CHAPTER VII: MINISTRY OF SHIPPING

Chennai Port Trust

7.1   Implementation of   Port Operation Management System (POMS) in Chennai Port Trust

> **Though the implementation of POMS was aimed at integrating business processes and exchanging messages with PCS, the system could not achieve the intended objectives in its entirety.   Apart from delayed implementation, there were deficiencies in designing the database and user profiling, thereby rendering the system not completely reliable. The Port did not have an IT Security Policy and had not got the third party audit done of its IT infrastructure. The Port has yet to formulate a Business Continuity Plan.**

7.1.1   Introduction

Chennai Port Trust (Port), functioning under administrative control of Ministry of Shipping (the Ministry) had already computerised many core functions such as Vessel Management, Cargo Management, Railway Management and Billing Management by using modules developed in-house by Information and Communication Technology (ICT) team. In order to develop the comprehensive ICT requirements and to align with Port Community System (PCS) established by Indian Ports Association (IPA), Port intended (2009) to integrate the electronic flow of trade related documents, information and functions.

The Port decided to adopt National Informatics Centre's (NIC) Enterprise Application Software including Port Operation Management System (POMS) developed by NIC which was already in use at Haldia, Kolkata and Ennore Ports. It was also decided that the application software to be developed and customised for Chennai Port shall have joint ownership of NIC and Port. A tripartite Memorandum of Understanding (MoU) was entered by Port, NIC and National Informatics Centre Services Inc. (a subsidiary company of NIC) for implementing POMS with the primary objective of integrating Port's business processes and exchanging of PCS messages between Port and its stakeholders in an effective manner. As per the terms and conditions of MoU:

*   the vessel and cargo operations management systems had to be integrated with PCS with improved functionalities,

*   the system would capture all billable activities of various berths and generate the bills automatically,

*   the scale of rates in Port would be implemented in POMS for all the tariff and billing purposes, and

∗ the system would provide extensive reporting facilities to address the needs of the management.

7.1.2   Port Operation Management System in Chennai Port Trust

As part of development and implementation of POMS, Port had spent an amount of `96.80 lakh. POMS received basic inputs like berthing requests of Shipping Agents, advance paid by agents, Vessel's basic information like IMO number, GRT etc. from PCS. POMS basically is a transaction recording system covering areas such as vessels management, cargo management and stevedoring operations, for facilitating generation of bills and payments to port users etc. The entire workflow of the said departments was not automated in POMS and authentication of transactions was done outside the system. The Port found POMS to be an essential system to take care of the operational activities as well as revenue related functions. POMS has nine modules comprising five functional modules (cargo, revenue, railway, stevedoring and vessel management) and four technical modules (bankadmin, ediadmin, masadmin and pcsadmin).

7.1.3   Audit Findings

Audit observed that there were lapses in implementation of the system, designing the data base, user profiling, mapping of business rules etc. as detailed in the succeeding paragraphs.

7.1.3.1 Absence of IT Security Policy and Business Continuity Plan

As per the guidelines issued (2006) by the Ministry of Electronics and Information Technology, Government organisations should develop IT Security Policy and carry out third party audit of IT infrastructure. It was, however, observed that the Port had not developed an IT Security Policy and not carried our third party audit of IT infrastructure. Audit also noticed that Port was yet to formulate a Business Continuity Plan outlining the action to be taken in the event of a disaster so as to ensure that the information processing capability was restored at the earliest.

The Ministry/Port replied that action has already been initiated for engagement of vendor from empaneled auditors of CERT-In through tender process for framing of IT Policy & IT Security Policy along with conducting third party IT infrastructure audit.

7.1.3.2 Issues in Completion of POMS project

As per MoU, the project was to be completed within one year of signing the MoU (June 2011) which was followed by a warranty period of six months. The project was declared as completed in September 2013 with completion of seven modules on receipt of conditional acceptance by user departments. Further, remaining two modules i.e. Railway and Cargo modules were operationalised from February 2014. First AMC with NIC/NICSI commenced from 1 April 2014 with annual value of `43.46 lakh. Audit observed the following:

∗ All POMS modules were not operational when the project was declared as completed in September 2013.

∗ The acceptance of the user departments was not obtained before declaring the project completed.

∗ All Project deliverables were still not handed over to Port (March 2019).

∗ The free warranty period of six months from the date of completion of the project could not be availed due to belated completion of two modules in February 2014 which subsumed the warranty in the AMC period.

