

**MUNICIPAL ADMINISTRATION AND
WATER SUPPLY DEPARTMENT**

**CHENNAI METROPOLITAN WATER SUPPLY AND
SEWERAGE BOARD**

**1.4 Computerisation in Chennai Metropolitan Water
Supply and Sewerage Board**

Highlights

The Chennai Metropolitan Water Supply and Sewerage Board, whose activities were already computerised, launched an Enterprise Resource Planning System to integrate all its functions. The Enterprise Resource Planning system was implemented in April 2004 at a total cost of ₹9.63 crore. Due to inadequate planning, the 'New Connection System' was left out of the scope of the Enterprise Resource Planning and the on-line Complaints Monitoring System remained non-functional. Implementation of Enterprise Resource Planning was incomplete as Final Accounts of the Board, was continued to be compiled through the earlier Unix/Cobol system. Neither was the Inventory management system fully taken over by the Enterprise Resource Planning System. Thus, the investment on Enterprise Resource Planning was yet to yield the desired results even after 5 years. In Billing and Collection system, short assessments and losses to the tune of ₹42.69 crore persisted, despite an audit exercise in 2003 pointing out similar deficiencies which yielded ₹22.95 crore to the Board.

- Registering of 'New Water Connections' was not done through the Enterprise Resource Planning and 'Complaints Monitoring System' was not made online due to deficient planning.

(Paragraphs 1.4.7.1 and 1.4.7.2)

- Even after five years since the implementation of Enterprise Resource Planning, the accounts of the Board were not compiled through the Enterprise Resource Planning and manual dependence continued in respect of inventory accounting and collection accounting.

(Paragraph 1.4.8)

- Incorrect classification of 7,222 properties resulted in short assessment of water charges to the tune of ₹7.67 crore.

(Paragraph 1.4.9.3)

- **Non-collection of water tax in respect of 3,539 properties paying water charges resulted in loss of revenue to the tune of ₹ 1.20 crore.**

(Paragraph 1.4.9.4)

- **Adoption of lower annual value (AV) in respect of 7,722 properties for computing water tax resulted in a loss of ₹ 8.84 crore.**

(Paragraph 1.4.9.5)

- **Non-updation of 13,017 live properties in Board's database resulted in non-raising of taxes to the tune of ₹ 21.35 crore.**

(Paragraph 1.4.9.6)

- **Non-raising of continual demands for metered connections resulted in a loss of ₹ 1.11 crore.**

(Paragraphs 1.4.9.7(a) and (c))

- **Data in 'Complaint monitoring system' lacked integrity and reliability as number of complaints were indicated as cleared within seconds and within 5 minutes of their registration.**

(Paragraph 1.4.10.3)

1.4.1 Introduction

The Chennai Metropolitan Water Supply and Sewerage Board (Board), created by an Act of the State Legislature in July 1978, caters to water supply and sewerage requirement of about 6.51 lakh properties in Chennai metropolitan area and parts of Ambattur Municipality. The main sources of revenue for the Board were water tax and water charges. Water tax, at 7 *per cent* of its Annual Value as fixed by the Chennai Municipal Corporation (CMC) was collected from all the properties under the Board's jurisdiction. Water charges were collected only from such properties that were provided with a water connection, at different rates for domestic and non-domestic consumers.

1.4.2 Organisational Structure

The Board is headed by a Chairman supported by a Managing Director and a team of four Directors and other technical and administrative officials. For administrative purpose, the jurisdiction of the Board is split into 10 Areas each headed by an Area Engineer. The 'areas' are further sub-divided into divisions, each headed by a Depot Engineer.

