

CHAPTER II

PERFORMANCE AUDIT

MUNICIPAL ADMINISTRATION AND WATER SUPPLY DEPARTMENT

2.1 Information Systems Audit on Computerised activities of five Municipal Corporations

Executive Summary

Computerisation in five Municipal Corporations that took place in 2005 was incomplete even after eight years of its implementation and after incurring an expenditure of ₹ 3.74 crore during 2008-13. Application software implemented in the Corporations suffered from weak process controls resulting in lack of data integrity. This has also led to generation of inaccurate demands under Property Tax, Water Tax, Under Ground Drainage charges and Vacant Land Tax resulting in loss of revenue of ₹ 62.73 crore to the Corporations. The Profession Tax Assessment data were incomplete because of which the Corporations could not raise periodical demand against organisations and were forced to accept payment made by the Profession Tax assessees. Discrepancies and errors were noticed in the Birth and Death registration database in all five Corporations. The State Government failed to appoint permanent IT personnel in the five Corporations to man the computerised activities as planned due to which the Server/database administration/networking etc., is administered by Junior Assistants who were not designated as Database Administrator in three Corporations and by outsourced firms in two other Corporations. Control over the process of general revision of Property Tax needed improvement. Control over assessment of Profession Tax and monitoring of the discrepancies in capture of data in the system with manual records under birth/death registration needed reinforcement. The online payment facility which was initially commenced was discontinued in four out of five Corporations, rendering the objective of e-Governance largely unachieved.

2.1.1 Introduction

Major functional areas of Urban Local Bodies (ULBs) in the State are Birth and Death Registration, collection of Property Tax (PT)/Vacant Land Tax (VLT), Water Tax, Profession Tax and Underground Drainage charges and grant of building plan approval. Government of Tamil Nadu (GoTN) introduced (2002) e-Governance initiatives in all ULBs to provide online citizen services, information to all hierarchies, ensure transparency, accountability and quickness, provide a dynamic website to enable the citizens to obtain the services of ULBs and monitor the performance of ULBs in the State. A common application software developed in-house through Tamil Nadu Urban Development Project (TNUDP) was supplied in 2005 to all ULBs

in the State. The application software containing 14 modules¹ was developed with Oracle as back-end and Visual Basic as front-end. Municipal Corporations have been providing services relating to birth and death registration, grant of building plan approval, grievance redressal, collection of PT, Water Tax, underground drainage charges, Non-tax, trade licences etc. which were computerised through the TNUDP software in 2005. Out of 10 Corporations in the State, five² Corporations were taken up for Information Systems Audit. A sum of ₹ 2.02 crore was spent on purchase of hardware and networking components and ₹ 1.72 crore towards network charges during 2008-13 by the five Corporations.

Data stored centrally in the Server placed in the respective Corporation Main Office were connected to the zonal offices through leased line connectivity. The Collection Centers/Facilitation Centers created in each Corporation cater mainly to facilitate the public to pay the taxes with ease and are connected to the Central Server placed in the Corporation Main Office through Wide Area Network (WAN). The source code for TNUDP software was not supplied to any of the Corporations and only the executable version of the software was made available to ULBs. Over a period of time, in order to cater to their local requirements, Coimbatore and Tiruchirappalli Corporations developed web-based software applications through outsourcing and the remaining three Corporations continued using TNUDP software with minor changes to the database by developing add-on applications.

2.1.2 Organisational set up

Secretary, Municipal Administration and Water Supply (MAWS) Department is the overall administrative head at Government level. Commissioner of Municipal Administration (CMA) is head of the department. Each Corporation is headed by a Commissioner who is the executive head for implementing all functions of the Corporation in accordance with the resolutions passed by the respective Council.

2.1.3 Audit objectives

Audit of computerisation in the Corporations was undertaken to ascertain whether

- the envisaged objectives of introduction of e-Governance in the functional areas of the Corporations were achieved
- the guidelines stipulated in COBIT³ framework for establishing a full-fledged computerised system by an organisation were followed
- the application software is functioning effectively towards achieving the intended objectives
- the rules have been properly mapped in the application software and
- the IT systems were effectively monitored by the top management.

¹ Birth and Death registration, Property Tax, Water Tax, Non-tax, Profession Tax, Grievances, Trade licences, Under Ground Drainage, Building Plan approval, Financial Accounting System, Immovable and Movable properties, Solid Waste Management, Vehicles and Pay roll

² Coimbatore, Madurai, Salem, Tiruchirappalli and Tirunelveli

³ COBIT (Control Objectives in Information and Related Technology) is a framework for developing, implementing, monitoring and improving information technology (IT) governance and management practices

2.1.4 Audit criteria

The Information Systems (IS) Audit was benchmarked against criteria derived from following sources:

- Respective Municipal Corporation Act and Council resolutions/by-laws
- Instructions issued by the State Government in the form of Government Orders/Circulars etc.
- Instructions/guidelines issued by the Commissioners of the respective Corporations on collection of taxes
- Best practices in a computerised system with reference to COBIT guidelines.

2.1.5 Scope of Audit and Methodology

The IS audit was conducted in five Corporations on the functioning of their systems mainly with reference to COBIT guidelines. Development of TNUDP application software meant for all ULBs commenced prior to 2002 and was extended to all ULBs in 2005. Files/documents relating to development of the software such as Planning, User Requirement Specification, System Requirement Specification etc., were not available with CMA, Chennai and hence the scope of audit was limited to utilisation and operation of the software along with overall monitoring of the IT systems and its functioning.

Audit commenced with an Entry Conference (June 2013) with Secretary, MAWS Department followed by examination of records of CMA and five Corporations. The entire data for the period 2008-13 in respect of all the five Corporations were downloaded and examined through Computer Assisted Audit Techniques (CAATs) and Structured Query Language (SQL) queries to check the completeness and accuracy of the database and adequacy of controls in the application software covering major functional areas of computerisation in the five Corporations. Exit Conference was held with Secretary to Government, MAWS Department and CMA on 24 January 2014. CMA accepted the audit observations and stated that all the gaps including those in the database would be taken care of in the new application software being developed. Audit findings are discussed in the following paragraphs.

Audit findings

2.1.6 Implementation and Operation

2.1.6.1 *Birth and Death Registration Module*

On the occurrence of birth/death in a hospital or residence, details of the event are entered in Form I (Birth) or Form II (Death) by the Medical Officer. The Sanitary Inspector assigns manually a running serial number with date in the form. Then the details as available in the forms are captured in the computer system by the data entry operator and system generated birth/death certificates are issued to the applicant. The process of registration should be completed within 21 days from the date of occurrence of the event. In all ULBs, the

manual records i.e. Forms I and II shall be retained by the Sanitary Inspector in his office for a period of twelve months after the end of the calendar year to which they relate and the forms should be transferred to the safe custody of Statistical Officer (an Officer working on deputation from Health Department) in the Corporation. The Statistical Officer (Health Department) in each Corporation is responsible for compilation and permanent maintenance of Form I and Form II for birth and death registrations.

(i) Difference between manual records and data in computer system

A comparison of data captured in the computer system with that of manual records (Forms I and II) disclosed that in three⁴ Corporations, there were differences between manual records and data in the computer system in registration of birth and death during 2008-12 (**Appendix 2.1**). In Salem Corporation, during 2008-12, there was shortfall in capture of data ranging between 1 and 14 *per cent* and 13 and 67 *per cent* in birth and death registrations respectively. Further, in Madurai Corporation, there was shortfall in capture of data ranging between 15 and 57 *per cent* and 3 and 59 *per cent* for birth and death registrations respectively. In these cases, apart from delay in issue of manual certificate, computerised birth/death certificates could not be issued to the public by these Corporations. Further, the statistical figures communicated by the Statistical Officer to Government with reference to computer figure were inaccurate.

On this being pointed out, Tirunelveli Corporation replied (November 2013) that due to some authentication problem the difference had occurred and remedial action taken to avoid such difference. Salem Corporation in its reply (July 2013) accepted the audit observation and assured remedial action. Reply from Madurai Corporation has not been received (February 2014).

(ii) Errors in the database

Examination of the birth and death database disclosed that there were many types of errors in the database. Audit observed that under birth and death registration, errors such as future year of registration, date of birth of child left blank, abnormal weight of child, events registered before the date of occurrence, incorrect hospital code etc., were noticed due to input control deficiencies. It was also noticed that hospital code was captured with 'blank' in 49 births and 2,651 deaths. In 21,877 births and 8,640 deaths, the hospital code has been incorrectly captured. In all these cases, the print-out would not display the name of the hospital in the birth/death certificate issued to the applicants. Details of number of cases of such errors in each Corporation are furnished in **Appendix 2.2**. Above types of errors point to presence of risks due to lack of input controls in the system. By incorporating these checks in the application software, the errors in the data could have been minimised.

All the test-checked Corporations accepted the observations and stated (June to November 2013) that action would be taken to rectify the defects in the new application software.

⁴ Salem, Madurai and Tirunelveli (Coimbatore and Tiruchirappalli Corporations did not furnish the details of birth and death details with reference to Forms I and II for the period 2008-13)

2.1.6.2 Profession Tax Module

(i) Incomplete Profession Tax Assessment data

Every Individual (employee or self employed) or Trader or an Organisation is liable to pay Profession Tax to the Corporation, every six months, at the rate fixed by the Corporation Council, which was last revised on 01 October 2008. Corporations could raise half-yearly demands against the above three types of assessee only if the assessment data are complete, accurate and reliable in all respects.

Audit observed that in all five Corporations, the Profession Tax Assessment data were largely incomplete under “individual” category due to the following reasons:

Persons working in Government and Private Establishments and self employed people (Doctors, Engineers, Chartered Accountants etc.) are categorised as “Individuals” in the Corporation data. In four out of five Corporations, Audit observed that the number of individuals existing in Profession Tax Assessment data is insignificant when compared with number of individuals working in private organisations. In this regard, Audit made an attempt to compare the number of individuals working in private firms existing in Employees Provident Fund Organisation (EPFO) database with the Corporation data (which included individuals working in Government/private and self employed). Details are given in **Table 2.1**.

Table 2.1: Shortfall in number of assessment of “Individuals” in Profession Tax database

Corporation	Number of individuals existing in Assessment data during 2012-13*	Number of employees** existing in EPFO database during 2012-13	Percentage of shortfall
Coimbatore	7,158	2,89,461	98
Salem	0	61,657	100
Tirunelveli	3,356	71,544	95
Tiruchirappalli	571	83,456	99

* Includes individuals working in Government/Private/Self employed

** Individuals working in private organisations alone

From the above table, it is evident that the number of individuals in Corporation data is negligible and the shortfall ranges between 95 and 100 *per cent* in Assessment data in four out of five Corporations. Further, no Assessment data were maintained in Madurai Corporation, which showed that there was no system in the Corporation for assessment of Profession Tax.

In this regard Audit observed the following:

- No system exists in the Corporation to obtain or collect information about serving employees in each Organisation (Government/private) at the beginning of each half year.
- Corporations could not raise any demand against the Organisations through system due to non-availability of data in the system.
- Corporations receive whatever payment was made towards Profession Tax by the Organisations in a half year.

Hence, failure of the five Corporations to evolve a system to maintain a complete Assessment data through system makes the Profession Tax data largely incomplete under “Individual” category.

The above observations were accepted by all the Corporations except Madurai from which reply is yet to be received (February 2014).

(ii) Inaccuracies in Demand, Collection and Balance due

Profession Tax demand data contain information about demand raised in a half year, arrears due and outstanding balance. The collection data contain the half year-wise tax collected from the assessee in a year. The outstanding balance in the demand table is arrived at after adjusting the tax collected in the respective half year.

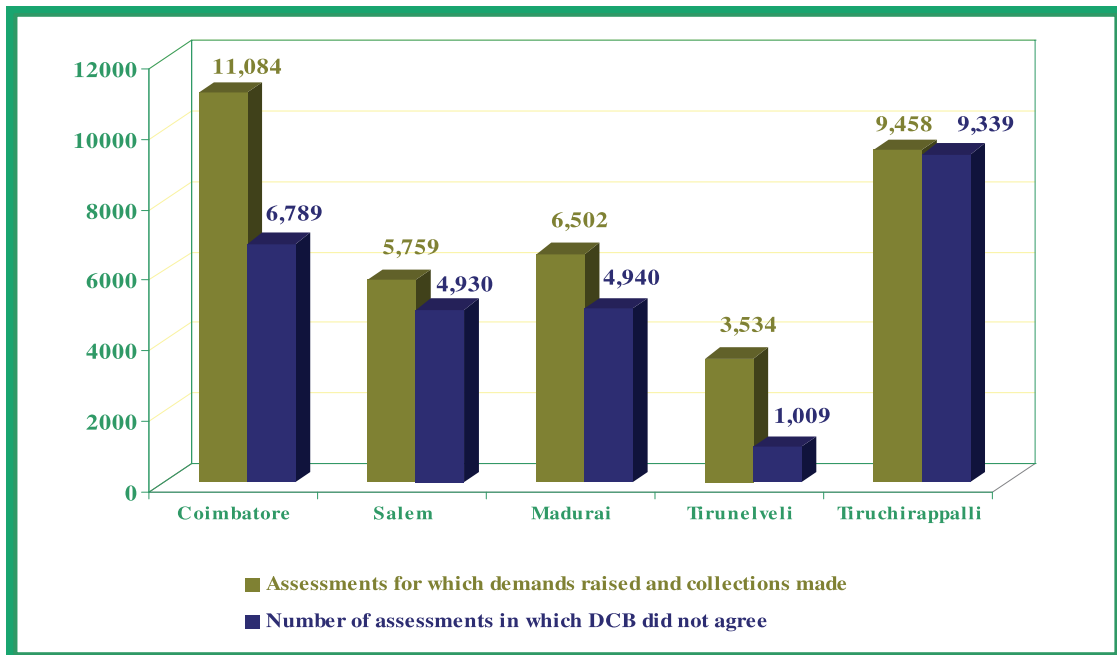
Application software should have built-in control so that the derived⁵ figure shown as outstanding is correct. Absence of process control in the system would lead to incorrect depiction of outstanding dues for an assessee.

To cite an illustration, in Coimbatore Corporation, for an assessee the total demand raised was ₹ 4,41,207 through eight demands. Against these eight demands, the collections amounting to ₹ 4,04,397 were made in seven instances. Hence, the balance outstanding works out to ₹ 36,810 whereas the system showed an outstanding amount of ₹ 1,00,830.

Keeping the above facts in view, the arithmetical accuracy of demand, collection and balance due for all assesseees during 2008-13 were examined and it was observed that they were inaccurate or contained discrepancies in 27,007 out of 36,337 assessments as depicted in **Chart 2.1**.

Chart 2.1: Inaccuracies in Demand, Collection and Balance

(In numbers)



⁵ (Demand + Arrears due - Collections made = Balance due)

Coimbatore, Salem and Tirunelveli Corporations generally accepted the observations and stated (June to November 2013) that action would be taken to rectify the defects.

2.1.6.3 Property Tax Module

According to Municipal Corporation Act, the Basic PT for a building shall be calculated at the rate fixed by the Council from which the concessions having regard to the age of the building at the rate fixed by the Council shall be deducted and the amount so arrived at shall be the PT payable in respect of any building for every half-year⁶ and shall be paid by the owner or occupier of such building within the half-year period. Where there is any land without any building situated within the City limit, the Commissioner shall determine the PT (or VLT) payable for such land at the rate fixed by the Council.

Application for assessment of PT is admitted from the property owners in a prescribed form at the Zonal offices of the respective Municipal Corporation. On receipt of an application, a unique serial number is manually assigned at the admission counter. Annual value of the property is determined after inspection by the Revenue Inspector concerned for verification of the property and its construction with reference to that application. If any deviation/unauthorised construction was found during site visit, PT for authorised and unauthorised area of construction is determined based on the annual value along with “penalty for unauthorised construction area”. Entries are made in the PT Assessment List Register (ML Register) and the PT demands are raised every half year and collected from the owner. Rates for levy of PT were determined by the respective Corporations (by passing Council Resolutions according to their local requirements and hence the rate fixed by the Corporations may differ from one Corporation to another).

(i) Capture of “0” value in vital parameters

GoTN issued (November 2007) orders for general revision of PT in all ULBs in the State with effect from 1 April 2008. CMA directed all the Corporations to update their PT database by cross-referring the records maintained in other Departments⁷ for finalising a “Master List” of Property Assessments.

Analysis of the PT assessment table disclosed that certain key fields like Property Area, Annual Value, Basic Tax, Library Cess, Education Cess etc. were captured with ‘0’ values while migrating the data from the legacy system as given in **Table 2.2**.

⁶ Half-year shall be from 01 April to 30 September and from 01 October to 31 March of a year

⁷ Housing Societies/Housing Boards, Civil Supplies Department for Ration Cards, Electoral Rolls and even the building applications and License Registers of Town Planning branches of the Corporations etc.

Table 2.2: Statement of number of Assessments showing “0” value in vital parameters

Corporation	Total number of Assessments	Invalid assessment date	Property area with "0" value	Annual value of the property with "0" value	Basic Tax, Library Cess and Education Cess with "0" values
Coimbatore	4,15,464	18	49,581 (12)	30,037 (7)	1,33,725 (32)
Salem	1,93,468	0	1,16,335 (60)	45,795 (24)	39,837 (21)
Madurai	3,23,455	87	0	1,36,607 (42)	1,55,890 (48)
Tirunelveli	1,52,113	0	2,816 (2)	14,642 (10)	14,641 (10)
Tiruchirappalli	1,90,911	0	1,07,740 (56)	1,19,627 (63)	98,324 (52)

(Figures in brackets denote percentage to total number of assessments)

From the above table, it is evident that during Master List preparation, the Corporations failed to carry out the exercise of removing ‘0’ value in key fields and invalid assessment dates. Failure to ensure the completeness and correctness of the Master List preparation posed risk to the organisation. Audit could not ensure the correctness of the annual value of the property due to absence of values in the vital parameters. These missing information in the master tables would also be required for any revision of tax in future.

Coimbatore Corporation replied (June 2013) that action would be taken to rectify the defects in the system. Salem and Tirunelveli Corporations replied (July 2013 and November 2013) that the cases would be verified and final reply would be furnished.

(ii) Incorrect calculation of Property Tax and omission of Library/Education Cess

Calculation of the basic PT is based on the annual value of the property processed through system. The final PT is calculated by adding the Educational Cess and Library Cess on the basic tax.

Examination of data revealed the following:

- In three Corporations (Coimbatore, Salem and Tirunelveli), involving 3,661 assessments, the calculation of PT was found to be incorrectly generated by the system with reference to the annual value of the property. This has resulted in revenue loss of ₹ 1.15 crore till second half year of 2012-13.
- In Coimbatore Corporation, in 224 assessments, the basic tax of the assessments is equal to the final PT payable by the assessee. In these cases, the calculation of library cess and education cess were omitted by the system which resulted in incorrect generation of demand leading to shortfall in raising of demand to the tune of ₹ 0.04 crore till second half year of 2012-13.

Salem and Tirunelveli Corporations replied (July 2013 and November 2013) that a case to case verification would be made and action would be taken to rectify the defects.

(iii) Existence of missing demands

The computer system should generate half yearly demands (i.e. on 01 April and 01 October) every year in respect of all the live assessments existing in the assessment data. The software should have the required validations to generate half year-wise consecutive demands through demand data without any gap. Missing demands between two given half years without any audit trail renders the data incomplete resulting in loss of revenue to the Corporations.

Examination of data relating to the PT assessments and the demands raised through system revealed that there were many missing demands during the period from April 2008 to March 2013 in all the Corporations. Details are given in **Table 2.3**.

Table 2.3: Assessments with missing demands and resultant financial implications

Corporation	Total number of assessments	No. of assessments for which the demands are missing*	Total number of missing demands**	Missing Demand Amount (₹ in crore)
(1)	(2)	(3)	(4)	(5)
Coimbatore	4,15,464	90,162	5,29,278	24.87
Salem	1,93,468	13,681	48,182	2.50
Madurai	3,23,455	7,941	13,346	2.33
Tirunelveli	1,52,113	20,405	85,947	12.42
Tiruchirappalli	1,90,911	3,113	11,092	5.20
Total				47.32

* Assessments during April 2008 to March 2013 with one or more missing demands

** Total number of missing demands in respect of assessments in column (3)

Above error in raising demand on many assessments had occurred due to lack of validation control in the application software which resulted in loss of revenue of ₹ 47.32 crore to the Corporations. Salem and Tirunelveli Corporations replied (July 2013 and November 2013) that a case to case verification would be made and action would be taken to rectify the defects.

(iv) Incorrect calculation of penalty for unauthorised constructions

TNUDP software which is now in use in the Corporations has the provision to calculate the PT amount along with penalty, if any, if a whole or part of the property is constructed without proper authority. TNUDP software also has the provision to generate demand for these penalties every half-year. Audit noticed that in Coimbatore and Tirunelveli Corporations, there were 95,610 and 2,601 assessments respectively which were assessed with penalty, of which in 1,765 and 267 assessments respectively penalty levied through system was incorrectly calculated due to process failure or changes made to data in the back-end process and the demand raised. This resulted in loss of revenue of ₹ 0.75 crore to these Corporations.

Tirunelveli Corporation accepted (November 2013) the audit observation and stated that action would be taken to rectify the defects.

(v) Failure to levy Property Tax on Government Buildings

Even though PT for Government buildings as per the guidelines issued for general revision of PT with effect from 01 April 2008 was assessed by Tirunelveli Corporation, no demand was raised for 10 government buildings for the period 2008-09 to 2012-13 resulting in loss of revenue of ₹ 37.37 lakh to the Corporation (**Appendix 2.3**). In reply, Tirunelveli Corporation stated that action would be taken to raise demands for these assessments after verification.

(vi) Unauthorised alteration of Property Tax demand

Property Tax is assessed through system and stored in the PT Assessment table. Half yearly demands are generated by the system from the available data in the Assessment table. Under no circumstances, should the demand amount vary from the initial tax assessed. Audit noticed that there was scope for making data entry/unauthorised changes in the existing demand in the front-end screen itself. In Salem and Tirunelveli Corporations, audit noticed that the PT demands pertaining to as many as 26,735 out of 3,20,799 and 270 out of 1,39,897 assessments respectively during 2008-13 were altered in the database without authorisation and no trail was available in the database for these changes in the database.

On this being pointed out, Tirunelveli Corporation replied (November 2013) that in some of the cases, original demand was collected upto date and action would be taken to rectify defects in remaining cases.

(vii) Unauthorised cancellation of property Assessments

The application software has the provision to cancel an assessment if a building is demolished or destroyed based on the notice given by the owner to the Corporation. In these cancelled assessments, the assessment is moved with ‘i’ (invalid assessment) flag in the assessment table and the reasons for such cancellations get stored in a separate table simultaneously.

Examination of the PT data of five Corporations revealed that out of 25,659 cancelled assessments, 15,658 assessments were cancelled, as given in **Table 2.4**, without any valid reasons being recorded. It was also noticed that in Madurai and Tirunelveli Corporations, in 9,466 and 793 assessments respectively, though these assessments were captured as cancelled, the demands were continued to be raised by the system.

Table 2.4: Assessments cancelled without authorisation and generation of demands for such assessments

Corporation	Total number of assessments	No. of assessments indicated as invalid ('i' flag) in assessment table	No. of assessments cancelled with authorisation	No. of assessments cancelled without authorisation	No. of cancelled assessments for which demands were generated
Coimbatore	4,15,464	1,623	0	1,623	0
Salem	1,93,468	122	14	108	0
Madurai	3,23,455	28,216	17,861	10,355	9,466
Tirunelveli	1,52,113	5,373	5,300	73	793
Tiruchirappalli	1,90,911	5,971	2,472	3,499	0
Total	12,75,411	41,305	25,647	15,658	10,259

On this being pointed out, Tirunelveli Corporation stated (November 2013) that software is being rectified. Though rectification to software will avoid occurrence of such discrepancies in future, existence of errors in the data needs to be eliminated. No reply has been received from other four Corporations.

2.1.6.4 Water Tax

Water Tax is collected from the individuals/industries/educational institutions/hospitals etc. to whom protected drinking water was supplied by the Corporations from different sources. The Commissioner may, on application by the owner or occupier of any building, arrange to provide water supply, provided the building has been assessed for PT in accordance with the by-laws of the Corporations. Water Tax is fixed by the Councils and revised as and when required and the periodicity⁸ of raising Water Tax demand differs from one Corporation to another. The water connection is broadly classified as domestic and non-domestic.

(i) Failure to raise even the first demand for new water connections

In Coimbatore Corporation, all the water connections were provided with water meter and the meter reading is taken with the help of hand held device by the bill collector which is uploaded from the device to the Central Server. If the device is not working, then manual reading is taken and fed into computer system. Demand is generated after uploading the meter reading or capture of meter reading manually. In Coimbatore Corporation, out of 2,53,028 Water Tax assesseees existing in the assessment data as of March 2013, in respect of 2,471 valid assesseees, even the first demand was not generated due to failure in uploading/capturing the meter reading in the system. Audit noticed that there was no provision in the system to throw an alert message to the user showing non-generation of demands and in these 2,471 cases deficiency in the system design resulted in a loss of revenue of ₹ 1.66 crore.

On this being pointed out, Corporation replied that all the 2,471 water connections were disconnected due to non-payment of PT and Water Tax. It is pertinent to mention that even the first demand is yet to be raised in these cases. Further, the Corporation did not furnish any proof of disconnection in any sample cases. Examination of data also disclosed that no audit trail is available in the database for disconnection of these 2,471 cases due to deficiency in the system design.

(ii) Missing demands

In Tirunelveli Corporation, demands for Water Tax assessments are generated every year on 01 April for four quarters based on the last quarter of the previous year demand. Examination of data disclosed that the system failed to generate demands in respect of 5,282 assessments during the period 2011-12 and 2012-13 resulting in loss of revenue of ₹ 0.32 crore.

On this being pointed out, Tirunelveli Corporation accepted (November 2013) the audit observation and stated that defects were rectified in the computer

⁸ Monthly/quarterly/half-yearly/yearly

system and correct demands for domestic and non-domestic connections were generated successfully. However, proof of rectification of demand was furnished to audit in two sample cases only.

(iii) Short raising of demand for water charges

Tirunelveli Corporation resolved to charge ₹ 100 per month as water charges for each tap connection. Therefore, the system should be designed to generate ₹ 300 per quarter (Corporation raises quarterly water charges demand) as water charges for each tap connection. Due to lack of validation control in the system, in 260 (2011-12) and 5,825 (2012-13) instances, demands raised by the system were below the minimum charge resulting in loss of revenue ₹ 0.08 crore to the Corporation. On this being pointed out, Corporation did not adequately clarify the issue.

(iv) Incorrect raising of demand

In Coimbatore Corporation, an assessee should pay water charges every month based on the meter reading or ₹ 100 (minimum charges per month). In situations where meter reading was not taken in a month, the assessee should pay the minimum charge of ₹ 100 per month. In case the meter reading was taken belatedly, the minimum charges for the demand period (calculated on monthly basis at the rate of ₹ 100 per month) be worked out and compared with actual meter reading charges. The higher of the above two should be raised as water charges by the system.

Audit noticed that during 2008-12, in 22,774 assessments, apart from delayed raising of demand ranging between 3 and 43 months, the demand raised by the Corporation was below the minimum amount of ₹ 100 per month which resulted in loss of revenue of ₹ 1.67 crore. On this being pointed out, Corporation replied that assigning of assessment number for new water connection was done manually which resulted in omission of assessment and the same would be rectified in future.

2.1.6.5 Underground Drainage (UGD) Deposit and maintenance charges

Non-collection of Deposit and Maintenance Charges

GoTN ordered (December 2003) that all the existing UGD connections and new UGD connections are to be assessed for collection of UGD deposit and maintenance charges payable on yearly basis in Madurai Corporation. Hence, all the existing PT assesseees (excluding added areas) who are covered under UGD scheme within the Corporation limit are liable to pay one-time payment of UGD deposit and Drainage Maintenance Charges (DMC) on yearly basis. The scheme which was initiated in 2003 was completed in March 2011. In this regard the following discrepancies were noticed in audit.

- Comparison of UGD data with Property Assessment data disclosed that the Corporation had not raised demand for 3,002 assesseees out of 1,86,440 assesseees covered under the scheme resulting in revenue loss of ₹ 1.24 crore to the Corporation.
- Examination of the assessment and demand data revealed that in respect of 9,393 assesseees who were covered under this scheme and

paid UGD deposit, no demand for DMC was raised in the computer system till date (July 2013). Though the scheme was completed by March 2011 and sewage connection had been established, no demand for DMC was raised by the Corporation for these cases resulting in a minimum deferred revenue loss of ₹ 2.82 crore (9,393 x 2 years x ₹ 1,500 (minimum annual DMC demand per year) to the Corporation.

2.1.6.6 Vacant Land Tax

Loss of revenue due to failure to raise demand for VLT assessments

According to Section 124 and the proviso contained therein of Coimbatore City Municipal Corporation Act, 1981, VLT is payable by all the land owners if the extent of such land with or without any building thereon, does not exceed 2,400 square feet.

All properties including vacant land are to be assessed for PT on half yearly basis as per Section 121(2) of City Municipal Corporation Act. The application software existing in the Corporations has the provision to maintain and raise periodical VLT demands. However, in Corporations (except Tirunelveli Corporation), VLT was collected from the assessee only at the time of according building plan approval. In Tirunelveli Corporation, the demand for VLT was generated along with PT demand.

Audit noticed that in Tirunelveli Corporation, in 753 VLT assessments out of 12,682 assessments, no demand was raised resulting in loss of revenue of ₹ 5.16 crore to the Corporation for the period 2007-13.

On this being pointed out, the Corporation accepted the observation and stated that action would be taken to rectify the same.

2.1.6.7 Financial Accounting System - Deficiencies

The Financial Accounting Software (FAS) module was developed mainly for the purpose of preparation of Journal, Ledger, Trial balance and to prepare Income and Expenditure Statement and Balance Sheet. In Salem and Tiruchirappalli Corporations, the Annual Accounts are prepared manually only and the FAS module was not put to use. In Coimbatore Corporation, the process of preparation of Annual Accounts is done through Tally package from 2013-14 onwards.

In Madurai and Tirunelveli Corporations, the FAS module was put to use for preparation of Journal, Ledger and Trial Balance only and the preparation of Annual Accounts is done through manual process. There were three⁹ important tables in the FAS database. Examination of the tables revealed the following:

- Every debit and credit posted in FA_TRAN table should agree in order to ensure basic accounting rules. In Madurai and Tirunelveli Corporations, during 2008-13, 26 and 342 valid transactions (i.e. transactions complete in all respects) did not agree with their debits and credits posting. In the circumstances, the trial balance was made to agree through manual intervention. The application software

⁹ a) FA_TRAN, b) FA_EJV and c) FA_HEAD

allowed capture of data entry without verifying the correctness of debits and credits posted against these transactions. Existence of such vital errors in the journal entries (FA_TRAN table) would impact the ledger balances and trial balance.

- Every record posted in FA_EJV table should find a place in the FA_TRAN table so that the preparation of Trial Balance done with reference to FA_TRAN would be complete, accurate and dependable. It was, however, seen that in Madurai and Tirunelveli Corporations, 46 and six vouchers respectively with monetary values during the period 2008-11, though existed in FA_EJV table (with a valid “V” flag) do not find a place in FA_TRAN. Therefore, without posting of the above vouchers in the trial balance, the annual accounts were prepared in the respective years.
- The FA_TRAN table contained financial year-wise transactions with a “V” flag representing that the transaction was valid. Each transaction contained multiple debits with single consolidated credit or single consolidated debit with multiple credits. Each transaction was stored in the table with a transaction reference number (voucher number) with date. In a given financial year, the transaction date should be relevant to that financial year and the software should be designed in such a way that transaction dates not falling within the relevant financial year were not allowed by the system. The table was analysed and it was found that during the period 2008-13, in the following transactions, date of transaction does not pertain to the financial year. Details are given in **Table 2.5**.

Table 2.5: Statement showing number of transactions not pertaining to the relevant financial year

Year	Madurai Corporation		Tirunelveli Corporation	
	No. of transactions	Value (₹ in crore)	No. of transactions	Value (₹ in crore)
2008-09	19	2.50	143	0.44
2009-10	69	3.16	22	0.13
2010-11	60	1.06	3	0.0032
2011-12	341	3.58	5	0.0099
2012-13	293	27.68	10	0.04

Hence, by giving effect to the above transactions not pertaining to the respective year, the annual accounts figure was inaccurate to that extent.

On these being pointed out, Tirunelveli Corporation had accepted the same and stated that action would be taken to rectify the defects in the FAS module. Reply from Madurai Corporation has not been received (February 2014).

2.1.7 Acquisition - Deficiencies in system design

2.1.7.1 No information on number of print-outs

According to rules in force, the first copy of the Birth Registration Certificate is issued to the applicant free of cost and the subsequent copies at a cost of ₹ 5 per copy. When the issue of birth certificate is only through computer

system, the application software and the data design should provide for storing the number of print-outs taken in birth details table for accountability purposes. However, no such details were captured in the table in any of the Corporations.

2.1.7.2 *No log for corrections made to database*

The birth table disclosed that there was only one column provided in the design to capture the date of creation of record. No field was provided to capture modification details in the table. Further, whenever any modification was made to the record, the latest date of modification got stored as the date of creation of record. There was no log available to show the changes made in a record.

Coimbatore Corporation replied (June 2013) that instructions had been issued to the birth/death Registrars for capture of correct information in the system. However, the reply was not pertinent to audit observation.

2.1.7.3 *Lack of correlation between Assessment and Demand data*

The initial assessment of PT is finalised and stored in the assessment data. The first demand is generated in the demand data with reference to assessment data. The system generates the subsequent demands based on the previous demand. Any change taking place in the property due to additions or modifications should be carried out in the assessment data from which the modified subsequent demands have to be generated. However, in all the five Corporations, the above procedure was not carried out. Instead, corrections due to additions or modifications in the property were carried out in the demand data itself. Details are given in **Table 2.6**.

Table 2.6: Number of assessments where discrepancy was noticed between assessment and demand

Corporation	Total number of assessments in PT data	No. of assessments where there is discrepancy between demand and assessment data in PT amount
Coimbatore	4,15,464	1,661
Salem	1,93,468	1,66,642
Madurai	3,23,455	1,51,710
Tirunelveli	1,52,113	1,025
Tiruchirappalli	1,90,911	103

Hence, no audit trail was available in the database for the changes affecting the annual value of the property, besides incorrect generation of MIS reports from assessment data.

2.1.7.4 *Improper handling of parameters in the software for migrated areas in Coimbatore Corporation*

In Coimbatore Corporation, eleven local bodies¹⁰ were merged (April 2008) with the Corporation. These merged areas were categorised as A, B and C zones and the property taxes were levied based on the Council resolution (December 2012).

¹⁰ Chinnavedampatti, Goundanpalayam, Kaalapatti, Kuniyamuthur, Kuruchi, Saravanampatti, Tudiyalur, Vadavalli, Veerakeralam, Vellakinaru and Vilankurichi

The system calculates the annual value of a property in the Corporation limit by referring to the values in the master tables available in the database. As and when a change takes place like rate of tax etc., the same needs to be incorporated in the master data by updating the values. However, in Coimbatore Corporation, though the above method was adopted for 'Residential' assessments, necessary change in parameters in respect of 'Commercial' and 'Industrial' were done through a separate procedure in the coding itself which was not desirable for the following reasons.

- This method increased dependency on the software developer when changes were required to be made in the basic parameters.
- No trail was available in the system for the changes made.

On this being pointed out, Corporation accepted (June 2013) the audit observation and stated that the issue would be addressed soon.

2.1.7.5 Ineffective linking of Property Tax module with Water Tax module

Every individual who is assessed for PT is eligible for a single water connection. There are few exceptions to the above rule such as flats/apartments, bulk connections etc. Examination of Water Tax data revealed that multiple water connections were provided to same individual due to improper linkage of Water Tax module with PT module at the design stage itself as given in **Table 2.7**.

Table 2.7: Statement showing multiple water connections

Corporation	No. of assessments with multiple water connections	No. of multiple water connections	Range of multiple water connections
Coimbatore	3,422	7,113	2 to 44
Madurai	393	817	2 to 11
Tirunelveli	225	529	2 to 15
Tiruchirappalli	597	1,650	2 to 74

In this connection, the following observations are made:

- In Coimbatore and Tirunelveli Corporations, no link between Property Tax and Water Tax modules was provided during customisation of the software.
- In Madurai Corporation, PT and Water Tax assessment numbers are common. Out of 817 multiple connections, dummy numbers were assigned in respect of 371 connections for which there was no corresponding "Property Tax Assessment number" in the PT database and hence they were unauthorised water connections.
- Further, 4,270 water connections were provided to assessees for whom no PT assessment details exist, which was irregular.
- In Tiruchirappalli Corporation, though link between the two modules was provided, PT assessment number was not captured in 92 per cent of the cases in Water Tax module resulting in provision of more than one water connection for single property.

It is clear from the above that TNUDP software has been customised by the above Corporations according to local requirement and there was no uniformity. The Commissioners of the Corporations failed to monitor and arrest the situation. Except Madurai and Salem Corporations, the other three Corporations accepted the observations and stated that action would be taken to rectify the problem.

2.1.7.6 *Lack of provision in the system to capture water meter reading*

In Tirunelveli Corporation, Government establishments/industrial consumers etc. were provided with metered water connection. The consumption of water as per meter reading was recorded and posted in a register maintained and charges calculated manually. However, these recordings could not be captured into the computer system, since there was no provision for the same. For these assessments, demands were generated by the system based on the previous year demand, ignoring the actual meter reading recorded in the manual register.

For instance, in one Assessment, demand was generated for ₹ 2.23 lakh for each quarter of the financial year 2013-14 (upto March 2014). This demand was posted by the system automatically with reference to 2012-13 last quarter demand. Examination of the manual meter reading records relating to the assessee disclosed that for the last quarter of 2012-13 and the first quarter of 2013-14, the water charges worked out to ₹ 1.38 lakh and ₹ 2.42 lakh respectively as per meter reading records. Due to absence of provision in the system to record and calculate Water Tax as per meter reading, there were incorrect generation of Water Tax demand in 1,275 cases during the period 2008-13. Reply of the Corporation was not pertinent to the point raised.

2.1.8 Delivery and Support

2.1.8.1 *Staffing and key IT personnel*

CMA invited (November 2006 - January 2010) particulars from all the Corporations regarding the existing IT personnel and number of IT posts actually required for the purpose of managing the IT related functions in the Corporations and also for framing Common Service Rules for IT staff.

In response, all the five Corporations sent (June 2009 to January 2010) the required information seeking appointment of number of IT personnel¹¹ in their Corporation on a regular basis. However, no action was taken by CMA/Government on the proposal sent by each Corporation to appoint permanent IT personnel so far (August 2013) even after a lapse of more than three years. Due to absence of regular IT personnel, in three Corporations (Salem, Madurai and Tirunelveli), the computer systems were administered by Junior Assistants who were not designated as Database Administrators and in the remaining two Corporations (Coimbatore and Tiruchirappalli), maintenance of entire IT systems was outsourced to private firms. Therefore, failure of CMA/Government to appoint regular IT Staff in each Corporation resulted in inability of the Corporations to manage the systems

¹¹ System Analyst, Programmers, Assistant Programmers and Data Entry Operators

effectively leading to potential operational vulnerabilities. Some of these vulnerabilities have led to problems as can be seen in the succeeding paragraphs.

2.1.8.2 Non-segregation of duties in the computer system

Major revenue modules of a Corporation are PT, Water Tax, Profession Tax etc. wherein the primary details of the assessee are captured in the Assessment table. In the system design (front end screen) itself, proper segregation of duties in capturing the primary data and its further authorisation should be in place, so as to minimise error in the data and avoid possible fraud. Audit, through examination of PT, Water Tax and Profession Tax assessment tables and birth and death data tables, found the following instances of high exposure to risk due to poor segregation of duties.

(i) In PT and Water Tax modules, though provision was available in the system to capture the primary data and its subsequent authorisation by two different persons, records were entered and authorised in the system by the same individual. Details are depicted in **Charts 2.2 and 2.3**.

Chart 2.2: Property Tax

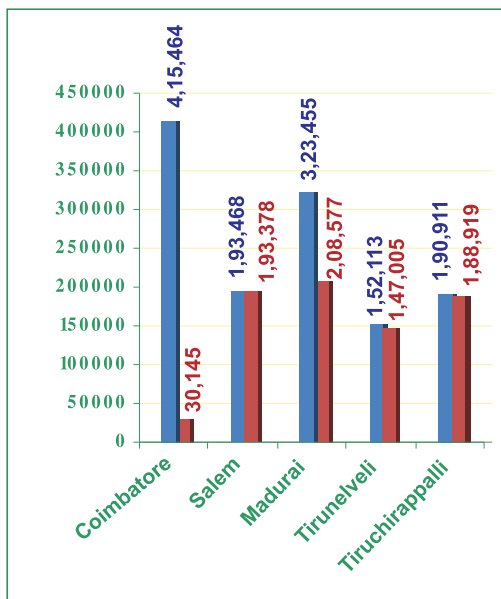
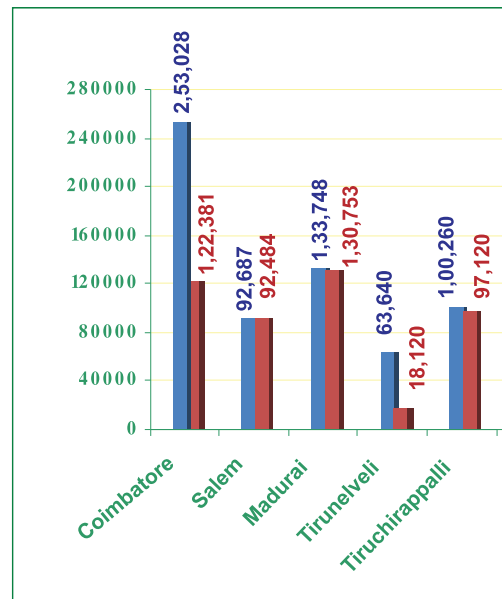


Chart 2.3: Water Tax



■ Total Number of records ■ No. of records entered and authorised by same person

(ii) Under birth and death registration and Profession Tax modules, due to deficiency in system design, the primary data is entered and authorised by the same individual. The Corporation-wise details of number of records which were entered and authorised by same person are given in **Table 2.8**.

Table 2.8: Statement showing number of records entered and authorised by the same person

Nature of service/revenue	Coimbatore	Salem	Madurai	Tirunelveli	Tiruchirappalli
Birth registration	4,66,935	2,50,866	8,57,294	2,35,380	4,26,525
Death registration	1,65,581	59,063	1,16,755	65,290	1,09,528
Profession Tax assessment	36,575	139	Not available	10,095	0

Hence, non-segregation of duties in the application software had rendered the data vulnerable to manipulation.

2.1.8.3 e-Security Policy

GoTN communicated (September 2010) the e-Security Policy 2010 to all departments with the objectives of ensuring availability, maintain confidentiality, integrity of the information and authenticity/non-repudiation of the business transaction as well as exchange of information. According to the guidelines of the e-Security Policy, a third party IT security assessments of all IT devices, applications and assets should be done annually.

Audit observed that except Coimbatore Corporation, the other four Corporations did not meet the above standard as stipulated in the e-Security Policy of the Government.

2.1.8.4 On-line payment of taxes

One of the objectives of introduction of e-Governance system in ULBs was to provide a dynamic website to enable the citizens to have access to all the services rendered by ULBs and also to enable the public to pay their taxes online using credit or debit cards or net banking system.

Audit observed that except Coimbatore Corporation, in the other four Corporations, the above facility though introduced in the initial stage has been withdrawn for reasons not on record. The Corporations failed to re-introduce the facility to public so far (August 2013). Salem, Tirunelveli and Tiruchirappalli Corporations had confirmed (July and November 2013) the above fact.

2.1.8.5 Building Plan approval software not put to use

To ensure speedy processing and approval of Building Plan applications, three (Coimbatore, Madurai and Tiruchirappalli) out of five Corporations developed building plan scrutiny software and the same was put to use by Coimbatore and Madurai Corporations through outsourcing.

In Tiruchirappalli Corporation, the software developed at a cost of ₹ 0.10 crore through a private firm (August 2010) was not put to use for want of trained manpower. The firm insisted the Corporation to identify the personnel for giving training in the software. However, it did not deploy the personnel to be trained. Hence, the software developed could not be put to intended use for want of trained personnel and the applications were processed only manually resulting in non-achievement of the objective of speedy processing and approval of building plans.

2.1.8.6 Touch Screen Kiosks kept idle for two years

In Tiruchirappalli Corporation, five Touch Screen Kiosks (one each in four collection centres and one in main office) were purchased and installed in May 2011 at a cost of ₹ 0.09 crore (Hardware: ₹ 7.81 lakh plus software: ₹ 1.61 lakh) to facilitate the public to know the tax dues, payment details etc. It was also certified (June 2011) that the machines were working properly.

Audit, through physical verification of two kiosks, one each at main office and collection centre, observed that the machines were not in working condition (August 2013). No effort was taken by the Corporation so far (August 2013) to repair the machines even after a lapse of more than two years resulting in an unfruitful expenditure of ₹ 0.09 crore. It was accepted by the Corporation that all the five machines in different locations became out of order from September 2011 and the machines could not be used by the public and added that the Kiosks have been brought into use now (November 2013).

2.1.8.7 Absence of Disaster Recovery Management System

In any organisation working in a computerised environment, existence of proper business continuity and disaster recovery plans is mandatory in nature, which should conform to organisational standards and Government regulations. In case of any eventuality, a tested plan ensures that information processing capabilities could be resumed after the occurrence of an event without any major interruption and loss of data. For this purpose, the back up copies of systems software, applications and data files were to be taken regularly. The back ups with system documentation should be kept in an off-site fire safe. Back ups so taken earlier have to be tested for data recovery.

In all the five Corporations, audit observed that no business continuity/disaster recovery plan is in existence and documented. No off-site back up with system documentation is in place to meet any eventuality. Coimbatore, Salem and Tirunelveli Corporations had confirmed that no off-site back up was in place in their Corporations.

2.1.9 Monitoring

2.1.9.1 Failure to monitor the updation of “Master List” preparation

As per guidelines issued (November 2007) by GoTN, all the existing buildings and lands are to be re-assessed for PT or VLT respectively. Further, all the additions/alterations, if any, which were omitted to be assessed earlier should also be brought under PT net. The Corporations were also instructed to cross refer the records maintained in other Departments. This “Master list” was to be used as a basic tax record before carrying out the general revision with effect from 01 April 2008.

The deficiencies found by examination of data relating to PT were elaborated in the previous paragraphs. Had the Corporations followed the guidelines issued by Government scrupulously and prepared a “Master List”, the errors in the data could have been avoided to certain extent to prevent loss of revenue. The Commissioners of the respective Corporations who are the implementing authorities failed to carry out the revision process effectively. CMA also did

not monitor the updation of “Master List” preparation. To an audit query, all the Corporations had replied that a Master List was prepared and updated in the data. However, audit observed that this was not so.

2.1.9.2 *Failure to monitor fixing up of separate basic value for Special Buildings*

GoTN clarified (February 2008) to the guidelines already issued in November 2007 for General Revision of PT in all ULBs that in respect of buildings coming under specialised category like Star Hotels, Theme Park, Multiplex, Shopping Complex, Air-conditioned Marriage Hall, Super Speciality Hospital etc., separate basic value¹² should be fixed by the Corporations concerned.

Audit, through examination of the database, found that no separate basic value was available in the database in the five Corporations. On this being pointed out in four out of five Corporations, it was stated by Tirunelveli Corporation that all the above categories would be assessed manually and incorporated in the software in future. Reply furnished by Salem Corporation was not relevant to the point raised by audit and no reply has been received from Madurai and Tiruchirappalli Corporations (November 2013). CMA also did not monitor the fixing up of such specific rate for “Special Buildings” by the Corporations so far.

2.1.9.3 *Ineffective monitoring of Information Systems*

According to Tamil Nadu Birth and Death Rules, 2000, Commissioner of the Corporation is required to certify the number of birth and death registrations reported to the Chief Registrar who is the Director and administrative head of the Department of Public Health and Preventive Medicine. The Commissioner is also required to check the revision of PT assessments as contemplated in the General Revision guidelines.

Audit, through examination of data, found many types of errors in birth and death databases in all the five Corporations. Further, discrepancies in capture of birth/death data in the system with reference to manual records were also found in three out of five Corporations. In the case of registration of birth and death details, the correctness of the figures submitted to the Chief Registrar was not compared and verified with the data captured in the computer system by the Commissioners of the three Corporations. Further, revenue losses to the Corporations under PT, Water Tax, Profession Tax etc. were attributed to lack of controls, administrative control failure in assessment of Profession Tax, deficiencies in carrying out General revision of PT etc. and ineffective monitoring of the Information Systems by the Commissioners of the Corporations.

Though, TNUDP software was developed as common application software for all ULBs, ineffective monitoring on the part of CMA has led to adoption of different application software by the Corporations. The Corporations have also made changes to the design of the databases to cater to their local requirements which would lead to difficulties while developing common application software in future.

¹² Basic value is the value fixed for all the Municipalities/Corporations for different zones for the purpose of fixation of rental value of buildings and lands

2.1.9.4 Non-formation of Steering Committee

COBIT framework prescribes forming of Steering Committee for effective functioning of the IT systems. The Committee should periodically review the working of the systems to address critical issues which have a direct bearing on the revenue of the Corporations. Audit observed that no such Committee was formed in any of the five Corporations. At CMA level, though periodical reports on all TNUDP modules through online mode were received from all the Corporations and review meetings conducted with Commissioners of the Corporations by CMA, critical issues relating to deficiencies in the existing TNUDP software/database management etc. were not discussed and monitored by CMA so as to rectify the defects. Failure to monitor such critical issues had led to deficiencies in the database resulting in loss of revenue to Corporations as observed in earlier paragraphs.

2.1.10 Conclusion

Computerisation in five Municipal Corporations that took place in 2005 was incomplete even after eight years of its implementation and after incurring an expenditure of ₹ 3.74 crore during 2008-13. Application software implemented in the Corporations suffered from weak process controls resulting in lack of data integrity. This has also led to generation of inaccurate demands under Property Tax, Water Tax, Under Ground Drainage charges and Vacant Land Tax resulting in loss of revenue of ₹ 62.73 crore to the Corporations. The Profession Tax Assessment data were incomplete because of which the Corporations could not raise periodical demand against organisations and were forced to accept payment made by the Profession Tax assesseees. Discrepancies and errors were noticed in the Birth and Death registration database in all five Corporations. The State Government failed to appoint permanent IT personnel in the five Corporations to man the computerised activities as planned due to which the Server/database administration/networking etc., is administered by Junior Assistants who were not designated as Database Administrators in three Corporations and by outsourced firms in two other Corporations. Control over the process of general revision of Property Tax needed improvement. Control over assessment of Profession Tax and monitoring of the discrepancies in capture of data in the system with manual records under birth/death registration needed reinforcement. The online payment facility which was initially commenced was discontinued in four out of five Corporations, rendering the objective of e-Governance largely unachieved.

2.1.11 Recommendations

- The system should be reviewed and identified gaps plugged.
- Government should take initiative to appoint designated/qualified personnel in all the Corporations.
- Controls/validations should be incorporated in the application software so as to avoid loss of revenue.
- Input controls should be incorporated in the system so as to generate error free birth and death certificates.

- CMA should monitor the overall computerisation in all Corporations and implementation of guidelines issued by him.
- IT Steering Committee should be formed for effective functioning of IT system.
- Commissioners should exercise control over IT administration and monitor effectively the changes that takes place in operation.

The matter was referred to Government in December 2013; reply has not been received (February 2014).