INFORMATION TECHNOLOGY/FINANCE DEPARTMENT

3.5   Integrated Payroll and Personnel Management System

Highlights

Under the Integrated Payroll and Personnel Management System (IPPMS), a centralized database of over 5.25 lakh employees working in the Kerala State Government Service in more than 100 Government departments is to be created by computerizing the entire payroll and personnel information related activities. Though as per the implementation plan, IPPMS was to be rolled out in all departments by April 2007 only 5,997 out of 5.25 lakh employees were brought into the payroll system as of May 2007. Audit of IPPMS revealed various shortfall/deficiencies, viz., absence of specific action plan for digitization of service records of 5.25 lakh employees, absence of network connectivity for linking offices to access the system, discrepancies in employee data due to inadequate validation checks, etc. Some of the important points are given below:

The system was not implemented completely as the intra-state connectivity was lacking and complete data had not been captured.

(Paragraph 3.5.5.1)

Digitisation of employees was not achieved within target period due to poor planning of Government.

(Paragraph 3.5.5.2)

There was no backup policy. Backup of server data, information crucial to employees, was not stored off-site.

(Paragraph 3.5.5.3)

Although Government decided (November 2005) to extend SPARK to other departments, testing and acceptance of the successful completion of the SPARK was not ensured before replication to other departments.

(Paragraph 3.5.5.4)

In the absence of any security policy the system was exposed to the risk of external threats.

(Paragraph 3.5.6)

Deficiencies in the system allowed the possibility of re-processing of passed bills before encashment leading to the risk of double payment.

(Paragraph 3.5.7.1)

Inadequate validation controls in the system affected the reliability of the database and its usefulness for MIS.

(Paragraph 3.5.8)

Salary bills of Self Drawing Officers were not generated through the system.

(Paragraph 3.5.9.3)

Manual processing of part salary bills and arrear bills without updating the system involved the risk of overpayment.

(Paragraph 3.5.9.4)

3.5.1 Introduction

Implementation of the Integrated Payroll and Personnel Management System (IPPMS), subsequently renamed as Services and Payroll Administrative Repository for Kerala (SPARK) was one of the 93 projects approved (November 2003) under the Modernizing Government Programme (MGP) of the Government of Kerala. As per the Detailed Implementation Plan (DIP) for MGP, the project was to be rolled out in all departments by April 2007. SPARK development visualized repositories of Government employee details including service matters, salary accounts and payroll. The database resides in a central server at State Data Centre and individual departments/offices are to access the server through intranet wherever available or else through the Internet. The project is implemented in various departments jointly by the Information Technology Department and the Finance Department through the Kerala State IT Mission (KSITM) with the technical assistance from National Informatics Centre (NIC). The system has SQL Server as back end and ASP.net as front end

3.5.2 Objective of computerisation

The objective is to create an IT enabled, comprehensive and logically centralized Government employee information system to ensure:

(i)   the availability of the required information to the authorities concerned in a pre-defined manner;

(ii) transparency with respect to employee matters, better and planned utilization of human resources, better and prompt services to the employees;

(iii) accurate and automatic payroll processing;

(iv) that the rules and regulations are uniformly applied to all employees thereby avoiding complaints and achieving better employee relations.

3.5.3 Scope, objectives and methodology of audit

Records relating to pilot locations viz., Finance and General Administration departments in Government Secretariat and the Commercial Taxes department; and one[#] out of two schools and one[@] out of five Collectorates were examined by using Computer Assisted Audit Technique (CAAT). Adequacy of general IT controls and application controls and effectiveness of

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[#] Model High School, Thiruvananthapuram
[@] District Collectorate, Thrissur

the system with reference to defined objectives of computerisation was assessed.

3.5.4   Audit criteria

∗   Project Implementation Plan,

∗   User Manuals,

∗   Relevant provisions of Kerala Service Rules and Treasury Rules.

Audit findings

3.5.5   Implementation

The project IPPMS formulated in 2003 was to be operationalised in December 2004, but development of software started with the sanction of funds only in July 2004. Implementation at the selected departments started in March 2005 and Government decided to implement the project in all other departments in November 2005.

Audit observed the following:

3.5.5.1   The system was not implemented completely as the intra-state connectivity was lacking and complete data had not been captured. The facility of online transfer of salary bills to Treasuries for encashment was also not made operational for want of connectivity with treasuries.

Though the digitization of service records was to be completed within one year, only 11 *per cent* of data capture could be completed

3.5.5.2   The project had envisaged complete digitisation of the service records of all 5.25 lakh employees within one year. However, KSITM could arrange to capture data only in respect of 59,489 employees (11 *per cent*) by May 2007, after spending Rs 36.35 lakh (April 2007) which was in excess of the admissible amount as per the norms fixed in project plan by Rs 22.35 lakh.

Salary bills of only 5,997 employees out of 5.25 lakh targeted are generated

Though data had been captured in respect of 59,489 employees by May 2007, salary bills were being generated for only 5,997 employees through the system (May 2007).

Government stated (August 2007) that a rescheduling of target period of March 2007 was considered necessary as (i) data entry of 5.25 lakh employee details was a time consuming process, (ii) connectivity and networking was to be processed in more than 30,000 offices and (iii) it was very difficult to keep a successful schedule of implementation for 30,000 offices. Government also stated that the first phase of KSWAN would be completed by December 2007 and the Departments have been requested to prepare a time-bound implementation plan and a further period of three years would be required to complete the project. This was an indicative of poor planning of the Government.

3.5.5.3   *Business Continuity Planning*

Business Continuity Planning (BCP) is essential to ensure that the organization can prevent disruption of business and resume processing in the event of a total or partial disruption in the information availability.

The user departments do not maintain data backup

There was no backup policy specifying the steps to be followed in the event of a disaster or system failure. It was also observed that online backup of server data was also stored in the same premises. Employee information is a critical data which requires extensive backup and recovery strategies.

Government stated (August 2007) that additional backup in tape and off-site storage at KSITM was also planned and a recovery management plan would be drawn up.

3.5.5.4   *Documentation*

Testing and acceptance of application software, necessary for successful running of system was also envisaged in the Project. Although Government decided (November 2005) to extend SPARK to other departments, testing and acceptance of the successful completion of SPARK was not ensured before replication to other departments. Moreover, failure in testing successful completion of the SPARK was also evident from the fact that features like online acceptance of authorization data from Accountant General's office and the facility to transfer salary bills to treasury in electronic format to facilitate electronic payment were not operationalised pending network connectivity. During March 2007, KSITM decided to conduct black box testing and system audit of SPARK. However, translation of decision into execution was wanting.

Though the Government stated (August 2007) that action had already been taken to conduct the functionality test, operational test, load testing etc and also the facility for data transfer to treasury, the same were not done till October 2007.

3.5.5.5   *Failure to carry out Business Process Re-engineering (BPR)*

An IT project should not only replace a manual system but also bring about increase in efficiency through a process improvement. Government Order (November 2005) stipulated introduction of innovative methods of salary disbursement using facilities of modern techniques. However, no action had been initiated in this regard for want of a comprehensive study.

Government stated (August 2007) that the strategy was to aid manual system, first by automating it to the extent possible and take up BPR later in a phased manner. Audit is of the opinion that such process change should have been considered before implementation and the system designed accordingly.

3.5.6   IT security

In the absence of any defined IT security policy in connection with the implementation of SPARK, the users were not aware of their roles and responsibilities in relation to IT security.

No password policy was framed for the implementation of SPARK

Though access to SPARK was mainly through the Internet, no password policy had been framed for implementation of SPARK. Although it was stated in the user manual (login procedures) that the initial password would confidentially be communicated to each user, it was found that the initial password allotted was encrypted only when the users changed their passwords. As the majority of users had not changed their initial passwords, the passwords were in unencrypted form and thus exposed the system to the external threats. Details of users' access to the System (login time and exit time) were also not stored appropriately.

3.5.7 System deficiencies

3.5.7.1 Failure to protect the bills generated

Bills passed for payment are not marked as final

SPARK was designed to lock the bills automatically on passing the same by the Treasury Officer so as to prevent further changes and to restrict the double payment. In the absence of treasury connectivity, the bills were to be generated under *draft* mode. Once the payment was made by the treasury, these were to be marked as final by DDOs. During comparison of details as per Treasury records and bills available in the System it was found that the bills passed for payment were not marked as final and as a result those bills were cancelled and reprocessed after presentation to treasuries. Such reprocessing could lead to overpayment/short payment. During data analysis by audit, a case was noticed where a bill for Rs 3,90,620 (gross) and Rs 3,07,526 (net) presented to treasury by M Section of GAD on 22 March 2007 (cashed on 30 March 2007) was cancelled and reprocessed on 27 March 2007. As a result the bill particulars in the database stood changed as Rs 4,06,922 (gross) and Rs 3,23,145 (net) which did not reflect the amount cashed at treasury.

Government stated (August 2007) that the concept of draft and final bill had been done away with and the generated bills would be locked on entering the encashment details. This would not solve the problem, as the cancellation might take place even after presentation of the bill to treasury but before encashment. Unless there was a provision to lock the bills on passing the bills by the DDO, such serious lapse would recur.

3.5.7.2 Mismatch of figures in system data & treasury bill book

Net amounts in database did not tally with Treasury bill book in 24 cases

GAD started generating pay bills through SPARK from June 2005. A comparison of the figures in database with treasury bill book revealed that in 24 bills (for February and March 2007), the gross amount as per system did not tally with treasury bill book. The mistake was attributed to the reflection of recovery of festival advance as a deduction in system while in the bill generated it was shown as deduct-expenditure. The purpose of database is defeated as the gross amount of the bill did not reflect the correct position of disbursement. As Sections were not maintaining copy of bills, reasons for variation could not be ascertained.

3.5.7.3   *Inadequacies in the system*

No provision to limit salary claim to the sanctioned strength

The system could not generate the following need based information:

i.   The number of staff for whom salary was drawn in each bill cannot be verified from the System.

ii.   The System lacked control to ensure that salaries for all employees are drawn every month unless withheld.

iii.   There was no provision to limit salary claim to the sanctioned strength

Government stated (August 2007) that necessary provision would be included in the next version.

3.5.8   **Input controls/ Data validations**

The objective of Input control is to ensure that the procedures and controls reasonably guarantee that (i) the data received for processing are genuine, complete, not previously processed, accurate and properly authorised and (ii) data are entered accurately and without duplication. Data validation is a process for checking transaction data for any errors or omissions and to ensure the completeness and correctness of input.

Data analysis revealed that there was no input control and the officers concerned failed to validate data leading to large scale deficiencies in the system affecting its utility as MIS as brought out in the succeeding paragraphs.

Failure to note PEN in SB led to creation of three records in respect of one employee

3.5.8.1   Permanent Employee Number (PEN), a system generated unique identification number, is allotted to an employee. PEN should invariably be noted in the respective SB on completion of data entry of each employee. A cross check of 277 employee data sheets with the Service Books (SBs) concerned revealed that, in 34 cases[*] the PEN was not found noted in the SBs. It was also seen that three records for an employee were created. In six out of 203 data sheets cross checked in GAD, two PENs each were noted in the SBs of employees. The database included at least 373 duplicate records, which made the database unreliable.

Government stated (August 2007) that strict instructions have been given to user Departments to avoid creation of duplicate records.

The duplicate records made the database unreliable

3.5.8.2   Department Management User had the right for editing/deletion of the prime fields of any record. However, the editing of data was done frequently by the users and thus made the data unreliable. Names of father, mother and PEN as per Service Book were different from those as per the database. It was also seen from database that the name against PEN 1,01,757 has been replaced by "ABC" with all other details as that of PEN 1,01,106. Though the SPARK System was designed with provision to disable such

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[*] Nine out of 203 cases in GAD, nine out of 43 in Finance department, 13 out of 13 in Thrissur Collectorate, one out of nine in Model HS and two out of nine in Commercial Taxes department

editing on generation of first pay bill through the System, in the absence of certification of correctness of data entry, further editing of employee data had not been freezed.

Government stated (August 2007) that it is not advisable to stop editing completely as there may be cases where some data has to be changed.

Uncontrolled editing of data affected integrity of the database

3.5.8.3 Under SPARK, employees were grouped by department code, office code and bill code for the generation of pay bills. As the addition of new offices and office codes were not controlled centrally, there were 52 offices with multiple office codes within the same department. Similarly instances had also been noticed, where office codes were wrongly assigned. Government agreed to eliminate multiple/wrong entries (August 2007).

3.5.8.4 Some more inaccuracies in database were noticed in the absence of adequate input controls in the system

* Employee names were entered with upper case, lower case and also started with initials in some cases and end with initials in other cases. Moreover, there were mistakes in data entry in the crucial field of name of employee.

* 'Father's Name' is a crucial field for identifying an employee. But in 10 cases in GAD, three cases in Finance and two cases in Collectorate, Thrissur, father's name was incorrectly entered.

* Date of birth in 10 cases was noted wrongly (2 January 1900 in five cases).

* The database contained 11 records in Collectorate, Thrissur, where date of joining was recorded as 2 January 1900. In 14 records in GAD, five in Finance, two in Model HS and one in Commercial Taxes department, the field 'date of joining service/department' had also been captured incorrectly.

Government (August 2007) issued necessary instructions to the user Departments for careful verification of data.

3.5.8.5 One of the objectives of SPARK is to serve as a service repository for Government of Kerala. This would require that every piece of information relating to each employee of the Government should be available in the database. However, audit scrutiny revealed that there were several mistakes in data entry in the fields relating to service particulars as shown below:

✐ The database contained 5,140 designations in various departments, which included 58 duplicate designations in the same department.

✐ Mistakes were noticed in data entry relating to past services of the employees (five cases in GAD and three cases in Finance department), leave particulars (25 cases in GAD and seven cases in Finance

departments) and surrender of leave (53 cases in GAD and 18 cases in Finance departments).

✐ Similarly, data relating to Leave Without Allowances (LWA), a crucial information for calculation of pay and allowances and qualifying service for pensionery benefits was also found wrong in GAD.

Age on the date of joining was less than 18 years in 177 records

3.5.8.6 The database included 177 records, where age on the date of joining was less than 18 years**.** The age on the date of joining varied between 107 and 56 in 16 cases. In 84 cases date of joining was the same as date of birth. Hence the System could not be relied upon for calculation of qualifying service.

As the System was designed to calculate the date of superannuation (DOS) assuming the age of retirement as 55 and the field *DOS* was made editable, many mistakes in the date of superannuation crept in as under:

(i) In the case of PEN 1,24,712, whose date of birth is 1 February 1972, DOS is entered in SPARK as 28 February 2027, as against 31 January 2027

Date of birth & date of superannuation were same in 32 cases

(ii) In 32 cases, date of birth was same as date of superannuation

In three cases date of superannuation was prior to date of birth

(iii) In three cases date of superannuation was prior to date of birth

(iv) Age on date of superannuation as per the System exceeded 55 in 293 cases, of which 177 employees did not belong to the service category eligible for enhanced age of retirement of 60/70.

Government stated (August 2007) that the required controls would be incorporated in the next version.

3.5.8.7 'Stop salary' option was provided in the System to prevent generation of salary bill through SPARK, in case an employee is transferred to another office, where SPARK was yet to be introduced. 'Retire' option was used to prevent further processing of salary, when an employee retires from service. LWA option was used to restrict salary to duty pay as admissible. It was, however, seen that the users in different departments were using these provision differently as under:

Persons, who are not due to retire are included in the stop salary table

(i) *Stop salary* table contains 1,329 records, where the reasons for stopping salary are recorded as 'transfer', 'inter-dept transfer', 'LPC issued', 'deputation', 'promotion', 'promotion as SO', 'Leave without allowance', 'suspension', 'superannuation' etc. No reasons were recorded in 66 cases.

(ii) *Retirement* table contains only 15 records, though the database included 3,556 employees who had crossed the age of 55.

(iii) A scrutiny of the cases of stop salary due to superannuation revealed that the persons, who were not due to retire were also

included in the stop salary table. For example, PEN 1,03,447 whose date of birth was recorded as 25 May 1975.

Similarly as per *Bill control* table 8,150 out of 10,008 bills generated were cancelled for reprocessing of bills to rectify mistakes. As GAD, which started generating bills through SPARK during June 2005, had cancelled 431 bills for preparing 34 bills during March 2007, it is evident that 81 *per cent* bill cancellation is due to inadequate training.

Government stated (August 2007) that additional training was being planned to address the operational problems.

3.5.8.8   Database contained 47 records of bills with gross amount as zero, while the net amounts were not zero. In four cases gross, deduction and net were zero. Moreover there was no validation control to ensure that gross minus deduction tallies with the net.

Government stated (August 2007) that the record with error was not removed from the system automatically on cancellation. However, the fact remains that the bills were not cancelled bills and the bills for the net amount were seen encashed though the gross amounts were shown as zero.

3.5.9   Other points of interest

3.5.9.1   *Updation of service books (SBs)*

Sanction orders of increments are not noted in the SBs

On commencement of online processing of bills through SPARK, further changes in basic pay by granting of increment were updated by the system automatically on sanction. Though the training manual stipulated simultaneous updating of Service Books (SBs), a cross-check of data sheet with SBs in GAD revealed that the sanction orders of increments were not noted in the SBs. Discontinuance of the manual system without rectifying the mistakes of data entry and without integration of the whole system by testing and acceptance of all modules, involved the risk of rendering the SBs unreliable.

3.5.9.2   *Failure to update pay bill register*

Gross and net amounts of SPARK generated bills did not tally with the figures in pay bill register

A comparison of computer generated bill for the month of April 2007 and pay bill registers revealed that gross and net amounts as per SPARK generated bill did not tally with the corresponding figures in the pay bill register in respect of some of the employees in Collectorate, Thrissur. This showed that the manual bill register also did not indicate the correct amount of bill drawn through SPARK.

3.5.9.3   *Failure to process salary bills of Self Drawing Officers (SDO)*

Only five out of 729 SDOs in GAD are using SPARK for generation of salary bills

SPARK envisaged online updating of employee data relating to SDOs based on authorization issued by Accountant General (AG). SPARK has provision for processing of bills by SDOs by inputting the figures from the pay slip issued by AG. Processing of bills of all SDOs along with establishment bills would mean that Government would be able to monitor the expenditure

incurred by each and every office. However, the number of SDOs processing their bills was found to be negligible. Though there are 729 SDOs in GAD, only five SDOs were using SPARK for generation of salary bill.

Government stated (August 2007) that large number of login ids could be allotted for processing SDO bills only after enhancement of capacity and load testing.

3.5.9.4 Manual processing of part bills & arrear bills

While processing arrear bills manually, none of the users update the relevant fields in SPARK

SPARK has enabled provision for processing of arrear bills, if the amount drawn relating to the period in question is available in the System; otherwise arrear bills are to be prepared manually and the relevant fields in SPARK in respect of the employees concerned are to be updated. It was seen that part salary bills were also prepared manually due to absence of provision to prepare salary in respect of the persons transferred from or joining the office during the middle of a month as one of the office is not online under SPARK. This might lead to overpayment of arrears. 107 Bills in February 2007 and 181 Bills in March 2007, included in treasury bill book of GAD, were not included in the *bill control* table of SPARK These were stated to be part bills and surrender bills. But none of the users updated the relevant fields in SPARK for want of follow up instructions.

Government stated (August 2007) that necessary remedial measures would be incorporated in the BPR already commenced.

3.5.10 Conclusion

Though the project is under implementation for over three years it cannot yet be termed as reliable.

Government stated (August 2007) that the implementation plan and system development were being fine tuned to ensure complete coverage of SPARK by December 2010.

3.5.11 Recommendations

The IT department should

∗ select one or two departments, which have computerised all their offices and connected through WAN and bring all employees including SDOs of the selected departments under SPARK.

∗ take up further replication of the software in other departments only after testing and acceptance of all modules of the System, by adopting approved system methodology and introduction of digital signature for DDOs and SDOs.

∗ consider appropriate BPR to restrict the bill processing through the System upto block level.

∗   amend relevant rules and orders in the Codes and Manuals to facilitate computerized billing and discontinue manual registers other than SB.

Government agreed to adopt the recommendations and stated that the personnel management modules would be tested in two or three departments before State wide roll out and a comprehensive BPR would be proposed based on test experience.