1.4.3 The Computerisation

Computerisation in the Board started in 1986 and the functional and administrative activities of the Board were carried out using stand-alone

Unix/Cobol systems. These activities were to be integrated through an ERP (Enterprise Resource Planning) system procured from M/s. Oracle Corporation and implemented through M/s. Tata Consultancy Services (TCS). The process commenced with a pilot study conducted during March 2003 and October 2004 and was rolled out in February 2007 after providing necessary infrastructure and connectivity. The ERP system works on a wide area network (WAN) connecting Headquarters Office with all its 161 depots and 10 Area offices, through Fibre Optic/Copper Cables and Wireless links⁴⁴. The entire data was stored in a set of central servers placed at the Headquarters office. The computerised activities include 'Billing and Collection', 'Material Management', 'Complaints Monitoring', 'Payroll', 'Provident Fund', 'Pensions' and 'Financial Accounting'.

The objective of the Board was to integrate its stand-alone applications through an appropriate ERP system. An ERP system was contemplated as it would purportedly help in minimizing development and implementation time, cost and risk and also reduce the support load on internal staff.

1.4.4 Audit Objectives

The objectives of the Information Systems (IS) Review were to examine whether

- implementation of the ERP offered an integrated online computer system as contemplated, encompassing all major functions of the Board;
- implementation of the ERP had improved communication and interaction with public and stake- holders;
- implementation of the ERP had reduced duplication of work and streamlined the functioning of the Board;
- the demands raised towards water taxes were correct and based on the prevailing Annual Value of the property;
- the demands raised towards water charges were based on the actual classification⁴⁵ of the property;
- all taxable properties under the jurisdiction of the Board were covered in the tax net;
- the online complaints monitoring system worked satisfactorily and
- the observations and deficiencies pointed out in the last review were duly addressed in the ERP.

⁴⁴ Area Offices were linked to Head Office through parallel 2-Mbps Optic Fibre connections provided by BSNL and VSNL. Similarly Depots were linked to respective Area Offices through a 64-Kbps managed leased line of BSNL and a parallel 64-Kbps wireless link by M/s. Tulip

⁴⁵ Domestic/Residential, Commercial, Partly Commercial, Institutional and Municipal Bulk Supply

1.4.5 Audit Criteria

The criteria of audit included

- The Chennai Metropolitan Water Supply and Sewerage (CMWSS) Act, 1978;
- Projected objectives of the ERP System;
- Data relating to Annual Values and classification of properties obtained from the Chennai Municipal Corporation(CMC);
- Certified Final Accounts of the Board and
- Earlier Information Technology Audit on Computerised Billing and Collection in the Board brought out in the Report of the Comptroller and Auditor General of India for the year ending March 2005 – Civil – Government of Tamil Nadu.

1.4.6 Audit Coverage and Methodology

The review commenced with an entry conference on 11th February 2010 followed by an in-depth examination of major activities *viz.*, Billing and Collection, Inventory Management and Complaints Monitoring. Other functions like Pay roll, GPF, Pensions and Financial Accounting were also examined. In respect of these items, data available in the ERP system (January 2007 to December 2009) were also examined. As water tax was quantified using the Annual Value (AV) of properties as assessed by CMC, data obtained by Audit from CMC, was used to cross verify the correctness of the Water Tax calculated by the Board with reference to the 15-digit identification codes of properties (CMC Number) which were common for both institutions.

As the bulk of the infrastructural facility was in the head office and data was centrally stored and the entire decision making and monitoring activity rested with that office, most of the review activity was carried out from that office. As inputs for the major systems emanated from the level of the Depots and Area Offices, three out of the eleven Area Offices and the depots under their control were visited. The Main Stores was also visited for first-hand information of their activity and procedures. Audit concluded with an exit conference on 13th May 2010.

Audit Observations

1.4.7 Planning

1.4.7.1 ‘New Water Connection’ not included in ERP

One major activity of the Board, namely provision of new water connections was kept out of the ERP and was functioning as a stand-alone system. The billing was done through the ERP system.

