CHAPTER – III

AUDIT OF TRANSACTIONS: STATE PUBLIC SECTOR UNDERTAKINGS

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Audit of Transactions: Public Sector Undertakings

Audit of transactions of the Public Sector Undertakings of Government Departments brought out instances of lapses in management of resources and failures in the observance of the norms of regularity, propriety and economy.

Energy Department

Maharashtra State Electricity Distribution Company Limited

3.1 Performance of Maharashtra State Electricity Distribution Company Limited Pre and Post Ujwal DISCOM Assurance Yojana (UDAY)

Though MSEDCL received an amount of ₹ 4,960 crore from GoM under UDAY scheme to repay its high cost debt, it did not receive any other dedicated fund to achieve various operational parameters. As a result, MSEDCL was left to improve its operational parameters through its own resources or under other Central/State schemes. MSEDCL approached (March 2017) the GoM for availing guarantee for raising bonds of ₹ 1,653 crore. However, GoM did not agree to provide guarantee to MSEDCL for raising the funds. There was no firm commitment from GoM to expeditiously clear the outstanding dues of MSEDCL.

MSEDCL could not achieve its targets of bringing down the AT&C losses to the desired level. On the contrary, AT&C losses of MSEDCL increased from 16.94 *per cent* in 2018-19 to 20.73 *per cent* in 2020-21. Thus, the main objectives of achieving financial and operational turnaround of MSEDCL were not achieved inspite of implementing UDAY scheme.

3.1.1 Introduction

Maharashtra State Electricity Distribution Company Limited (MSEDCL) was incorporated (June 2005) on unbundling of the erstwhile Maharashtra State Electricity Board (MSEB) as part of reforms in power sector. MSEDCL is the Distribution Licensee for the State of Maharashtra except for Greater Mumbai and certain suburban areas. MSEDCL earned revenue of ₹ 73,041.61 crore from sale of power to approximately 2.85 crore consumers in the Financial Year (FY) 2020-21.

With the objective of improving the health of State-owned DISCOMS, the Ministry of Power (MoP), Government of India (GoI) launched (November 2015) the Ujwal DISCOM Assurance Yojana (UDAY). UDAY was envisaged as a path breaking reform for realising the vision of affordable and accessible ‘24X7 Power for All’.

The main objectives envisaged in the UDAY scheme were:

- Financial turnaround of the DISCOMs; and
- Improving operational efficiency of the DISCOMs.

Government of Maharashtra (GoM) communicated (January 2016) its 'in principle' acceptance to MoP to participate in the UDAY scheme.

As stipulated[1] under the UDAY scheme, Tripartite Memorandum of Understanding (MoU) was entered (October 2016) into by MoP (GoI), GoM and MSEDCL. MoU laid down the obligations/commitments of MoP, GoM and MSEDCL for achieving the financial and operational milestones as required by the UDAY scheme.

Some of the major obligations/commitments of each of the signatory parties to the MoU are detailed below:

I. Obligations/Commitments of Ministry of Power, GoI

- Facilitate the State to get additional and priority funding through Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS) and/or such other schemes of MoP or Ministry of New and Renewable Energy (MNRE) as outlined in the scheme.
- Facilitate through Ministry of Coal increased supply of domestic coal to Maharashtra State Power Generation Company Limited (MSPGCL).
- Allocate coal linkage to the State at notified price based on which the State will go for tariff-based bidding.
- Ensure rationalisation of coal linkages.
- Ensure supply of 100 *per cent* crushed coal from Coal India.
- Rationalise coal prices based on Gross Calorific Value (GCV).
- Facilitate National Thermal Power Corporation (NTPC) to provide hand holding support for improving operational efficiencies of MSPGCL.

II. Obligations/Commitments of GoM

- GoM was to take over Medium Term and Short Term (MT&ST) debt of ₹ 4,960 crore (being 75 *per cent* of MT&ST debt of ₹ 6,613 crore as on 30 September 2015) over a period of five years from 2016-17 to 2020-21.
- GoM was to guarantee repayment of principal and interest for the balance 25 *per cent* MT&ST debt remaining with MSEDCL.
- Release outstanding dues of the State Government Departments to the DISCOMs expeditiously.
- Future losses were to be taken over by GoM in a graded manner from 2016-17 to 2020-21.

III. Obligation/Commitments of MSEDCL

- For the 25 *per cent* of the Medium and Short term loan remaining with MSEDCL, MSEDCL was to issue State Government guaranteed bonds or get them converted by banks/FIs into loans/bonds with interest not more than the banks base rate plus 0.1 *per cent*.

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[1] Office Memorandum issued by MoP, GoI dated 20 November 2015.

- Reduce Aggregate Technical & Commercial (AT&C) losses from 20.79 *per cent* in FY 2014-15 to 14.98 *per cent* by FY 2018-19.
- Eliminate the gap between Average Cost of Supply (ACS) and Average Revenue Realisation (ARR) by FY 2018-19.
- Achieve physical feeder segregation by March 2018.
- Achieve 100 *per cent* feeder metering by 31 December 2016.
- Achieve 100 *per cent* Distribution Transformer (DT) metering by 30 June 2018.
- Install Smart meters for all consumers other than agricultural consumers.
- Provide electricity access to unconnected households as per trajectory finalised in the '24X7 Power for All' document by FY 2019.
- Take measures for demand side management and energy efficiency by providing LEDs for domestic and other category consumers.
- Replace at least 10 *per cent* existing agriculture pumps with energy efficient pumps by March 2019.
- Undertake appropriate measures for timely filing of Tariff Petitions.
- Devise Key Performances Indicators (KPI) for each officer-in-charge on areas of AT&C losses reduction and improvement in meter/billing/ collection efficiency.
- Set up Centralised Customer Call Center for timely resolution of complaints and introduce e-payment avenues to consumers for bill payments *etc*.

3.1.2 Audit objectives

The audit was conducted to examine:

- whether directives pertaining to financial parameters envisaged in the UDAY scheme and MoU have been adhered to and the overall objective of financial turnaround of the DISCOMs were achieved; and
- whether targeted operational improvement and intended outcomes were achieved by implementing operational efficiencies as envisaged in the tripartite MoU and the Scheme.

3.1.3 Audit criteria

The audit criteria were drawn from the following sources:

- Office Memorandum of the UDAY scheme issued by MoP, GoI.
- MoU and Addendum to MoU signed amongst MoP, State Government and DISCOM.
- The Electricity Act, 2003 and Maharashtra Electricity Regularity Commission (MERC) (Electricity Supply Code and other conditions of supply) Regulations, 2005 and other instructions issued by MERC.
- Agenda and Minutes of Meeting of Board of Directors of MSEDCL.