The Ministry/Port accepted that all modules were not operational at the time when it was declared go-live and also accepted that the Technical Architecture, Backup and Archive Documents were not handed over as the entire setup is being maintained by NIC till date. However, it was stated that the user acceptance was not considered since it was a customised product. The reply is not tenable as the Railway and Cargo modules were operationalised only from February 2014 and MoU specifically provided for the user acceptance and handing over of all project deliverables.

7.1.3.3 Design deficiencies in the Database columns

In order to have adequate input controls, each column in the data base structure was designed using specific data type (character, numeric, date etc.), length and nullability. Scrutiny of a table *'Column'* under the *'Information Schema'* of the POMS database revealed the following deficiencies:

∗ The column property of a column i.e. "*is_nullable*" in the data structure defines whether a particular column could be left blank or not. It should be defined either as *'yes'* or *'no'*. However, it was observed that the nullability factor for the same column_name was defined both as 'yes' and 'no' in 3 57 cases including certain critical column names such as cargo code, cargo description, cargo weight, container number, container type, etc.

∗ The column property of a column i.e. "character_max imum_length" defines the maximum length of the character if the data type was defined as character. It was observed that the said parameter was defined differently in 165 unique column names ranging from two to nine value types. The columns with the said deficiencies were created to store critical fields like container type, container number, container code, etc.

∗ The "data_type" column property defines the type of the data to be entered as character, numeric, date etc. It was observed that same column was defined with different data types at 30 instances, one as character and another as numeric.

∗ The data contained in the columns include significant data like container code, container type etc. which has direct linkage with the day to day operations of the Port, data captured through POMS is vulnerable and its reliability could not be ensured. It may also lead to the possibility of wrong/incomplete generation of MIS reports.

∗ It was also observed that the container traffic data as captured in the table voyage_cargo_opn was not matching with the data depicted in the Annual Report

during the period 2014-15 to 2016-17[1]. It was further observed that POMS data was captured based on the provisional data provided by private operators as such the same could not be fully relied upon.

The Ministry/ Port replied that the issues had been taken up with NIC Kolkata.

7.1.3.4 Deficiencies in User Profiling

Effective input controls were essential for POMS which only permitted the authorised users to log in and also provide adequate audit trail. Log register for user profiles with privileges assigned to users was not maintained. Audit reviewed 513 user ids captured in the master table '*mas_user*' under the schema '*masadmin' and observed that:*

∗ The POMS did not have the system to automatically deactivate the inactive users. The events such as resignation, retirement, death, etc. of the users should be captured for instantaneous deactivation of their ids.

∗ The log in time stamp was blank in 50 user codes which indicated that they have never logged in to the system since their creation. Many user codes had not been logged in for more than 6 months and some were logged only once at the time of creation. There were instances in which 25, 56, 64, 54 and 63 user codes had not been logged in the system after 2013, 2014, 2015, 2016 and 2017 (upto September) respectively.

∗ There was log in trails in case of nine user codes after their retirement. Out of these, Audit found two user codes had been used to create 38 and 8 vessel call records respectively. The column 'entry by' was left blank in the case of 88 user codes. As such, the identity of creator of user ids could not be ensured.

∗ An effective password policy to ensure automatic controls in the system was essential for enforcing periodical changes to prevent unauthorised use of the POMS. There were instances in which 399 users had never changed their initial passwords.

∗ On a scrutiny of employee data of marine and traffic departments in comparison with users of POMS created in the system, it was noticed that the user data did not include many senior officials of Port. This indicated that the system was being managed only by middle or lower level officials of Port without the role of senior officials who were expected to authorise/approve the transactions.

The above deficiencies in the user profiling rendered the access controls vulnerable and may result in unauthorised usage of system without any audit trail and lack of robust MIS system.

The Ministry/Port while agreeing to take corrective action has stated that user ids will be created for senior officers.

