

**MUNICIPAL ADMINISTRATION AND WATER SUPPLY  
DEPARTMENT**

**CHENNAI METROPOLITAN WATER SUPPLY AND  
SEWERAGE BOARD**

**3.3 Computerised Billing and Collection in the Chennai  
Metropolitan Water Supply and Sewerage Board**

*Highlights*

➤ **Incorrect adoption of ‘Usage of a Property’ (domestic, commercial, etc.) having a bearing on the calculation of Water/Sewerage Charges resulted in short raising of demand of Rs 1.30 crore.**

(Paragraph 3.3.6)

➤ **Failure to adopt the latest Annual Value of property, which is the basis for demanding Water/Sewerage Tax resulted in short assessment of Tax to the tune of Rs 4.97 crore.**

(Paragraphs 3.3.7 and 3.3.8)

➤ **Assigning of more than one Identification Code to the same assessee resulted in raising of demands against both codes and artificially boosting the accrued income of the Board.**

(Paragraph 3.3.9)

➤ **Incorrect posting of collections, non-withdrawal of credits posted for cheques that were subsequently dishonoured, etc., resulted in overstatement of the demands raised by an amount of Rs 3.78 crore.**

(Paragraph 3.3.10)

➤ **Lack of controls to ensure complete transfer of updated data from the Corporation relating to Annual Value of assessed properties resulted in under assessment.**

(Paragraphs 3.3.11 and 3.3.12)

➤ **Due to non-matching of assessee codes between the Corporation and the Board, upward revision of annual value of properties could not be entered into the Board’s computer system.**

(Paragraph 3.3.13)

➤ **The Board raised demands on eligible assesses not in the assessee list aggregating Rs 2.91 crore at the instance of audit.**

(Paragraph 3.3.14)

➤ **Based on the observations of audit, the Board has raised additional demands aggregating Rs 22.95 crore after adoption of correct usage and rectification of deficiency of non-adoption of the latest Annual Value.**

**(Paragraph 3.3.19)**

### **3.3.1 Introduction**

Chennai Metropolitan Water Supply and Sewerage Board (Board) was established in 1978 for the maintenance of water supply and sewerage systems in the entire city of Chennai. The major source of revenue of the Board is Water and Sewerage Tax payable by all the owners of property in Chennai and Water/Sewerage Charges payable by only those having water/sewerage connection. As of September 2003, there were 5.17 lakh assesseees for Water/Sewerage Tax and 3.94 lakh consumers for Water/Sewerage Charges. For administrative purposes, the entire area under the control of the Board is divided into 10 Areas each headed by an Area Engineer. Water/Sewerage Tax is payable in respect of all properties in the city of Chennai at 3.5 *per cent* of its Annual Value (AV) for each half year as assessed by Corporation of Chennai (Corporation) and Water/Sewerage Charges are levied at varying rates depending on the usage.

### **3.3.2 Computerisation**

Data processing in the Board is done in COBOL<sup>1</sup> on UNIX<sup>2</sup> operating system since 1990. Raising of annual demands that ranged between Rs 179 crore and Rs 192 crore during 1999-2004 and recording collections therefrom are done through the computer system. The related software had been developed in-house. The data assumes criticality as it involves a billing and collection function with no parallel manual system. Errors in data would invariably have financial implications. The Board's Central Office has the prerogative of making policy decisions on the Billing and Collection functions, deciding the rates and making changes in the computer programme accordingly. A new Oracle based system, adopting Relational Database Management System (RDBMS) technology is being implemented on a pilot basis and was under trial run in one out of 10 Areas (July 2005).

### **3.3.3 Audit coverage**

A review on water tax collection system in the Board was conducted in October 1996 and focused mainly on the hardware and application software. The review was included in the Report of the Comptroller and Auditor General of India – Civil - Government of Tamil Nadu for the year ended 31 March 1997 (Para 6.15) and was discussed by the Committee on Public Undertakings (COPU) during October 2003. The recommendations of the COPU on this review were presented to the Assembly in July 2004<sup>3</sup>. On

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<sup>1</sup> Common Business Oriented Language.

<sup>2</sup> Uniplexed Information Computing System (UNICS), later known as UNIX.