(a) Of the 20,045 new water connections given during April 2005 to September 2009, which according to the Board's 'New Water Connection' system belong to commercial category, water charges for 237 connections were assessed at domestic rates, resulting in short collection of ₹ 8.96 lakh. This was a result of feeding incorrect classification in to the ERP System for billing purposes. This could have been avoided, if the new connection system was made part of the ERP system where such repeated data entry of the classification would not have arisen.

(b) Information on 18,568 properties for which new water connections were given was fed into the ERP Billing and Collection system after a delay ranging from 1 to 239 months. Delay in updating such information led to belated raising of demands and resulted in a notional irrecoverable loss of interest⁴⁶ of ₹ 97.56 lakh.

The Board replied (June 2010) that efforts were underway to have the new connection system linked with the ERP and in future there would be no delay in raising demands for new connections. Board also replied (June 2010) that action had been taken to revise these incorrect assessments.

1.4.7.2 Complaints monitoring System

The Board was unable to put to use the envisaged complaints monitoring system, due to inadequate manpower. Though the investment on hardware and software for the complaints monitoring system was in the order of ₹ 1.12 crore⁴⁷, commensurate human resource for manning the same was not considered at the planning stage. Poor planning resulted in non-achievement of the objectives of on-line complaints monitoring system, besides non utilisation of installed infrastructure and recurring expenditure on their maintenance.

1.4.8 Implementation of the ERP system

The Board went in for an ERP to bring about a complete integration of all its functions and to implement the same in a short time. However, even after a pilot study of 18 months and regular operation for three years it had not achieved optimum functioning (June 2010) as brought out in the following paragraphs.

1.4.8.1 Compilation of accounts not done through ERP

The Accounting function was at the core of the ERP system with outputs from other processes designed to flow into it, online. In spite of the system being in operation for more than five years, final accounts of the Board were yet to be compiled through the ERP. Inputs from all related modules of ERP system are fed manually into the legacy Unix/Cobol system and the accounts were prepared.

⁴⁶ Notional interest for this review is calculated at 15 *per cent*, the rate at which the Board collects surcharge for belated payments of taxes and charges.

⁴⁷ Cost of computer (₹ 25,500), Citrix Server license (₹ 15,427), Oracle license (₹ 28,901) each, for 161 Depot offices

The balances in respect of a large number of account codes differed between the Unix/Cobol system and the ERP system resulting in disagreement in figures from the Trial Balance stage itself. The Board hence opted to continue with the Unix/Cobol system for compilation of its final accounts.

The Board replied (June 2010) that final accounts will be compiled through the ERP system from the year ending 31 March 2011.

1.4.8.2 Parallel Accounting of Inventory

The ERP inventory system was operational in the Main Stores of the Board, however, for purposes of maintenance of stock and accounting thereof, a parallel manual record was relied upon. The print-outs generated from the ERP system were modified with regard to rate and quantity based on the manual records. These modified figures were then fed to the legacy Unix/Cobol system and forwarded to the accounts wing for compilation. The ERP system was deficient to this extent and was not relied upon.

1.4.8.3 Collections details and Final Accounts

Errors in data entry resulted in incorrect figures in final accounts amounting to ₹ 18.73 lakh

All Billing and Collection transactions were carried out on-line and related data was stored in the ERP system. Thereafter, the reports generated by the ERP system were re-fed in to the Unix/Cobol system for compilation of final accounts. The figures printed in final accounts, however, differed with the figures in the ERP system by ₹ 18.73 lakh.

The Board in its reply (June 2010) attributed the differences to data entry errors in posting of data from the ERP system to the Unix system and that they proposed to switch over to the accounting function of the ERP system from the year 2010-11.

1.4.9 Billing and Collection

The Board collected water tax from all properties in Chennai at 7 per cent of their AV per year and water charges from properties which are connected with water lines based on its classification. For this purpose AV of properties is obtained from the CMC. Audit observed short assessments and other deficiencies relating to raising of water tax and charges, as brought out hereunder. The discrepancies pointed out in paragraphs 1.4.9.2, 1.4.9.3, 1.4.9.5 and 1.4.9.6 were also pointed out in earlier review and the Board continued to depend on the system with such discrepancies.