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[1] *Figures for F.Y. 2017-18 were not available.*

7.1.3.5 Defective Vessel Profiling

Maintaining a complete and updated vessel profiling was essential since it impact on the vessel related charges such as port dues, berth hire, pilotage etc. On a scrutiny of the table '*Voyage*' consisting of 11,604 voyage records under the schema '*vmsadmin*' since the inception of POMS and upto 31 March 2018, Audit observed that:

Gross Registered Tonnage (GRT) was the measure of overall size of a ship and Reduced Gross Registered Tonnage (RGRT) was the measure after excluding the ballast capacity from the GRT. Vessel related charges such as Port dues, Berth hire, Pilotage, etc., are levied as a *per cent* of GRT or RGRT as the case may be. Scrutiny of the data, however, showed that these parameters were incorrectly mapped and there was no automated system to check the data integrity other than manual checking. Instances were found wherein two out of 2,943 vessels were mapped to multiple GRT values.

The Ministry/Port stated that the PCS data for calculation of various port charges was relied and manual correction was done in case of omission of tonnage values.

The reply corroborated the audit observation that the system was not automated to check the Port charges and it necessitated manual intervention.

7.1.3.6 Incorrect reduction of GRT where there is no segregated ballast

The Port dues were collected based on the Gross Registered Tonnage (GRT) of the vessels. As per the approved scale of rates, in the case of oil tankers with segregated ballast, the reduced gross tonnage (RGRT) would be taken to be its gross tonnage for the purpose of levying Port Dues.

It was noticed that the column *sbt_yn* in the table *vessel* had been created to capture the information on whether a particular vessel had separate ballast or not and to record '*yes or no*'. Out of 6,334 records in the table, the column 'sbt_yn' was recorded as 'N' in 2,172 unique records indicating that the ships did not have segregated ballast. On a further scrutiny, it was revealed that RGRT was recorded in 36 out of 2,172 cases under the column 'GRT_red' making them eligible for lower Port Dues. The system did not have adequate controls to prevent such wrong entries.

The Ministry/Port accepted that it was not using the column for recording the separate ballast value and in case if the PCS message carried the same or different value for the Tanker vessels for both GRT and RGRT, the system calculated the charges based on RGRT. Thus the value stored in the 'sbt_yn' did not have any relevance with the calculation of Port Dues. If the vessel was segregated ballast value, then based on the certificate produced by the port user, the RGRT was updated by NIC after receiving the same from the Marine Staff. While raising the final bill, it is ensured manually that RGRT concession is given only to eligible vessels.

The reply is not acceptable since a permanent master data base for vessel profiling with fundamental characteristics of vessels such as GRT/RGRT values, separate ballast, etc. was not maintained to verify the integrity of data flowing from PCS and it necessitated manual intervention.

7.1.3.7 Inadequate profiling of Port users data

As per the customer registration format for the port users, Steamer agents, Clearing and Forwarding agents, Cargo handling agents, etc. were required to register with the Port by furnishing basic details such as address, PAN, contact numbers/email, bank account number, etc. The financial transactions with the parties were being done through bank fund transfers. On a scrutiny of tables under Masadmin, and *Revadmin* schema where the master data of user details were captured, following issues were observed:

* PAN data was not captured in 659 out of 1,128 cases.

* Address of the port users in 379 cases and telephone /fax number and email id in 706 cases were not captured.

The Ministry/Port accepted to update the KYC norms for all the Port users.

7.1.3.8 Deficiencies in mapping Wharfage rate for Crude Oil -CPCL

The wharfage rate applicable for importing crude oil by Chennai Petroleum Corporation Limited (CPCL) through Port was regulated by an MoU entered (May 2003) between them with a validity period of thirty years. As per MoU, the wharfage was to be subjected to annual revision as per the change in All India Consumer Price Index Number for urban non-manual employees for the previous year and the revised rates were to be made effective from first April of every year.

Audit observed that the rate revisions for every year was approved with a delay of two to three months depending on the release of the price index for that year. On a scrutiny of POMS table '*Rev_data_crgwhrf*' under the Schema '*Revadmin*', it was observed that the rate revisions were not effected in POMS with effect from first April and instead the same were effected from the month in which the revised rate was communicated to EDP section. Due to delay in effecting the change in wharfage rates as per the agreement, there was delay in revenue collection and was done manually.

The Ministry/Port admitted that the system did not have the facility for calculation of rates retrospectively in the case of delayed mapping of revised wharfage rates, recovery is done manually.

The Port should make the system robust to take care of business rule and to mitigate manual intervention.

7.1.3.9 Control issues in billing

Billing process for various core operations of the Port namely, marine, cargo, stevedoring etc. is done in the billing module of the POMS. The bills once generated in the system are reflected as 'N' indicating their status as pending. The bills so generated in the system are forwarded for posting into financial accounting. After processing of bills, the status of these bills is converted from 'N' to 'Y' whereby bills are posted and transferred for consideration into accounts. If the bills are cancelled, the status is changed to 'C'.