<sup>3</sup> 148<sup>th</sup> Report of COPU (XII Assembly).

receipt of the Report on Action Taken by the Government (February 2005) on these recommendations, the COPU presented its Report<sup>4</sup> thereon to the Assembly in April 2005. The issues dealt within these Reports, including recommendation of the COPU wherever relevant to the present review, have been mentioned in the appropriate paragraphs.

The current audit carried out during December 2003 and updated in January 2005 focuses on timeliness and accuracy of data obtained from the Corporation and Municipality of Ambattur and its implication on billing and collection. For this purpose, computer data relating to Areas 5 and 7 for the eighteen-month period from April 2002 to September 2003 were downloaded and examined. These two Areas were selected because Area 5 had the maximum number of assessees (21 *per cent*) and Area 7 had the maximum collection of Water/Sewerage Tax (18 *per cent*).

### **3.3.4 Results of Data Analysis**

As there was no parallel manual system, the Board depended totally on its computer data for the raising of demands, collection and accountal thereof. For this purpose, it was essential that the Board should have data free of errors and inaccuracies. Despite this, scrutiny of the data files disclosed deficiencies in the database as brought out in the following paragraphs.

## **Lack of General Controls**

### **3.3.5 Non-adoption of information available with civic bodies resulting in short assessment of tax/charges**

The Corporation and the Municipality of Ambattur are the agencies from which the Board obtains the AV of each property. Information is also available with these agencies on the usage of the property like commercial, domestic, etc. Failure of the Board to take cognisance of the current AV and the usage details made available by these agencies resulted in short assessment of Rs 6.27 crore as brought out in paragraphs 3.3.6, 3.3.7 and 3.3.8 mentioned below. Even if the short collection is made good by raising fresh demands with retrospective effect, a minimum loss of interest of Rs 93.67 lakh would be irrecoverable.

### **3.3.6 Short levy of Water/Sewerage Charges at flat rate due to incorrect adoption of usage**

The rate of charges for water supply to a property depends on type of usage like domestic, fully or partly commercial, industrial, etc. Incorrect adoption of usage thus has a direct financial implication. While the Corporation also had data on the usage a property was put to, the Board had its own mechanism to assess the usage independently.

<sup>4</sup> 184<sup>th</sup> Report of COPU (XII Assembly).

A comparison of the usage adopted by the Corporation with that adopted by the Board for the selected Areas disclosed that in several instances, properties which the Corporation had classified as fully or partly commercial were classified as fully domestic by the Board and was levying water/sewerage charges accordingly. On being pointed out in audit, the Board conducted site inspection and revised their classification as reflected in the table below.

Classification previously adopted by the Board	Half yearly charges for the previous classification (Rupees)	Revised classification by the Board	Half yearly charges for the revised classification (Rupees)	Number of cases
Water Charges - Domestic (Unmetered)	300	Water Charges - Partly Commercial (Unmetered)	900	1,260
- do -	300	Water Charges - Commercial (water non-intensive)	1,200 upto 12/2002 2,400 from 01/2003	703
- do -	300	Water Charges - Commercial (water intensive)	2,400 upto 12/2002 3,900 from 01/2003	29
- do -	300	Sewerage charges - Partly commercial	450 upto 12/2002 900 from 01/2003	84

**Failure of the Board to adopt the correct usage of the properties resulted in short assessment of water charges of Rs 1.30 crore.**

The overall minimum short assessment in respect of such incorrect adoption of usage during the period October 1998 (the date of last general revision of property tax) to September 2003 made available to audit by the Board worked out to Rs 1.30 crore for the two selected Areas alone and the short assessment continued. The Board is, however, required to ascertain the exact dates from which the properties were under the incorrect usage and effect the recovery of the short assessment. If there was a system in place to conduct a site inspection whenever the usage of a property as per the Board differed with that of the Corporation, the errors as depicted above would not have occurred.

On being pointed out in audit, the Managing Director (MD) of the Board stated (June 2004) that revised demands for Water Charges aggregating Rs 5.47 crore had been raised in respect of 8,756 cases in all the 10 Areas. On further observation by the audit, the Board stated (January 2005) that demands were raised for the post October 1998 period only due to practical difficulties. As such the action taken by the Board remained incomplete.

Even if the Board recovers the entire amount demanded, the loss of interest due to such belated recovery will be approximately Rs 20.65 lakh calculated at an interest rate of six *per cent* per annum. This loss is irrecoverable.

### **3.3.7 Short levy of water tax due to non-adoption of the latest AV of the property**

According to the Chennai Metropolitan Water Supply and Sewerage Act, 1978, the AV of all properties shall be assessed by the Corporation. Despite this, no system had been evolved with the Corporation to furnish to the Board all changes in AV, in any definite mode or periodicity. Conventionally, officials of the Board visit the Corporation at intervals of around two months

and obtain changes in AV that had occurred since their last visit. There is no system or control to ensure that all changes made in the AV of properties by the Corporation had been duly obtained and incorporated in the Board's computer system. The Corporation is free to change the AV in respect of any property from any date and the Board had no alternative but to obtain and adopt the updated AV from the Corporation and alter the Water Tax accordingly.

**Failure of the Board to adopt the updated Annual Values as assessed by the Corporation, resulted in short assessment of Water Tax of Rs 13.90 crore.**

A comparison of the AV adopted by the Board with that in the Corporation (as in March 2003) in respect of two selected Areas disclosed that in 8,991 cases, the AV adopted by the Board was less than the AV in the data at the Corporation, resulting in a short assessment of Water Tax to the tune of Rs 4.73 crore for the period October 1998 to September 2003. The aggregate percentage of short assessment was 39.77 and the number of short assessments falling in different ranges was as below:

Percentage of short assessment	Number of cases
Less than 20	1,668
Between 20 and less than 40	2,005
Between 40 and less than 60	2,493
Between 60 and less than 80	1,807
More than 80	1,018
<b>Total</b>	<b>8,991</b>

The Board stated (January 2005) that, at the instance of audit, additional demands have been raised in respect of 37,099 cases involving an amount of Rs 13.90 crore for all the 10 Areas. Even if the Board recovers the entire amount, the loss of interest due to belated recovery will be Rs 73.02 lakh calculated at the interest rate of six *per cent* per annum. This loss is irrecoverable.

### **3.3.8 Absence of system for updation of AVs resulting in short collection**

**Absence of a system to update the AV of the properties in Board's data to conform with that in Ambattur Municipality resulted in short assessment of water tax amounting to Rs 24.21 lakh.**

The Board supplies water to a part (18,623 assesseees) of the Municipality of Ambattur adjoining the City and is dependent on the Municipality for the data of the AVs of the properties for the calculation of Water Tax. The AV of these assesseees incorporated in the Board's computer records at the time of their inclusion as assesseees had remained unchanged for more than two decades. There was no system for keeping track of changes in the AV at the Municipality and inclusion of new assesseees by them resulting in huge financial loss to the Board. Further, General Revision Survey (GRS) carried out by the Ambattur Municipality in October 1998, which brought about a minimum increase of 20 *per cent* on the prevailing AV had also not been taken into account in respect of 11,459 assesseees resulting in a minimum short assessment of Rs 24.21 lakh to the Board computed for the period between October 1998 and September 2003. The data at the Board should have been compared with that at the Municipality and the AVs updated to avoid further loss to the Board.

The MD of the Board stated (July 2004) that it had raised additional demands of Rs 66.81 lakh in respect of 7,983 assesseees of this Municipality. However, audit noted (January 2005) that the action was confined to the post October 1998 period and was thus incomplete. Demands should have been raised in respect of all properties that existed prior to October 1998.

### **Errors and inaccuracies in data**

#### **3.3.9 Assigning of more than one code to the same assessee and duplications in master file**

The master file with one record per assessee contains assessee code, name, address, AV, etc. Examination of this file disclosed several instances where a customer had more than one record each having different codes with the same or different Annual values. All such duplications in the master file could not be detected through any programme or query.

As a result of such duplications it is observed that

- the master file depicted more number of assesseees than the actual;
- demands were raised in respect of the original and the duplicate codes in all such duplication cases;
- while assesseees continued to pay demands raised against one of these codes only, the demands raised against their duplicate codes continue to remain outstanding; and
- the duplication in codification had the effect of raising fictitious demands. This resulted in boosting the figures under the heads 'Income from Water and Sewerage Tax' and 'Sundry Debtors'.

In response to the audit observations, the MD of the Board stated (June 2004) that 1,113 duplicate codes in all the Areas had been eliminated.

#### **3.3.10 Wrong/Excess credits posted to the accounts of assesseees and high percentage of error in data**

The Demand files of the sample Areas 5 and 7 (as of October 2003) containing complete record of all demands and collections from the inception of the system disclosed excess collection of Rs 3.78 crore over the demands raised in respect of 20,538 assesseees. The reasons, as advanced by the Board, for such wrong/excess credits and action to be taken for their rectification is tabulated below.

**Duplications had arisen in master file due to assignment of more than one code to the same assessee. Demands were raised against both the codes, overstating the accrued income of the Board.**

**Incorrect postings of collections resulted in excess posting of credits, affecting the integrity of data. Collections were overstated by Rs 3.78 crore.**

Sl. No.	Reasons	Action to be taken
1.	Incorrect postings of amounts relating to other assessee <sup>5</sup> .	These amounts should be removed and posted to the accounts of correct assessee or placed under a suspense account.
2.	Non-withdrawal of credits posted from cheques that were later dishonoured.	Computer system should be modified to keep track of the actual collection of the cheques and treat the receipt as final only after its realisation as in the existing system the cheques that are received are accounted towards income that has accrued.
3.	Subsequent reduction in demand for some reasons in cases where original higher demand was paid in full.	The module for reduction of Annual Value and consequently the demands should be provided with facility for adjusting the excess credits against future demands.

As a result of such faulty/incorrect posting of collections, in case of 20,538 assessee (out of 1,40,915) in Areas 5 and 7, the collection exceeded the demand raised. The error level of 14.57 *per cent* adversely affected the integrity of the data. Government stated (July 2005) that (a) 3,059 cases involving Rs 1.15 crore had been rectified and remaining cases were being attended to and (b) software had been modified to guard against such errors.

### **3.3.11 Lack of General Controls and lacunae in transfer of data from the Corporation**

**As the assessee codes in the Corporation and that in the Board did not match with each other, smooth flow of essential information from the Corporation to the Board was not possible which had caused losses to the Board.**

The quantum of Water/Sewerage Tax payable by each assessee per half year is 3.5 *per cent* of the AV of the property. The AV in turn is determined by the Corporation for its taxation purpose and adopted by the Board as well. The Board adopts the assessee code assigned by the Corporation as key for the purpose of such transfer of data.

Scrutiny of data in respect of the sample Areas disclosed (December 2003) that there were 6,037 codes in the Board that were not available in the Corporation and 302 codes *vice versa*. In respect of all these cases, the flow of data from the Corporation to the Board will not be possible and periodical changes in the AV made by the Corporation will not get reflected in the accounts of the Board resulting in under-assessment as detailed in the succeeding paragraphs.

### **3.3.12 Assignment of temporary codes in the Board**

There were instances where water connection was given to a property even before the Corporation assessed it for tax and assigned a code to it. For collection and accounting of the Water Charges due, the consumer is assigned a temporary code by the Board incorporating a “T” as part of its 13-digit code. This temporary code was to be replaced with the permanent code when assigned by the Corporation.

<sup>5</sup> This observation was also made in the earlier Audit review (Paragraph 6.15.4 (a) (iv)) and the COPU has sought further details in its 184<sup>th</sup> Report (XII Assembly).

In Area 5, it was observed (June 2004) in audit that in 86 cases temporary codes were in operation despite the AV of the property being available. It is apparent that the Corporation had already assigned their regular assessee codes which the Board failed to adopt. Consequently, the Board will not be able to adopt any further changes in their AV made by the Corporation which would result in under-assessment in future.

The MD of the Board stated (June 2004) that (a) in Area 5 regular codes had been allotted in respect of 44 cases, (b) action was being taken in the remaining cases and (c) instructions had been issued to other areas to take corrective action. Government reiterated the same reply in July 2005.

### **3.3.13 Differences in assessee codes between the Corporation and the Board**

In the sample Areas, there were 6,037 codes of assessees in the Board, which were not available in the Corporation. The assessees existed in the Corporation's database also, but with different codes. In these circumstances, any upward revision of the AV relating to these assessees could not have reached the computerised accounts at the Board. However, the total actual under-assessment on this account could not be quantified.

The MD of the Board stated (June 2004) that (a) 2,428 incorrect cases were removed, (b) corrective action had been taken in respect of 1,769 cases and (c) 619 cases relating to vacant lands, educational institutions etc., suffered no General Revision of Survey (GRS). However, the Board was yet to act on the remaining 1,221 cases (July 2005) and similar exercise was due in respect of remaining eight Areas as well.

### **3.3.14 Eligible assessees not brought under Assessee List**

**Properties assessed by the Corporation not brought under the assessee list of the Board resulting in loss of Rs 10.90 lakh.**

A comparison of the assessee list available in the Corporation with that in the Board disclosed that in respect of 302 cases in the two selected Areas, properties assessed for tax by the Corporation were not brought under the assessee list of the Board. Such cases of omission dated back to more than eight months resulting in under-assessment of Rs 10.90 lakh by the end of 30 September 2003 and loss on this account would also be recurring. Government reiterated (July 2005) the reply of the MD of the Board (June 2004) that 2,128 cases had been identified in all the Areas and included afresh in the accounts and demands aggregating Rs 2.91 crore raised pertaining to the period October 1998 to September 2004. It is seen that the inclusion of assessees was from periods after October 1998 only. A verification of the Corporation data disclosed that there were cases relating to periods prior to October 1998 also and hence the corrective action taken so far was incomplete.

### **3.3.15 Lack of General Controls leading to incorrect calculation of surcharge**

The Board introduced (October 1997) surcharge on all belated payments at the annual rate of 24 *per cent* on Water Tax, 18 *per cent* on Water Charges for

domestic consumers and 24 *per cent* for both Tax and Charges for commercial consumers. The rate of surcharge was reduced to 15 *per cent* per annum for all class of assesseees with effect from April 2003. Surcharge was payable from the first day of a half year for payments relating to the previous half year and from the 31<sup>st</sup> day of serving a notice in respect of any increase in the amounts due. In case of increases in Tax due to the GRS carried out in October 1998, the related surcharge was applicable only from April 2002. During 2002-03, collection of surcharge on belated payments fetched an income of Rs 16.88 crore to the Board. Despite this, there were deficiencies in the calculation of surcharge and the mode of its collection as brought out in the succeeding paragraphs.

### 3.3.16 Excess calculation of Surcharge by computer system

**The computer system calculated the surcharge in excess ignoring the effective due dates and time allowed for payment. This resulted in a manual recalculation in over 18,000 cases.**

A provision was made in the software to calculate the surcharge payable by assesseees. However, in respect of all increases in tax with retrospective effect and tax increases due to general revision, etc., the computer system calculated the surcharge from the date of effect of the increase, ignoring the date of intimation of the increase and time allowed for payment. In all these cases, the surcharge had to be recalculated manually at the collection point. As a result, surcharge of Rs 1.52 crore was calculated manually and collected in 18,804 cases in the selected Areas alone wherein the surcharge calculated by the computer was Rs 3.91 crore. A test check revealed that in 44 cases, involving Rs 1,014, the manually calculated surcharge was incorrect. Similarly, in 884 cases the computer calculated surcharge was collected despite the same being in excess of the actual surcharge. Such manual recalculation of surcharge is undertaken only in the Area offices and not at other collection points, that too when expressly asked for by the assesseees. Thus inaccuracies and arbitrariness existed in the manual recalculation of surcharge. Though the collection of dues was done at the Head Office, the Area offices, the Depots and selected Bank branches, only the Area offices were authorised to recalculate the computer calculated surcharge. In all other collection points, surcharge as calculated by the computer system was collected, ignoring inaccuracies, if any, therein. Even in the Area offices the amount of surcharge incorrectly calculated by the computer was not corrected in all the cases that required correction.

Thus, on account of the computer system providing an inaccurate figure for surcharge, wide ranging practices were followed at the Area offices by the collecting officials, while correcting figures that had been calculated by the computer system. Government in its reply (July 2005) stated that in the new Oracle system under implementation, the surcharge would be calculated from the date of intimation of revision of tax demand and the other deficiencies pointed out will also be taken care of.

**Excess Surcharge as calculated by the computer system was collected from a majority of the assesseees.**

Revision of the AV is normally done by the Corporation with retrospective effect of a few months to a few years leading to a corresponding revision of Water Tax from the same earlier date. The computer programme, due to deficiency, instead of calculating the surcharge from the date on which intimation with regard to revision was made after allowing for grace period

admissible for making payment, incorrectly computed the revised water tax from the date from which the AV of the property had been retrospectively revised. Resultantly, due to incorrect computation the amount levied as surcharge was higher and in a test check audit noticed that this incorrect computation not only caused excess billing but this billed amount was also collected from the assesses. Though the Government stated (July 2005) that the excess amount collected from the assesses are refunded/adjusted against the future demand no specific details were furnished regarding the number of cases and the quantum of refunds/adjustment made, etc. Government had been addressed (August 2005) to furnish specific details regarding refunds/adjustments made.

### **3.3.17 Updation of software in calculation of surcharge**

Though it was within the scope and feasibility of the computer system, it was not programmed to project the exact amount of surcharge due from an assessee. Several of the deficiencies discussed in paragraph 3.3.16 were directly attributable to this deficiency. The only additional data required for the purpose is the date of serving of notice on any increase in tax to the assessee. Calculation of surcharge by the computer system without vouching for its correctness was the root cause of several inconsistencies seen in the calculation and collection of surcharge by the Board. Government stated (July 2005) that the inconsistency has been taken care of in the new system planned to be fully implemented by March 2006.

### **3.3.18 Inadequacy of Internal Audit**

**Failure of Internal Audit to point out the short assessments resulted in loss of interest Rs 93.67 lakh.**

Internal audit at the Board is not technically equipped to examine the totally computerised billing and collection functions. While policy decisions were made at the Central Office and computer programmes were developed by them, there was no effective mechanism to monitor the correctness of the implementation thereof at the Area offices. Due to this, short assessments and incorrect procedures followed at the Area offices remained undetected. The loss of interest of Rs 93.67 lakh could have been avoided if Internal Audit had pointed out such short collections in time.

Government stated (July 2005) that Internal Audit would take up the verification of records of taxes and charges in each Area and that the Board proposes to engage Chartered Accountants for this purpose.

### **3.3.19 Conclusions**

Though the application software used by the Board was generally dependable, the database for computation was not free from deficiency. The programme was not designed properly so as to compute the correct amount of surcharge that has to be levied and therefore, for computation of surcharge manual calculation was also resorted to, which caused non-uniformity of procedures in computation. Despite the Board having depended entirely on the Corporation for the AV of properties, no definite and regular arrangement was in place for

obtaining the same from the Corporation at prescribed periodicity. As a direct consequence thereof, there was an under-assessment of Rs 4.73 crore towards Water/Sewerage Tax and Rs 1.30 crore towards Water Charges apart from loss of interest of Rs 93.67 lakh in respect of the two selected Areas alone. No system had been formulated for updation of data relating to assesseees in the Ambattur Municipality resulting in considerable recurring loss to the Board. The overall quantifiable short collection incurred by the Board in respect of the selected two Areas alone was Rs 6.27 crore. The Board accepted most of the audit findings and had also initiated corrective action in terms of rectification in the programme or in system of conversion of data. Further, while the audit findings were limited to only two areas out of ten in the city, the Board in raising of additional demands, pursuant to audit findings, also covered the balance areas. Thus, at the instance of audit, total additional demands in all the areas that has been raised aggregates to Rs 22.95 crore uptill July 2005.

### **3.3.20 Recommendations**

- Validation controls should be introduced at the data input stage so as to guard against duplicate entries by validating earlier recorded assessee name/ door number/ street name, etc.
- Proper system for periodic updation and reconciliation of data should be evolved so as to ensure that property records as are maintained by the Corporation and those that are entered in the database of the Board match.
- A methodology should be evolved out whereby the Board should periodically countercheck the classification that has adopted by the Corporation.
- Provision should be made for the calculation of the exact amount of surcharge on belated payment of dues, taking into account all parameters.
- The Internal Audit System should be equipped to examine computer data and ensure the correctness of the assessments and collections periodically to avoid time-barred assessments and resultant loss of interest.