1.4.9.1 Continued billing using temporary numbers – Non updation of data from CMC

Whenever a new water connection was given to a property, yet to be assessed by CMC, a temporary number was assigned by Board for identification, based on which water charges were being collected till the property was regularly assessed and a permanent consumer number was assigned by the CMC. Due to absence of control to ensure that AVs of all assessed properties were duly obtained and incorporated in the Board's data and tax was duly collected,

charges alone were collected, in respect of 1,211 properties⁴⁸ through such temporary numbers, for more than one year. These included cases that were already assessed by CMC and regular consumer numbers were already assigned. The Board replied (June 2010) that 609 cases were updated after verification with CMC and the remaining cases were being verified. The Board has also stated that in future temporary numbers would be cancelled as and when CMC regularly assessed the properties.

1.4.9.2 Multiple records for the same property – undue boosting of assets of the Board

More than 1800 instances of multiple entries were made for the same property resulting in boosting up of the assets of the Board.

Due to lack of input controls in the application software, in more than 1,800 instances the same property was assigned more than one CMC number indicating multiple data entries in the system. The related consumers were paying their dues through one of these numbers thus ignoring the dues under the other. The dues shown as outstanding against the other left out assessments unduly boosted the assets of the Board. In response to a similar observation in the last review the Board stated (June 2004) that 1,113 such duplicate assessments were eliminated. The Board promised (May 2010) corrective action in consultation with CMC.

1.4.9.3 Incorrect classification of property - short assessment of ₹ 7.67 crore

Short raising of demands at domestic rates amounting to ₹ 7.67 crore in respect of 7, 222 commercial properties

Water charges are lower for domestic properties and higher for commercial and industrial properties. Though data on usage was available with the CMC, the Board adopted its own methodology for assessing the same. A comparison of usage as per ERP system with that of CMC revealed that in respect of 7,222 properties of commercial/industrial nature, water charges were demanded at domestic rates by the Board. This led to a short assessment of ₹ 7.67 crore.

In a similar exercise during the last review, audit had pointed out short assessments aggregating ₹ 1.30 crore relating to properties in Corporation Areas 5 and 7. Subsequently, the Board had raised revised demands aggregating ₹ 5.47 crore from all the ten areas under the Board's jurisdiction. However, the present state of affairs indicated that no tangible efforts had been taken to correct the discrepancies in the system. Also the possibility of deliberate wrong classification of the properties with *malafide* intention could not be ruled out. The Board replied (May 2010) that they would take appropriate action in consultation with CMC and by inspecting the related properties.

⁴⁸ More than 1 year – 112 properties; More than 2 years - 153 properties; More than 3 years - 946 properties

1.4.9.4 Non-collection of water tax due from regular assesseees paying water charges

Non-raising of Water Tax in respect of 3,539 properties - short collection of ₹ 1.20 crore

There were 3,539 properties holding regular consumer numbers in respect of which only water charges were collected but no water taxes. These properties even not exempted from payment of water tax. The total short collection from these properties spread across a period of six half-years (January 2007 to September 2009) was ₹ 1.20 crore. The Board in the exit conference (June 2010) promised to take corrective action.

1.4.9.5 Short assessment of water tax due to incorrect adoption of Annual value – ₹ 8.84 crore

Adoption of lesser AV than that prevailing in the Civic bodies resulted in short assessment of tax amounting to ₹ 8.84 crore

In respect of all new properties and those which underwent a revision of its AV, the Board obtained data from the CMC on a bi-monthly basis. Based on such data, the AVs of the related properties in the Board's database were updated. Despite such arrangement, analysis revealed that in respect of 6,160 properties the AVs adopted in the Board's data were found lesser than the AVs as per CMC data. This resulted in short assessment of water tax to the tune of ₹ 8.58 crore. On a similar analogy, the short assessments in respect of consumers in Ambattur Municipality, was ₹ 26.37 lakh relating to 1,562 properties.

It is stated that such short assessments were due to lack of controls to ensure complete and updated data transfer from CMC to Board and that all the updates were given due effect to in the Board's data. Similar audit observations raised during last review resulted in additional revenue to the Board to the tune of ₹ 13.90 crore, despite which, the lacuna in the system had not been addressed.

The Board accepted the facts and agreed (May 2010) to take corrective action. It has also raised the revised demands for ₹ 21.68 lakh (June 2010) in respect of properties under Ambattur Municipality.

1.4.9.6 Incomplete data transfer of Live properties in the CMC data to the tax net of the Board - short assessment of ₹ 22.88 crore

13,017 properties were not brought under the tax net of the Board, resulting in short assessment of ₹ 21.35 crore

It is imperative that that all properties that are live in the data of CMC have to pay water tax also. However, there were 13,017 properties which were live in the records of CMC but did not figure in the records of the Board. As per the records of the CMC these properties came into existence from dates ranging between one and 11 years earlier to the period of audit. Non-raising of tax demands for these properties resulted in a short assessment of ₹ 21.35 crore. Similar short assessment in respect of the Ambattur municipality was in the order of ₹ 1.53 crore involving 8,827 properties. This indicated deficiencies in the existing internal control for ensuring completeness in transfer of data from CMC. A similar observation raised in the earlier review report yielded ₹ 2.91 crore to the Board. However no sustainable action has been taken to

ensure that all live properties are brought under the tax net of the Board. The Board in the exit conference (June 2010) promised corrective action.

1.4.9.7 Non-raising of demands in respect of Metered connections

The Board has 17,864 metered connections for which demands for water charges were to be raised monthly based on meter readings. Data analysis showed that

- (a) in respect of 1,319 new metered connections, even after lapse of two months to four years from the date of connection, Board has not started raising demands for charges, resulting in loss⁴⁹ of ₹ 85.45 lakh;
- (b) in respect of another 974 connections, demands were raised belatedly resulting in a notional loss on account of interest of ₹ 8.91 lakh for the intervening period and
- (c) in respect of 1,344 connections, though the demands were raised, they were not continuous and no demands were raised for several intervening months. This resulted in a loss ₹ 25.05 lakh.

It is stated that non-integration of the 'new connection' system with the ERP system has resulted in such losses. The Board replied (May 2010) that they would take steps to ensure monthly readings were taken and billed.

1.4.9.8 Mismatch of consumer numbers between the CMC and the Board

Non-revision of water tax in 6,355 properties - loss of revenue of ₹ 82.49 lakh

The Board adopted the CMC number as their consumer number for their assessment. However, data analysis showed that there were several live assessees in the Board's database who could not be directly linked to the CMC's database through their consumer number as their consumer numbers adopted in Board's data were different with the CMC data. As a result, updates of AVs relating to these properties could not flow to the Board's data with the existing arrangement. Of these, 6,355 properties did not suffer even the minimum 20 *per cent* upward revision of water tax that was due from second half year of 1998-99⁵⁰ resulting in a loss of revenue of ₹ 82.49 lakh. In its reply (May 2010) the Board accepted the possibility of variation between their codes and that of the CMC and promised corrective action.

1.4.9.9 Delay in raising of demands for water tax for new properties

Delayed raising of demands for water tax resulted in loss of interest of ₹ 89.38 lakh

Though the CMWSS Act, 1978 provided for the obtaining of AVs from the CMC till such time the Board was able to assess the AVs by itself, this procedure was continued indefinitely. Thus, any delay in assessment of properties by the CMC or a delay on the Board's part in obtaining the information resulted in a corresponding delay in raising demands for water tax

⁴⁹ In the absence of actual readings, the losses have been calculated based on the minimum charges applicable for metered connections in respective categories.

⁵⁰ From October 1998 the AV of all properties in Chennai city were increased, the minimum of which was 20 *per cent*.

for new properties. In respect of 96 *per cent* of new properties inducted from April 2007, demands were raised belatedly resulting in a notional loss of interest of ₹ 89.38 lakh to the Board. The Board in their reply (June 2010) stated that the procedure of obtaining AV from the CMC was being streamlined to cut down delays.

1.4.10 Complaints monitoring – Ineffective automation

The ERP system envisaged the implementation of an online Complaints Monitoring System (CMS) wherein all complaints received were to be recorded in real time, capturing the time of registration from the system. Based on this time, deadlines were fixed in the system for resolving the complaints. The system would escalate the complaints to higher authorities if the complaints were not resolved by the fixed deadlines. However, data analysis of the complaints registered and details of their further processing showed that the system was not functioning on line as envisaged, as brought out in the following paragraphs.

1.4.10.1 Functioning of Complaints Monitoring System

Complaints monitoring is not online thus not serving the purpose to the Board as well as the general public

All complaints received were initially recorded in manual registers and then fed to the computer system with delays ranging between a day and a month. Such delayed entry generated a set of irrelevant deadlines/dates for resolving the complaints and escalating the unresolved complaints to higher authority. It was noticed that the system was working on a batch process. As a result, complaint numbers were not given to the complainants and job slips were not generated for the field staff, as envisaged. The system did not yield any additional benefit over and above the existing manual system either to the Board or to the general public. The Board in its reply (April 2010) accepted the facts and promised to make the complaints monitoring system on-line.

1.4.10.2 CMC numbers not captured - no useful MIS information possible

The system was designed to capture of the CMC number in respect of each complaint but its capture was made optional. Neither the consumers nor the Board's officials were advised to furnish/obtain the CMC numbers citing public inconvenience. As a result, the CMC numbers were not captured in respect of 95 *per cent* of the complaints. This resulted in the complainants remaining un-identifiable with their complaints purported to have been received from 'General Public'. Data analysis of complaints showed that though 1,46,566 numbers of complaints registered related to sewerage block within individual properties, the same were registered as those received from general public. Thus such complaints could not be tracked to the respective complainants/properties and remained un-identifiable for follow up activities. Even duplicate complaints involving the same properties could not be tracked. The Board in their reply (April 2010) stated that action would be taken to get the CMC number from the complainants.

1.4.10.3 Data captured lacked integrity

The complaints data contained erroneous and redundant information and lacked integrity

The CMS database lacked integrity as 4,07,239 records captured under it contained erroneous, misleading and redundant information as detailed below.

The time of registration and the time of clearance of the complaints did not reflect the actual time of these events as 25,808 complaints were stated to be cleared within seconds of their registration. Similarly 58,134 complaints were cleared in 1 to 5 minutes of their registration indicating absence of online system.

- 2,363 complaints remained outstanding for periods between 1 and 24 months of their registration as the fact of their clearance was not updated in the system.
- Complaints were to be classified as 'very urgent', 'urgent' and 'not very urgent' at the time of their registration and based on this categorisation the system fixed the target time for resolving the complaint. However, all the complaints were categorised as 'urgent' as a matter of routine, defeating the purpose of its capture.
- As all complaints were registered by the employees of the Board, the provision to enter the source as 'employee' in all the records which was redundant could be done away with.
- It was indicated that all the complaints received were through telephone only though the complaints were also being received through, e-mail and also in person.

The Board in general acknowledged (April 2010) all the above deficiencies and promised corrective action.

1.4.11 Inventory Management system

The inventory management system - which catered to stock valued at ₹ 12 crore and was part of the ERP system since 2004. The deficiencies in the system were as brought out.

1.4.11.1 Differences in stock value

On a test check of one month's ERP data of the inventory system with the manual ledgers maintained in the stores, differences amounting to ₹ 23,64,141 in ground stock in respect of 16 items were noticed. The Board accepted (May 2010) the difference attributing the same to wrong data entry and promised rectification action.

Further, in respect of all the 12 storage depots, the value of stock as per the basic records in the ERP system did not agree with the value of stock projected in final accounts. While the value of inventory in the ERP system was ₹ 13.09 crore, the same was projected as ₹ 12.51 crore in the Balance Sheet. Since the figures in the Balance Sheet are duly certified by the Board, it was apparent that the data in the ERP system was not dependable. The Board replied (June 2010) that steps would be taken to set right the discrepancies.

1.4.11.2 Valuation of Stock

(i) The ERP system calculated the value of stock items to 6 decimal places of a rupee from which it computed the value of issues. However, in the manual records the rates were calculated manually adopting 2 decimal places and the same has been adopted in financial accounts by the Board. The Board in their reply (May 2010) accepted the facts and stated that they would follow the values as provided for by the ERP system in future.

(ii) The software lacked a provision for accounting transfer of an item of stock between sections/wings. Scrapped items were also not accounted in the inventory management system for want of a separate coding system. The Board replied (May 2010) that they would suitably modify the system.

1.4.12 GPF accounting system

1.4.12.1 Interest on GPF Subscriptions

Rules for calculation of interest on GPF subscriptions not mapped correctly in the system

GPF Accounts of staff and workers of the Board are maintained as per the GPF (Tamil Nadu) Rules. Rule 13(3) thereof states that, where there has been a delay in the drawal of pay of a subscriber and consequently in the recovery of his subscription, the interest thereon shall be payable from the month in which the pay of the subscriber was due, irrespective of its day of drawal. However, the system, allowed interest on these subscriptions only from the month in which they were recovered resulting in loss of interest for the intervening period to 44 subscribers who had drawn their salaries in subsequent months. The Board replied (June 2010) that the software would be suitably modified after verifying the rule position.

1.4.12.2 Deficiency in GPF Account Slips

The GPF accounting system had a provision in the data entry screens for nullifying any excess posting of credits/debits by posting compensating figures. This resulted in modifying the annual account slips and exhibiting a set of misleading figures therein. The Board, in reply (May 2010), accepted the flaws in the data entry form/ GPF slip print out and stated (June 2010) that the program will be corrected to print GPF Account Slips without any discrepancies.

1.4.13 Conclusion

The Board, whose major activities were already computerised, introduced (April 2004) an ERP System to integrate all its activities after a pilot study. Due to inadequate planning and poor implementation the ERP system was not fully functional (June 2010).

- The core of the ERP system viz., Financial Accounts, was not functional.
- Online complaints monitoring system with an elaborate infrastructure did not achieve intended objectives.
- Maintaining inventory on three parallel systems, viz., ERP, Unix/Cobol and a manual system resulted in inconsistencies across the systems.

The investment of ₹ 9.63 crore on the ERP system in addition to annual recurring expenditure of ₹ 0.98 crore on maintenance of hardware, software and network connectivity did not yield desired results and the Board continued to suffer losses aggregating to ₹ 42.69 crore on account of short/delayed raising of demands on water taxes/charges due to input/output control deficiencies.

1.4.14 Recommendations

To set right the deficiencies observed and to avoid recurring losses the Board should

- ensure on-line preparation of final accounts through the ERP by integrating all other modules including inventory management;
- make complaints monitoring on-line by capture of data in real time so as to benefit the stakeholders;
- devise a mechanism possibly through a network interface ensuring quick, complete and regular transfer of data from CMC and Ambattur Municipality to avoid delay in collection and arrest leakage of revenue and
- make good the losses and short-assessments pointed out by audit and identify similar deficiencies across the Board and take necessary correction in the system so as to avoid continuance of such deficiencies in future.