The billing data were captured in the table *Rev_bill_header,* where the status of final bills were categorised under the column *'Bill_Freeze_YN'* as *'Y','N'* or *'C'* indicating *Bill posted*, *Bill pending* and *Bill cancelled* respectively. In this regard, Audit observed that:

(i)   1,376 records of various departments out of 1,07,688 final/supplementary bills generated during the period since inception of POMS, were not posted in the financial accounting and showing pending.

(ii)   There was delay in posting of bills in the system by bill generating departments of the Port. Instances were also noticed where bills were pending since 2013-14 onwards.

(iii) 168 bills with a total value of `4.37 crore had been cancelled without any reason mentioned under the column 'bill remark' as it was blank.

(iv)   In 1,193 cases the reason given for cancellation was vague without specifying the exact reason which led to cancellation of the bills. There was no inbuilt system for coding the reasons for cancelling the bills with reference to parameters/elements of billing in terms of quantity, party to be billed, rate applied, etc. so as to give proper audit trail.

The Ministry/Port replied that they were collecting revenue through EDI and non-EDI mode and agreed to take action to bill on regular basis and posting of bills. Further, the Ministry/Port admitted the deficiency in the system of cancellation of bills and assured to include the valid reasons.

Accounting of revenue was impacted due to pendency in bill clearance through POMS. As revenue was automatically collected once bill had been generated the accounting of revenue should also have been concurrent. The system should have had adequate controls to ensure that the bills were posted immediately to reflect the correct financial position and to ensure that the cancellation of bills was taking place in a controlled environment with proper authenticity.

7.1.3.10   Non-capture of business rules for Main-line container concession

As part of marketing initiatives, Port had been extending concessions in vessel related charges (port dues, berth hire, pilotage, etc.) and wharfage to mainline container/cargo vessels since 2013.

Audit noticed that the calculation for these concessions was being done manually outside the purview of the POMS even though the parameters for arriving at the amount of concession such as Gross Registered Tonnage of the vessel, number of voyage, etc., exists in POMS. These concessions were finally paid to the parties in the form of refunds.

On a scrutiny of the table *'refund_note'* it was noticed that refunds to the tune of `112 crore were made through manual intervention for the period upto 31 March 2018.

The Ministry/Port while accepting the audit observation stated that action has been taken to give the concession in the Marine Final Bills through POMS.

The fact, however, remained that concession on vessel related charges had a direct impact on the revenue of the Port and should have been automated at the time of implementation of POMS by linking it to unique id of the vessel/voyage to ensure foolproof and transparent mechanism for extending concession.

7.1.4 Conclusion

Though the implementation of POMS was aimed at integrating business processes and exchanging messages with PCS, the system could not achieve the intended objectives in its entirety. Apart from delayed implementation, there were deficiencies in designing the database and user profiling, thereby rendering the system not completely reliable.

The Port did not have an IT Security Policy and had not got the third party audit done of its IT infrastructure. Port has yet to formulate a Business Continuity Plan.

7.1.5 Recommendations

∗ The Port should develop and maintain IT Policy and IT Security Policy.

∗ Data base structuring should be made robust to maintain its uniqueness. Adequate access controls should be established by framing effective user management and password policy.

∗ Master data base for vessel and Port user profile should be created with periodical updation to verify the data received through PCS.

∗ Full-fledged automation should be brought in billing of all operational activities by eliminating manual intervention. Business rules for container vessel concessions should be mapped into the system.

Visakhapatnam Port Trust

7.2 Non-recovery of liquidated damages from concessionaires for under-performance

> **Visakhapatnam Port Trust failed to evaluate the performance of projects awarded to three concessionaires and also did not compute the liquidated damages for shortfalls in achievement of Performance Standards, in line with the provisions of the Model Concession Agreement. Consequently, liquidated damages to the tune of `25.30 crore were pending for recovery from the concessionaires.**

Visakhapatnam Port Trust (VPT) entered into (June 2010 to August 2010) concession agreements with three private parties (concessionaires) for development of cargo berths at Visakhapatnam Port on Design, Build, Finance, Operate and Transfer (DBFOT) basis, as per the details given in Table 7.1: