, meat product, vegetables, etc well defined job specifications and responsibilities with clear demarcation of duties.

More than one person shared same password

Moreover, in order to control authorised access to data and systems, the duties and responsibility of the users of the system need to be decided by the management, based on which the required modules are provided to the individual users/sections. It was noticed in audit that though user level passwords were provided but these were common for the same group. Thus, the passwords were not unique and were shared by the staff. For example, to access the Financial Accounting module, user name and the password were common for the Finance clerk and the Managers. In effect, the sharing of login ids and passwords defeat the very purpose of control as accountability, confidentiality and integrity of data and programs would be affected. Maintenance of a unique user id and password is required for the purpose of fixing responsibility for unauthorised access to data.

Government stated (August 2005) that once MIS division was adequately strengthened, there would be clear definition of works handled by each staff. It further said that proper password maintenance and back up procedure had to be implemented by unit managers. Frequent changes of staff in each level was a bottleneck in this respect, which would be solved when system support officers were appointed. The reply clearly shows that the Government has not yet grasped the importance of segregation of duties and access controls in an automated system controlling a turnover of more than Rs. 400 crore per year. It is important for the Government to realise that in a computerised system segregation of duties is as important as defining duties and responsibilities in conventional system. As in a manual system it is inconceivable that a clerk will have the same financial powers and responsibilities as a manager, similarly in a computerised system appropriate differentiation has to be enforced albeit by technology enabled methods such as assigning privileges according to the user profile and access controls by passwords, etc.

Absence of Business Continuity Plan

No documented back up procedure

2.2.14 The Company did not have documented procedures, operating manuals and a disaster recovery plan. Though daily backups were reportedly taken, absence of a disaster recovery plan had the risk of potential data loss, with consequent disruption of business, in case of any disaster.

Application controls

2.2.15 Application controls are included in the IT Systems to provide assurance that all transactions are valid, authorised, complete, accurate and properly recorded. Shortcomings in application control noticed during audit are discussed in the succeeding paragraphs.

Deficiencies in Sales Accounting System (SAS)

2.2.16 The system was installed in Regional offices for consolidation of monthly sales at retail outlets, wherein credit sales to schools for noon feeding programmes and to ARDs* were also accounted. The Region-wise data so compiled is consolidated at Head Office using this application. A scrutiny of the application revealed the following:

Discrepancies in accounting short collection/short remittance

2.2.17 The Company's outlets are required to remit the daily sales realization into specified bank account the following day. Any shortage in remittance should be made good against the next remittance. Regional offices also work out independently the reported sales of outlets, based on rates on the day of sale. Any difference between sale value due and sale value actually reported would be shown as short collection.

Short collection of Rs 28.70 crore and short remittance of Rs 21.73 crore not followed up

Substantial difference between short collection and short remittance as per electronic data and accounts

A scrutiny of the database relating to the Regional office, Ernakulam, for 1999-2004 revealed large-scale variation between total sales (Rs 356.98 crore) and total collection (Rs 328.28 crore) as well as between total collection and total remittance (Rs 306.55 crore). The system in the Regional office did not capture the short collection of Rs 28.70 crore and short remittance of Rs 21.73 crore, for appropriate follow up. On this being pointed out, it was stated that the daily shortage in outlet-wise collection was duly accounted in a different table in the database. It was, however, seen that the figures of short collection and short remittance in the said database table had no relation to the corresponding figures derived from the table earlier scrutinized by Audit or for that matter even the trial balance. Against a short collection and short remittance of Rs 28.70 crore and Rs 21.73 crore respectively as on 31 March 2003, the corresponding figures in the trial balance as on 31 March 2003 were only Rs 1.70 lakh and 0.64 lakh respectively.

Cash balances of outlets are negative

Further, cash balance of outlets recorded in the database showed a negative balance of Rs. 35.41 crore as on 31 March 2004, which did not tally with the figures of short collection/remittance in the database. This showed that the logical data flow was not maintained in the system to ensure integrity and reliability of the information processed through the application.

The Management stated (August 2005) that the problem would be addressed in the new software being developed for depots and that the sales accounting system would also become a part of the depot management system.

Absence of provision to adjust physical verification shortages

There is no provision for accounting of shortage in stock

2.2.18 According to the instructions for stores verification, unit managers should declare items as per book stock as on 31 March. The Stock verification officer would verify whether the declared stock and actual stock are the same. Items verified as good stock will be carried over as opening stock as on 1st April. If there is any difference between declared and verified stock, disciplinary action will be taken against the unit manager. There is, however,

* Authorised Ration Dealers

no provision to generate MIS reports relating to outlet-wise shortage in stock, for top management follow up.

For example, the value of stores found short during 2002-03 in Regional Office, Ernakulam was Rs 14 lakh. There was no evidence of any action taken against the officers in-charge of the outlets where shortages had been detected. The system also lacked provision to account for the cost of bad/inferior quantity and the sales realisation.

The Government stated (August 2005) that steps were being taken to develop new integrated software to overcome the deficiencies.

Defects in Supermarket Billing and Stock Accounting System

2.2.19 The system was developed to account for counter-wise collection, sales accounting and stock reports in Super Markets and Labham markets. It also provided for generation of counter-wise sales summary, month-wise collection report, periodical sales report, item-wise invoice details, item-wise indent, stock register, reconciliation of stock and stock valuation report. Audit scrutiny revealed the following deficiencies in the system:

Errors and Omissions in stock records

System stock and physical stock did not tally in 35 *per cent* cases

2.2.20 A test check of the computerised physical verification reports of the super markets at Sadanam Road, Ernakulam; Panampally Nagar, Ernakulam and Indira Gandhi Road, Kozhikode (as on 31 March 2003) revealed that the stock declared by units based on the database was less than the physical stock in 26 *per cent* cases and was more than the physical stock in 39 *per cent* cases. Thus the system did not ensure complete accuracy in inventory management.

Government stated (August 2005) that steps would be taken to address the deficiencies pointed out.

Display of minus balance in stock

Billing error leading to negative stock items

2.2.21 As per the existing billing system, bills are made, without reference to availability of stock notwithstanding any wrong product code, thus resulting in negative stock values. All the items declared as negative stock are treated as excess stock under the presumption that each accumulated negative stock is due to a billing error and compensating excess stock will be available somewhere in the shop. This indicates deficient software development whereby validation checks were not incorporated into the system.

No provision to prevent billing when stock is nil

Thus, the computerised system introduced to ensure accuracy in stores management ended up posing a risk to the operations and was unable to prevent possible covering up of theft, pilferage, inaccuracy and inefficiency, as no steps had been taken to prevent the printing of bills when the quantity as per stock becomes zero. Proper inbuilt controls are needed to prevent generation of bills for an item whose stock is nil.

Government stated (August 2005) that steps would be taken to address these problems.

Deficiencies in the Depot Management System

2.2.22 The system, functioning in 27 of the 60 depots enables recording of commodity transactions and had facilities to account purchase orders, allotment of materials and receipt of materials. It was also capable of generating stock register, daily transaction report, stock-cum-sales return and details of issues to outlets. A test check of the system, at the district depot at Beypore, Kozhikode and Pettah, Thrippunithura revealed the following:

Minus balances in stock due to issue of materials before inspection

* Initially, the materials received in depots were entered in temporary mode, in the system, so that quantity will not be included in the actual stock till the entry is made permanent. Only after inspection and approval by quality control wing, it would be made permanent. The depot stock statement displayed minus stock, as the materials were issued before making a permanent entry. This paved the way for issue of possible sub-standard materials against sale through retail outlets.
* Option for preparation of a category-wise consolidated sales statement for a specified period was not available in the software.
* Materials to Labham Markets and Maveli Stores were door delivered in depot vehicles but no provision existed in the software to generate a vehicle utilisation statement.
* At Head office, due to lack of any module, reconciliation of receipts and issues at the depot was done manually.

Head Office could not assess the commodity-wise stock in Depots.

* As 27 computerised depots were not networked to the Head Office, commodity-wise stock in depots could not be ascertained.

Government stated (August 2005) that the new software being developed would take care of these problems.

Conclusion

The Company started computerisation in 1987 in order to increasing efficiency in sales accounting/analysis of outlets by processing accurate/timely reports on sale and stock, evaluation of stock by determining its age and installing a perfect MIS, but failed to fully achieve its objectives. Despite incurring substantial expenditure, it could computerise only 162 out of 1110 outlets/depots till January 2004. The present system has poor access controls and the database is plagued with inaccuracies. This leaves the system at a risk of being manipulated to cover up theft, pilferage and embezzlement.

In order to monitor speedy movement of commodities in the outlets and to evaluate the age of stock, it is essential to capture commodity-wise stock position in Outlets/Depots and plan procurement and distribution accordingly, but the Company could not ensure development of all modules of the software, networking of the outlets and installation of MIS to facilitate decision making, on the basis of sales analysis and market trends. As a result of non-uniformity in the coding of commodities generation of meaningful MIS reports, even if desired, is not feasible.

Recommendations

* ***The Company should review the status of computerisation and identify priority areas for computerisation. The system of data input, at Regional offices may be strengthened, with proper controls, to collect weekly inputs from other outlets and generate required MIS on sales and stock.***

  The Company may

* ***Set up an IT Steering Committee comprising of process owners, EDP manager and Senior Managers of functional Groups to oversee the implementation of computerisation and to authorize modifications.***
* ***Strengthen EDP wing and adequately segregate the duties of staff with documented procedure for change management.***
* ***Arrange to develop a module to capture required information for monitoring of short collection, short remittance and shortage in stock to minimize the process of manual reconciliation and to reduce business loss.***
* ***Modify the Billing System in Supermarkets to prevent display of negative stock items.***
* ***Develop suitable MIS modules for sales analysis, commodity-wise stock review, reading market trends and forecast price movements.***

Management agreed (April 2005) to consider these suggestions, while developing the new software.