- Lending agreement of MSEDCL with banks under UDAY.
- Directions/instructions issued by MoP, GoI and State Government from time to time.

3.1.4 Scope and Methodology of audit

The audit was conducted during September 2020 to October 2021 to analyse the effectiveness and efficiency in the performance of MSEDCL, pre and post implementation of UDAY for the period from 2014-15 to 2020-21. It included scrutiny of records at Head Office (HO) and nine[2] circle offices (out of 45) which were selected from circles having high AT&C losses as well as those circles that have achieved reduction in AT&C losses.

The scope and audit methodology adopted for attaining the objectives was explained to the top Management during an Entry Conference held in October 2020. It also involved scrutiny/examination of relevant records at HO and the selected field units of MSEDCL, analysis of data, interaction with Management and issuing preliminary audit enquires to the Management of MSEDCL. Further, to check efficiency of generating unit and transmission loss of transmission unit in pre and post UDAY scenario, information and records were obtained from MSPGCL and Maharashtra State Electricity Transmission Company Limited (MSETCL).

Exit conference was held on 20 December 2021 with the officials of MSEDCL and representatives of GoM. Replies received from the Company and GoM have suitably been incorporated in the Report.

Audit findings

3.1.5 Implementation of UDAY Scheme in Maharashtra

UDAY Scheme was approved (November 2015) by the MoP, GoI with an objective to improve the financial and operational efficiency of the State DISCOMs. As stated above, all three parties to the MoU, *i.e.* MoP (GoI), GoM and MSEDCL, had certain obligations/commitments to perform.

GoM after a meeting (December 2015) with the officials of MSEDCL, communicated (4 January 2016) its in-principle acceptance to MoP for MSEDCL to participate in UDAY scheme.

Initially, MSEDCL had proposed (15 January 2016) to GoM to take over its total debt of ₹ 22,097 crore (outstanding as on September 2015) and Operational Funding Requirement (OFR) of ₹ 6,597 crore (*i.e.* total ₹ 28,694 crore) under the scheme. The said proposal was revised (14 March 2016) by MSEDCL to include only the operational parameters, without any financial support. Thereafter, during the Review meeting (24 June 2016) with GoM, it was decided to re-examine the implementation of the Scheme with Financial parameters. The draft proposal (20 September 2016) was again revised and forwarded to GoM to take over 75 *per cent* of the total debt of ₹ 22,097 crore and to restructure the balance 25 *per cent* debt by floating bond with GoM guarantee.

[2] Bhiwandi, Buldhana, Nandurbar, Palghar (mini), Parbhani, Pen, Pune (Rural), Solapur, Vashi.

Audit observed that against the draft proposal covering entire debt of ₹ 22,097 crore, the Tripartite MoU[3] entered (07 October 2016) covered only the Medium Term and Short Term (MT&ST) loans amounting to ₹ 6,613 crore. Consequently, GoM decided to take over an amount of only ₹ 4,960 crore, being 75 *per cent* of MT&ST of ₹ 6,613 crore, and balance 25 *per cent* (₹ 1,653 crore) was to be issued by the MSEDCL as State guaranteed DISCOM bonds. As a result, MSEDCL continued to bear interest ranging from 9.75 to 12.19 *per cent* per annum on long term loans and interest ranging from 7.02 to 10.15 *per cent* per annum on working capital loans on the remaining[4] borrowings.

MSEDCL accepted (January 2022) that the audit findings were factual. In reply, GoM stated (July 2022) that the decision was taken in the cabinet meeting held on 4 October 2016 to take over only the MT&ST loans amounting to ₹ 6,613 crore instead of the entire debt.

GoM issued (10 February 2017) special securities *viz.* GoM Special Bonds, 2022 of 7.33 *per cent* amounting to ₹ 2,000 crore; and 7.38 *per cent* GoM Special Bonds, 2022 of ₹ 2,959.75 crore to raise the above funds and the funds so raised were transferred to MSEDCL as loan on 13 February 2017. GoM later converted ₹ 4,960 crore (₹ 992 crore annually) from loan to grant to MSEDCL as per schedule specified in MoU.

3.1.6 Deficiencies in implementation of the scheme

Audit observed that though MSEDCL received (13 February 2017) an amount of ₹4,960 crore from GoM to repay its high cost debt and thereby reduce the interest burden, it did not receive any other dedicated fund under UDAY scheme to achieve various operational parameters such as 100 *per cent* feeder segregation, DT metering *etc.* as laid down in the MoU for UDAY. As a result, MSEDCL was left to improve its operational parameters through its own resources or under other Central/State schemes.

Audit also observed that the quantitative targets set for achieving various operational parameters covered in the MoU remained unchanged although the MoU covered only the MT&ST loans amounting to ₹ 6,613 crore against the earlier proposal to cover entire debt of ₹ 22,097 crore.

In reply the GoM stated that scheme was designed to achieve the financial turnaround and to improve operational efficiency of the DISCOMs. Under the financial turnaround the entire debt as on 30 September 2015 was to be taken over by the State Government. The targets under operational efficiency were for ascertaining exact distribution losses and to take appropriate action to reduce the loss, which was entirely under the jurisdiction of MSEDCL, and it could not be reduced partially though amount of debt taken over by GoM was reduced.

The achievements of MSEDCL against each of the financial and operational parameters/obligations as set under the MoU of UDAY are discussed in the ensuing paragraphs:

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3 Tripartite MoU entered into by MoP (GoI), GoM and MSEDCL.

4 ₹ 22,097 crore outstanding as on September 2015 *less* ₹ 6,613 crore taken over under UDAY = ₹ 15,484 crore.

Financial parameters

3.1.7 Taking over 75 per cent of Medium Term and Short Term debt

The total debt of MSEDCL outstanding as on September 2015 was ₹ 22,097 crore as shown in **Table 3.1.1**

Table 3.1.1: Total debt of MSEDCL outstanding as on September 2015

Sl. No.	Debt type	Amount (₹ in crore)
1	Long term	13,090
2	Short Term (₹ 6,156 crore)/Medium Term (₹ 458 crore)	6,613
3	Working capital	2,394
	Total	**22,097**

(Source: Information furnished by MSEDCL)

As per MoU, GoM took over only MT&ST debt of ₹ 4,960 crore (being 75 *per cent* of the MT&ST debt as on 30 September 2015) and issued (February 2017) non-SLR bonds (non-Statutory Liquidity Ratio bonds) to raise these funds.

Audit observed that even though the amount of MT&ST debt (₹ 4,960 crore) agreed to be taken over was as on September 2015, the MoU was entered into in October 2016 and funds were actually transferred by GoM to MSEDCL only in February 2017. During this intervening period (October 2015 to January 2017 *i.e.* 16 months), MSEDCL continued to pay ₹ 661 crore[5] towards interest on these MT&ST debts. As a result, the MT&ST debt burden had already ballooned to ₹ 5,621 crore against which only ₹ 4,960 crore was taken over.

MSEDCL replied that even if funds from GoM were received in September 2015 itself, the debt burden would still exist at the rate of 7.36 *per cent* per annum.

The **Table 3.1.2** below depicts the change in debt, accumulated losses and arrears position of MSEDCL during the period of implementation of UDAY.

Table 3.1.2: Year wise total debt, accumulated losses and arrears position of MSEDCL

Sl. No.	Year	Total Debt of MSEDCL	% change in total debt	Accumulated losses in crore	% change in loss	Arrears[6]	% change in arrears
1	2014-15	17,021	-	(-)7,087	-	14,135	-
2	2015-16	21,111	24.03	(-)28,165	297.42[7]	17,817	26.05
3	2016-17 (Receipt of UDAY funds)	27,264	29.15	(-)27,380	-2.79	22,133	24.22
4	2017-18	29,242	7.25	(-)26,887	-1.80	27,569	24.56
5	2018-19	35,197	20.36	(-)24,001	-10.73	35,279	27.97
6	2019-20	39,089	11.06	(-)23,317	-2.85	44,825	27.06
7	2020-21	42,910	9.78	(-)24,638	5.67	44,680	(-)0.32

(Source: Data provided by MSEDCL from its Accounts)

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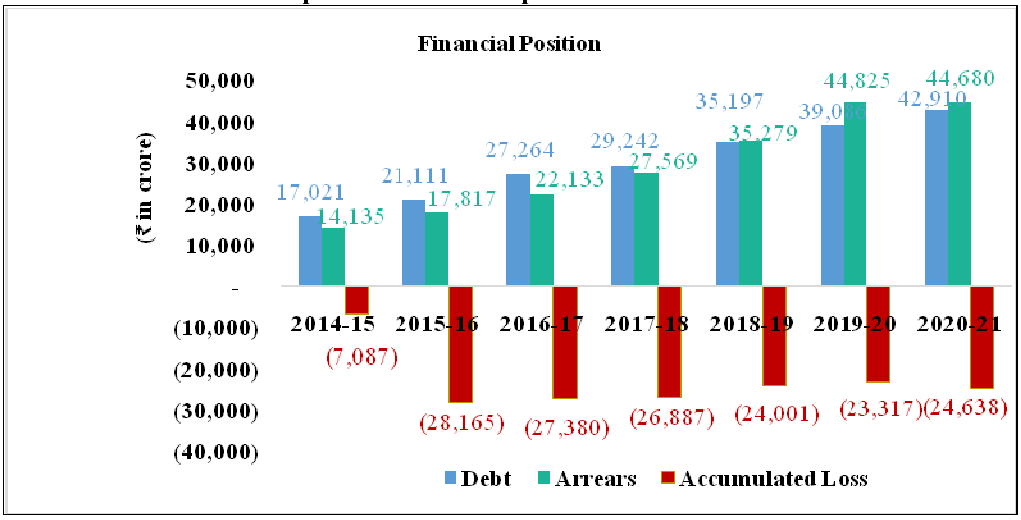
5 Considering minimum borrowing rate of 10 *per cent* interest per annum for the period from October 2015 to January 2017 (16 months).

6 Excluding dues from Public water works, street lights and excluding permanently disconnected consumers.

7 Due to depreciation on revalued assets for the period 2005 to 2016 consequent to finalisation (March 2016) of Transfer scheme of power companies.

Further, it was observed that even after taking over the MT&ST debt, the total debt position of MSEDCL continued to worsen as can be seen from the **Graph 3.1.1** below.

Graph 3.1.1: Financial position of MSEDCL



(Source: Data provided by MSEDCL from its Accounts)

Audit observed that total debt of MSEDCL increased from ₹ 17,021 crore in 2014-15 to ₹ 42,910 crore in 2020-21. The total debt position of MSEDCL also worsened due to poor collection from various categories of consumers. The arrears towards electricity bills (₹ 44,680 crore) were even more than the total debts (₹ 42,910 crore) as on March 2021. If part of these arrears were recovered, the amount could have been used to retire some portion of debt. Therefore, inspite of GoM taking over MT&ST loans, the financial turnaround of MSEDCL could not be achieved.

MSEDCL accepted that it had to borrow Medium Term Loan as well as Long Term loans for implementation of projects. Moreover, in FY 2020-21, MSEDCL had to resort to Bill Discounting facility due to Covid-19 pandemic which had increased the debts. GoM accepted that during the period 2014-15 to 2019-20, the Government had decided not to disconnect the supply of agricultural consumers on non-payment of arrears and hence arrears had piled up to about ₹ 45,000 crore, which resulted in worsening the cash flow of MSEDCL. Further, GoM admitted that financial turnaround as envisaged could not be achieved.

3.1.8 Outstanding dues of the State Government Departments

As per MoU, GoM was required to pay all outstanding dues of the State Government departments to MSEDCL towards supply of electricity expeditiously to facilitate financial turnaround of the MSEDCL.

Audit observed that as per the final MoU entered into in October 2016 there was no mention of a specific date by which outstanding dues of Government Departments would be paid to MSEDCL. Thus, there was no firm commitment from GoM to expeditiously clear the outstanding dues of MSEDCL. As a result, dues from some of the GoM departments[8] which stood at ₹ 2,828.25 crore as on 30 September 2015 increased to ₹ 8,381 crore as on

[8] Dues pertaining to Public Water Works and Street Light.

March 2021. Consequently, MSEDCL had to resort to working capital loans which stood at ₹ 2,735 crore (as on March 2021) leading to further deterioration of its financial health.

MSEDCL replied that it had been continuously following up with State Government to clear the dues. GoM directed (June 2021) the concerned local authorities to pay MSEDCL's dues on priority. Further, GoM also directed that any grant to local bodies would be released subject to timely payment of MSEDCL dues pertaining to street light and water works. Thus, due to initiatives taken by GoM, further increase in arrears from Government department would be restricted.

GoM admitted that State Government dues were mainly of public water works and street light connections of urban and rural local bodies. It further stated that though all these departments were under GoM, the authorities for payment were different and hence specific date by GoM was not mentioned in MoU.

The reply of GoM is not tenable as firm commitment, as per the obligation of GoM was necessary, to expeditiously clear the outstanding dues of Government Departments to facilitate timely financial turnaround of MSEDCL.

Recommendation No. 1: GoM may ensure that all electricity dues of MSEDCL from departments and local bodies towards public water works and street lights are cleared in a time bound manner.

3.1.9 Facilitating conversion of 25 *per cent* of debts of MSEDCL into loan or bonds

As per MoU, GoM was to guarantee repayment of principal and interest payment of ₹ 1,653 crore (being balance 25 *per cent* of MT&ST debt of ₹ 6,613 crore) for funds to be raised by MSEDCL through bonds or other appropriate mechanism. Accordingly, GoM issued (December 2016) a Government Resolution wherein it was agreed to stand guarantee for bonds of ₹ 1,653 crore to be raised by MSEDCL. MSEDCL approached (March 2017) the GoM for availing guarantee in accordance with the GR along with waiver of guarantee fee. GoM however replied (August 2018) that since the loans outstanding on 30 September 2015 were already repaid by MSEDCL, it was not possible for GoM to stand guarantee to MSEDCL for raising balance funds.

Audit observed that GoM had taken over only MT&ST loans having tenure of upto two years. As the MoU entered (October 2016) covered the MT&ST loans as on 30 September 2015 and the amount was received in February 2017, the MT&ST loans were already due in the intervening period and hence paid by MSEDCL. The amount of ₹ 4,960 crore received by MSEDCL was, therefore, used to repay the working capital requirement, which was met through overdraft (approximately ₹ 3,500 crore), and short term loans (₹ 1,450 crore).

As a result, bonds of ₹ 1,653 crore towards the remaining 25 *per cent* could not be raised even though it was agreed upon in the MoU. This further weakened the financial position of MSEDCL.

MSEDCL accepted that since GoM denied to stand guarantee to MSEDCL for raising bonds for the balance debt of ₹ 1,653 crore, MSEDCL had raised the funds at market rates. GoM stated that by the time of disbursement of grant in February 2017, the MT&ST loans were already repaid by MSEDCL.

GoM's denial (August 2018) to stand guarantee citing loans outstanding were already repaid by MSEDCL was not in line with the GR issued (December 2016) by GoM itself, as it was well aware at the time of entering into MOU that MT&ST loans were maturing by August 2017.

Operational parameters

3.1.10 Feeder and distribution transformer metering

Metering of Distribution Transformers[9] (DTs) helps in improving the energy distribution system and load balancing. It also provides real time input and output data of the units consumed for tracking losses and for corrective action.

3.1.10.1 Distribution Transformer metering

As per the MoU, all DTs were to be metered by 30 June 2018 by MSEDCL and 100 *per cent* metering of DTs was to be achieved. The status of DT metering is shown below in **Table 3.1.3**.

Table 3.1.3: Position of DTs metered as on 31 March 2021

Sl. No.	Particulars	Urban	Rural	Total
1	Number of DTs metered in base year (2015-16)	77,875	46,119	123,994
2	DTs to be metered during the period 2016-2021**(A)**	1,85,448	2,01,589	387,037
3	DTs actually metered during the period 2016-2021**(B)**	3,998	1,760	5,758
Total	**% achievement (B x 100/A)**	**2.15**	**0.87**	**1.48**

(Source: Progress report of MSEDCL for 2020-21 as per UDAY dashboard)

As seen from above, against the target of 100 *per cent* DT metering upto 30 June 2018, MSEDCL could achieve only 1.48 *per cent* metering even after more than two years from the target date. However, MSEDCL while depicting the position of DT metering in the UDAY Dashboard as on March 2021 had shown the achievement as 31 *per cent* and 19.33 *per cent* for urban and rural areas respectively. Audit observed that this was due to MSEDCL erroneously including the DTs which were already metered upto the base year.

Further, audit observed that meter reading was not taken even for metered DTs, which rendered the entire exercise of DT metering ineffective.

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[9] Distribution transformer is an electrical device used for stepping down or stepping up the supply voltage. It steps down the primary distribution voltage of 11 KV or 33 KV.

Photograph 3.1.1:Sub-division, MulshiGhera, Sinhagad, Maharashtra (07.09.2021–11.49 A.M.)

Photograph 3.1.2:Sub-division, MulshiGhera, Sinhagad, Maharashtra (07.09.2021–11.36 A.M.)

Photograph 3.1.3:Sub-division, Mulshi Ghera, Sinhagad, Maharashtra (07.09.2021–11.48 A.M.)

Photograph 3.1.4:Sub-division, Mulshi Girinagar, Pune, Maharashtra (07.09.2021–11.38 A.M.)

(Source: Photographs taken by audit team during audit)

Further, as can be seen from some of the pictures above of Pune (Rural) Circle, the DTs were not maintained properly. It was seen that in many places DTs were not placed in adequately secured enclosures.

MSEDCL accepted that metered DTs were mostly non-communicating. Proposal for installation of DT meters on agricultural feeders had been submitted for approval of MERC and non-agricultural DTs were proposed to be metered by using communicable meters under Revamped Distribution Sector Scheme (RDSS).

3.1.10.2 Feeder Metering

As per MoU, MSEDCL had to achieve 100 *per cent* feeder metering[10] by 31 December 2016. Audit observed that MSEDCL was able to achieve this target within the stipulated period.

3.1.11 Physical feeder segregation

Feeder separation refers to supply of electricity to agricultural (AgC) and non-agricultural consumers (non-AgC) separately through dedicated feeders which would allow MSEDCL to regulate power supply to AgC for effective Demand Side Management (DSM).

10 Meter installed on a feeder to measure the power output from the feeder.

As per MoU, MSEDCL had to complete 100 *per cent* feeder segregation by March 2018. Under Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for rural electrification, MSEDCL had proposed 837 feeders for physical separation. Against this, only 636 feeders were installed (as on March 2021). Further, audit observed that MSEDCL had 956 feeders which continued as mix feeders (*i.e*. agricultural load more than 25 *per cent*) even in March 2021. It is pertinent to note that the UDAY dashboard as on March 2021 showed that 100 *per cent* feeder segregation was achieved by MSEDCL.

MSEDCL accepted that though DPR was prepared for segregation of mix feeders, they were yet to be segregated due to lack of funds. It also stated that separation of balance feeders was, now, proposed under newly launched Revamped Distribution Sector Scheme (RDSS) by GoI.

3.1.12 Installation of Smart meters

As per MoU, MSEDCL was to install 80,065 Smart Meters (SMs) for all consumers (other than AgC); 15,385 smart meters for consumers with consumption more than 500 units/month by 30 June 2018 and 64,680 smart meters for consumers with consumption more than 200 units/month by June 2020.

Audit observed that the milestones for installation of smart metering as envisaged under the MoU was not achieved in respect of above-mentioned consumers as no smart meters were installed by MSEDCL under UDAY scheme.

MSEDCL stated that it has proposed to install smart meters for approximately 1.66 crore consumers (other than agricultural consumers and scattered consumers) under RDSS.

3.1.13 Measures for demand side management

As per MoU, MSEDCL was to undertake measures for Demand Side Management (DSM) and energy efficiency which included providing three crore energy efficient LED bulbs under DELP (Domestic Efficient Lighting Program) and replacing at least 10 *per cent* existing agriculture pumps with energy efficient pumps by March 2019.

Audit observed that MSEDCL provided only 2.20 crore LED bulbs to consumers, under DELP upto March 2021.

Audit observed that out of the 40.16 lakh agricultural consumers, MSEDCL had to replace at least 4.02 lakh (being 10 *per cent* of total pumps) of the agriculture pumps. However, only 2,209 pumps were replaced during April 2017 to March 2021.

3.1.14 Energy audit

Energy audit is the most effective tool, which provides the balance between energy supplied and energy billed. It is the first step in identifying the areas of leakages, wastage and inefficient energy use so that steps can be taken to contain the loss.

DT level Energy Audit reports could not be generated as DT meter reading was not carried out. Therefore, the energy audit was conducted at feeder level by MSEDCL. While conducting the feeder level audit, total units sold/billed from particular feeder were compared against the input units into feeders. This gave an incorrect picture as the total units sold/ billed included consumers billed on average consumption basis, revised/ corrected bills, different billing cycles were included *etc*.

MSEDCL accepted that there were various issues in DT meter readings and had proposed to install meters with embedded MODEMs, so that meter readings will be available automatically and DT level energy audit can be conducted.

3.1.15 To reduce AT&C losses

The concept of Aggregate Technical & Commercial (AT&C) losses provides a realistic picture of loss situation of the electricity Distribution Company. It is a combination of technical loss (11 KV and DT losses, LT line losses *etc*.) and commercial loss (inefficiencies in billing, theft, inefficiency in collection *etc*.).

3.1.15.1 As per the MoU of October 2016, MSEDCL had to reduce its AT&C losses from 18.71 *per cent* in 2014-15 to 14.39 *per cent* in 2018-19. Later as MERC re-instated (November 2016) the AT&C losses in its Multi Year Tariff (MYT) Order, an addendum to MoU (October 2017) was entered into and targets for AT&C losses were revised from 20.79 *per cent* in FY 2014-15 to 14.98 *per cent* by FY 2018-19. The targets for FY 2019-20 onwards were not included in the MoU.

Year-wise target for AT&C losses *vis-a-vis* achievement is as given in **Table 3.1.4**:

Table 3.1.4: Achievement of AT&C targets

Year	Target	Achievement
2014-15	20.79	20.79
2015-16	21.51	21.51
2016-17	18.88	18.88
2017-18	17.51	17.41
2018-19	14.98	16.94
2019-20	14.98	21.32
2020-21	14.98	20.73

(*Source: Data provided by MSEDCL and Addendum to Tripartite MOU*)

It could be seen from above that MSEDCL achieved the AT&C losses targets for the years 2014-15 to 2017-18. It was observed that the targets for the year 2014-15 to 2016-17 were revised on the basis of actuals as the addendum was entered into in October 2017. Audit observed that later MSEDCL could not achieve its targets of bringing down the AT&C losses to the desired level. On the contrary, AT&C losses of MSEDCL had increased from 16.94 *per cent* in 2018-19 to 20.73 *per cent* in 2020-21 due to poor collection mainly from agricultural consumers and various State Government departments. Agricultural consumers as on 31 March 2021 had outstanding dues of ₹ 36,827 crore, out of total dues of ₹ 44,680 crore (i.e. 82.42 *per cent* of the total receivables).

MSEDCL accepted that their AT&C losses had increased and the target of 14.98 *per cent* was not achieved due to various factors such as poor collection from AgC, drop in demand by industrial consumers, poor collection efficiency since March 2020 due to Covid-19 and high receivables from Government departments.

3.1.15.2 Inadequate monitoring of theft cases and follow-up thereon

As per MoU, MSEDCL was to reduce losses by undertaking campaign to control power theft. In MSEDCL, theft cases are monitored by the flying squad at Circle office level and by sub-division office staff at sub-division office level by undertaking drives.

Audit observed that sub-division offices in all nine circles theft case Register contained information of only the cases, where theft was detected. However, the record relating to total number of cases visited/inspected *vis-a-vis* number of theft cases actually detected out of those was not maintained in the Register.

MSEDCL accepted that presently monitoring of theft cases was done manually. It also stated that an IT module is being developed for centralised monitoring, which would be implemented shortly for effective observation of theft cases.

Recommendation 2: MSEDCL should complete DT metering and feeder segregation expeditiously and reduce the AT&C losses to 15 per cent or less by improving its billing and collection efficiency.

3.1.16 Achievements/shortfalls *vis-à-vis* various other commitments of MSEDCL

3.1.16.1 MSEDCL had to provide electricity access to unconnected households as per trajectory finalised in the '24X7 Power for All' document by FY 2019. Audit observed that MSEDCL had to connect 14.80 lakh rural households by 2017-18 under UDAY. MSEDCL was able to achieve 100 *per cent* target of connecting all the unconnected households in Maharashtra in 2018-19.

3.1.16.2 MSEDCL had to eliminate the gap between Average Cost of Supply[11] (ACS) and Average Revenue Realisation[12] (ARR) by FY 2018-19. Audit observed that MSEDCL was able to eliminate the ACS–ARR gap from 2017-18 onwards till 2019-20. However, there was a gap of 0.04 Rupees per unit during 2020-21 as can be seen in **Table 3.1.5** below.

Table 3.1.5: ACS–ARR gap

Year	ACS-ARR GAP (in Rupees per unit)	
	Target	Actual
2015-16	Not set	-0.30
2016-17	0.30	0.28
2017-18	0.01	-0.07
2018-19	-0.39	-0.04
2019-20	-	-0.06
2020-21	-	0.04

(Source: Data provided by MSEDCL)

[11] ACS – Average Cost of Supply is the sum of all costs associated in supplying power-such as the cost of purchasing power from various generators, cost of operating and maintaining the distribution network, employee cost, depreciation and finance cost – divided by total sales to consumers.

[12] ARR – Average Revenue Realised is the sum total of revenue earned by charging consumers at the specified tariff for energy supplied and subsidy received from the State Government – divided by total sales to consumers.

3.1.16.3 MSEDCL had to devise Key Performances Indicators (KPI) for each officer-in-charge on areas of AT&C losses and reduction and improvement in meter/billing/collection efficiency. Audit observed that MSEDCL had not set KPI for its personnel. AT&C losses target was set for the division offices of MSEDCL for the year 2017-18 and 2018-19 and there was no incentive/ penalty based on actual performance. Only 50 divisions (out of 148 divisions) could achieve the targets set for them in 2018-19. However, this number fell to just 14 and 32 divisions for 2019-20 and 2020-21 respectively. As a result, MSEDCL could not bring down its AT&C losses to the target of 14.98 *per cent*.

MSEDCL stated that the targets for AT&C losses reduction were given every year, which were monitored and reviewed time to time by controlling officers. The KPI parameter included billing efficiency and collection efficiency and based on these KPI parameters, personnel performance grading was decided.

Reply of MSEDCL is not acceptable as targets were set only for division offices and not for each officer as required under the MoU.

3.1.16.4 MSEDCL had to set up Centralised Customer Call Center (CCCC) for timely resolution of complaints and introduce e-payment avenues to consumers for bill payments *etc*. A centralised customer call center was established by MSEDCL. The details of CCCC pertaining to 2020-21 is shown in **Table 3.1.6**.

Table 3.1.6: Status of complaints in Centralised Customer Call Center

Sl. No.	Type of complaint	No. of complaints received	No. of complaints resolved in prescribed time	Time period in which complaint was to be resolved	Percentage of complaints resolved within prescribed time
1.	Power Failure	19,42,994	6,07,376	0 hours to 48 hours	31.26
2.	Billing	16,22,542	13,59,527	1 to 30 days	83.79
3.	Other Complaints	2,25,969	1,17,906	0 hours to 30 days	52.18

(Source: Data provided by MSEDCL)

It was observed that while MSEDCL resolved 83.79 *per cent* of its Billing related complaints within the time stipulated in its SoP, it could resolve only 31.26 *per cent* of Power failure complaints.

MSEDCL stated that though power failure is restored generally within the SoP period. However, personnel were sometimes busy in restoration of supply which caused delay in closure of actual complaints. Further, in 2020-21, bulk complaints were received during natural calamities like Nisarg Cyclone, flood in Vidarbha and Western Maharashtra and restoration of supply of electricity took more time than SoP period.

TRANSPORT DEPARTMENT

Maharashtra State Road Transport Corporation

FOLLOW-UP AUDIT

3.2 Follow-up audit of Performance Audit on 'Computerisation of *e*-ticketing system in Maharashtra State Road Transport Corporation'

Follow-up audit of Performance Audit on 'Computerisation of e-ticketing system in Maharashtra State Road Transport Corporation' revealed that the recommendations of the Committee on Public Undertakings (COPU) have not been fully complied within the prescribed time period of two months. The audit also revealed that potential revenue loss on sale of tickets due to delay in fixing the contract for advertisement and issues related to various concession through Electronic Ticket Issuing Machine[13] (ETIM) were not addressed. Implementing and maintaining ETIM and Online Reservation System (ORS) did not have sufficient input controls and validation checks in place to have complete and reliable data.

3.2.1 Introduction

Maharashtra State Road Transport Corporation (Corporation) was incorporated in July 1961 under Section 3 of the State Road Transport Corporations Act, 1950 to provide an economical, efficient, adequate and properly coordinated road transport system within Maharashtra State.

The Corporation had 30 divisional offices and 251 depots in the State at the end of March 2021. The Information Technology (IT) needs of the Corporation were overseen by the Electronic Data Processing (EDP) centre at Mumbai headed by a Deputy General Manager (DGM/IT), who was assisted by a Senior Manager (IT) and a Manager (IT).

A Performance Audit Report (PA) on 'Computerisation of *e*-ticketing system in the Maharashtra State Road Transport Corporation' for the period May 2009 to October 2014 was included in the Audit Report (AR) of the Comptroller and Auditor General of India for the year ended 31 March 2014. The PA highlighted the deficiencies in the *e*-ticketing system and functioning of various authorities under the control of the Corporation. The AR was discussed by the Committee on Public Undertakings (COPU) during the year 2017-18. The COPU, in its fifteenth report of 2017-18 laid in the State legislature in December, 2017 and made recommendations on six points.

We conducted a follow-up audit between September 2021 and October 2021 to assess the extent of implementation of the recommendations of the COPU with respect to *e*-ticketing only. The follow-up audit covered the office of the

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[13] Application developed to capture the details of all tickets issued to the passengers boarding the bus by the conductor through the machine called Electronic Ticket Issuing Machine (ETIM).

Dy. General Manager (EDP), 106 depots and Divisional Managers of Nagpur and Nagpur Rural-2 depot. Records and databases for the period from January 2016 to March 2021 were test checked in these offices to the extent of observations, which appeared in the earlier AR and the recommendations thereon by the COPU.

An exit meeting was held on 18 January 2022 with the Additional Chief Secretary (Transport & Ports), Government of Maharashtra (GoM) wherein the audit findings were discussed. The reply furnished (February 2022) by the GoM has been suitably incorporated in the report.

3.2.2 E-ticketing system

In order to facilitate online/web-based reservation system and to adopt software technology in its day to day operations, the Corporation invited (June 2008 and September 2014) Request for Proposal (RFP) from interested parties for the project of providing, computerising, implementing and maintaining ETIM and Online Reservation System[14] (ORS) with web facility on Build, Operate and Transfer (BOT) basis.

Audit Findings

3.2.3 Failure to generate revenue by selling advertising rights

In the PA report (2014) it was pointed out that as per terms of Master Service Agreement (MSA), Trimax[15] was required to supply the ticket rolls free of cost and the Corporation reserved its right of advertisements on the backside of the ticket rolls to supplement its revenue. Trimax had offered (August 2011) one paisa per ticket for the advertisement rights, but the offer was not considered (November 2011) on the ground that it would be dealt separately. However, no such efforts were made till December 2014 and the potential revenue thus forgone by the corporation worked out to ₹ 4.17 crore, considering 417.15 crore tickets actually issued between September 2011 and October 2014.

Recommendation of COPU (1.5 on para 3.7.1 of the PA)

The Corporation was in loss and had the opportunity to generate revenue but it did not take action for three years. If the Corporation had taken prompt action it would have benefitted from the revenue so generated and it was recommended that enquiry should be conducted and action should be taken against the officers responsible. The action taken report to be submitted within two months i.e. by February 2018.

Action Taken by Corporation

Despite the recommendation by the COPU, no enquiry was conducted against the officials, on the ground that no official was responsible for delay in taking

14 Application developed to capture the details of passengers reserve the tickets online, like name, age, gender, address, concession, mobile/phone number *etc*.

15 Agency appointed by MSRTC for Providing, Computerizing, Implementing and Maintenance of ETIM & ORS system.

action for loss of revenue on account of printing of advertisement on backside of tickets.

It was observed during the follow-up audit that the action taken report which was to be submitted to the COPU within two months i.e. by February 2018 was submitted to COPU only in December 2020. Considering the sale of 395.48 crore tickets between November 2014 and June 2018, the potential revenue loss to the Corporation worked out to ₹ 3.95 crore. Further, the Corporation failed to include an appropriate clause in the subsequent contract made (2015) with Trimax for paper roll supply and advertisement rights.

The Corporation stated (January 2022) that no response was received till August 2018 for advertisement to be printed on backside of the tickets and thereafter offer of one rupee per roll was accepted.

Government stated (February 2022) that Corporation has been instructed to collect the advertisement revenue on time.

3.2.4 System Design

The Application controls are the checks and balances that are incorporated in the ETIM and ORS applications developed for maintaining data integrity. The application controls consist of input controls, processing controls and output controls and the absence of or inadequacies in any of these controls would have an adverse impact on the integrity and reliability of the database.

Recommendation of COPU (2.5 on para 3.8.5 of the PA)

The ETIM needed upgradation but the Corporation continued with the old system as pointed out by the audit and incurred loss. This matter needs to be investigated and responsibility fixed on the officers responsible for this and action taken details be submitted to the committee within two months i.e. by February 2018.

Action taken by Corporation

It was observed during the follow-up audit that the action taken report which was to be submitted to the COPU within two months i.e. by February 2018 was submitted to COPU only in December 2020. According to this report, as per the provisions of the ETIM system, the changes were incorporated as per requirements from time to time. However, it was observed during January 2016 to March 2021, 9,761 ETIM out of 12,272 were working in the rural area in the old version.

To give effect to the recommendation of the COPU, the ETIM was upgraded in phased manner, but partly. The issues related to various concessions were not addressed. Departmental enquiries were initiated against the seven officials.

3.2.4.1 In the Online Reservation System (ORS) database, the Corporation was allowing concession in fares, with or without limiting factor[16] to different

[16] Limiting factors are put on the number of times a concession holder can travel and/or the total kilometers of travel permitted and/or on the total amount of concession allowed.

category of passengers like Arjuna awardees, vision impaired persons, Dronacharya Awardees and other awardees, freedom fighters, physically handicapped, patients suffering from diseases like tuberculosis/cancer/leprosy, senior citizens *etc*. The amount of concessions so allowed was periodically claimed by the Corporation from the State Government.

Recommendation of COPU (3.5 on para 3.10.5 of the PA)

The Corporation at the time of reservation, should make the passengers fill all the relevant information and the passengers availing concessions in incorrect way should be charged double the actual ticket rates and action taken report be submitted within two months i.e. by February 2018.

Action taken by the Corporation

According to the Corporation's Action Taken Report, the passengers who book tickets by giving wrong credentials/details would be penalized as per rules and regulations of MSRTC and not by double the rates as recommended (December 2017) by the COPU. However, changes in the system were proposed so that the vacant reserved quota tickets would be available for passengers availing concessional fares.

It was observed during the follow-up audit that the action taken report which was to be submitted to the COPU within two months i.e. by February 2018 was submitted to COPU only in December 2020.

Audit also observed (September-October 2021) that the Authorised Booking Agents (ABAs) did not enter the identity (ID) proof details of passengers eligible for concessional fare in the columns meant to capture the same in ORS database in 9,199 cases out of 1,91,16,593 cases. Further, one more column 'Concession Proof' had been created; but in 339 cases the field was 'blank' and in 95 cases 'none' was shown in the field during the period covered in audit.

Follow-up audit revealed that data relating to concession proof, name of the passenger and ID proof were not fully captured and therefore its correctness could not be ascertained in audit.

The Corporation stated (January 2022) that the ABAs did not enter the ID proof details in the initial stage of launching the project. In the case of group booking under ORS, minimum one passenger name was compulsory and the discrepancy pointed out by audit was rectified in October 2016.

Our data analysis revealed that in 9,473 out of 14,513 cases, although the tickets were issued for a single passenger, the passenger name field was blank and these cases pertained to the period after October 2016.

The Government did not furnish any reply.

3.2.5 Management Information System

In the PA report (2014), it was pointed out that the Master Service Agreement (MSA) provided for setting up of a comprehensive Management Information System (MIS) providing reports, dashboards *etc*. The MIS was to provide user-friendly reporting functionalities such as graphical display for the staff, officials of Corporation and any entity authorized by Corporation, the end day procedure for processing information and generating MIS in report formats and all operational MIS and Revenue Reports for a specified period, booking centre- wise, service wise, operator wise, depot wise, agent wise *etc*.

Recommendation of COPU (4.5 on para 3.11 of the PA)

The Corporation must have good quality MIS and for this purpose guidance from IT and statistical experts may be sought and the report of action taken may be submitted within two months i.e. by February 2018.

Action taken by the Corporation

According to the Corporation's Action Taken Report, all the information related to income received by the buses running on various passenger routes, passenger number *etc*. are received by the corporation through ETIM and ORS which is used for analysis of profit/loss and decision making. Further, a dashboard under MIS is created for the Management. However due to incomplete capturing of data and incomplete tables MIS reports generated are not reliable.

No specific comment on guidance from IT and statistical experts was made by the Corporation (December 2020).

It was observed during the follow-up audit that the action taken report which was to be submitted to the COPU within two months i.e. by February 2018 was submitted to COPU only in December 2020.

3.2.6 System audit

The Master Service Agreement (MSA) provided that as soon as reasonably practicable after the effective date, the parties shall use their best endeavor to agree to a time table for routine audit during the project implementation phase and the operation and management phase. Further, the Project processes specified in Request For Proposal (RFP), required the Corporation to review the test plan subject to the condition that the System Integrator (SI) ensured that the end product delivered by it met all the requirements including functional and technical requirements.

Recommendation of COPU (5.5 on para 3.13 of the PA)

The Corporation must conduct audit of payment of ₹ 125 crore to M/s Trimax within prescribed time limit so as to avoid unwarranted expenditure and responsibility be fixed on the officers responsible for this and action taken be submitted to the committee within two months i.e. by February 2018.

Action taken by the Corporation

The Corporation had appointed Standardization Testing and Quality Certification (STQC) Directorate of Government of India for carrying out system audit and testing. After this, M/s Ernst and Young LLP was appointed as system performance auditor and the report was submitted by them on monthly basis. The role of E&Y is focused on checking of payments to Trimax (SI).

To give effect to the recommendation of the COPU, the Corporation had fixed responsibility and one official had been dismissed (December 2012) by the Vice Chairman and Managing Director.

Government stated (February 2022) that the system performance tests as per MSA and RFP had been conducted. In the initial stage, the User Acceptance Test (UAT) was also conducted.

3.2.7 Business Continuity Plan

As per the current contract with the Trimax, it was required to implement and maintain the ETIM and ORS with web facility till 14 June 2022. It also included providing necessary training, material and training faculty related to the new system to various staff members of the Corporation like Conductors, Account Officers and others across bus depots/stations/divisional/regional/central office *etc*., as and when specified by the Corporation. The SI shall manage the entire project from conceptualisation to operationalisation and maintenance as well as subsequent transfer of infrastructure/applications and handholding and all assets including Hardware and System Software procured by the SI to the Corporation. The SI was responsible to ensure continuity of service at all times during the currency of the agreement including exit management period.

Recommendation of the COPU (6.5 on para 3.15 of the PA)

The Corporation was entirely dependent on M/s Trimax for business continuity and in case of problem arising in future it should have thought of the crisis management issue also. It was also recommended to appoint a committee consisting of IT experts to address this issue and submit the report within two months i.e. by February 2018.

Action taken by the Corporation

According to its Action Taken Report, the Corporation had appointed M/s Ernst and Young as a Project Management consultant which looks after the project monitoring work. For avoiding hurdles in project operations in future and to reduce project dependency on M/s. Trimax including disaster management, a proposal would be sought from M/s Ernst and Young for immediate resolution as per recommendations of COPU.

The Corporation had also appointed a committee in which representatives from IT and Transport Departments are members. The committee had appointed M/s. KPMG as a Project Management Consultant which will also advise for smooth project operations, reducing project dependence including Disaster Management.

It was observed during the follow-up audit that the action taken report which was to be submitted to the COPU within two months i.e. by February 2018 was submitted to COPU only in December 2020.

Government stated (February 2022) that the mock drills had been conducted on two occasions and the SI was responsible for sound health of equipments and cables deployed for the purpose as a preventive measure and restoring the system in case of any disaster.

It was observed (November 2021) that the SI had carried out only one mock drill (January 2019) instead of conducting drills periodically so as to ensure sound health of systems/equipments/cables and peripherals deployed for the purpose as a preventive measure and to restore the system in case of any disaster. As such, the Corporation has not established a system for business continuity/crisis management. Despite recommendations by the COPU, it continued to depend on M/s Trimax for business continuity/crisis management. Further even though the SI is responsible for smooth running, the system needs to be tested periodically for sound health of backup plan in case of contingency or failure of the online system. It is the primary responsibility of the Corporation to ensure the smooth working and testing of the backup plan.

3.2.8 Data Analysis of implementing and maintaining ETIM and online Reservation System[17] (ORS)

3.2.8.1 In consonance with the recommendations of COPU and subsequent follow-up action taken by the Corporation, Audit did the data analysis of implementing and maintaining ETIM and Online Reservation System (ORS) in respect of 106 depots out of 250 depots which revealed (September-October 2021) that;

- In the transaction table under ORS, the passenger name field designed to capture the names of passengers booking in advance was blank in 14,477 cases out of 1,91,16,593 cases and in 36 cases field contained symbols like ‘,’ or ‘+’.
- In the ETIM data base, in 12[18] depots the identity proof in respect of 7.82 crore passengers, stated to be eligible for concession, out of 8.05 crore passengers eligible for concessions (97 *per cent* cases) were blank.
- In the absence of audit trail, changes made in the transaction tables could not be monitored. However, audit trail was available only for 15[19] tables as against 449 tables in the ORS data base.
- In 12 depots that 8.06 crore ETIM tickets for passengers eligible for concession were generated from January 2016 to 31 March 2021 on the basis of these tickets, reimbursement was claimed by the Corporation from GoM. In the absence of reliable and correct data, the claims raised for reimbursement by the Corporation with the GoM could not be verified in audit. The Government stated (February 2022) that the Corporation had been instructed to take corrective action.

3.2.8.2 The Home Department instructions (November 2008 and October 2018) required grant of 75 *per cent* and 70 *per cent* concession in

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17 Application developed to capture the details of passengers reserve the tickets online, like name, age, gender, address, concession, mobile/phone number *etc*.

18 Aurangabad-1, Beed, Bhandara, Buldana, Dhule, Kolhapur, Kurla Nehru Nagar, Nagpur Rural-1, Nagpur Rural-2, Nashik CBS, Ratnagiri and Yavatmal.

19 api_log, bus_services_insert_update_log, bus_stops_insert_update_log, flat_fare_log, payment Gateway Cron_log, Procedure Book Ticket_log, Procedure release Quota Seats_log, Procedure Cancel Rebook Ticket_log, Procedure Temporary Lock Unlock Seats_log, Procedure release Seats_log, route_master_ copy_log, session_log, SLA_etim Breakdown_logs, Third party_alert_logs, WS_logs.

fares for each journey performed in ordinary/semi luxury buses and Shivshahi buses respectively to handicapped/vision impaired passengers. Similarly, 50 *per cent* and 45 *per cent* concession in fares in ordinary/semi luxury bus and Shivshahi bus respectively was available to an escort travelling with the handicapped/ vision impaired passengers.

➢ 'concession code – 20' was designed to capture the details of escorts travelling with the handicapped passengers (code-19). As different codes were created for handicapped passengers and their escorts, only one concession ticket should be generated for each code and the ticket of the escort must contain cross reference with that of the handicapped with whom he/she had travelled.

➢ ETIM generated 9,77,578 tickets of handicapped passengers against which 20,36,122 passengers actually travelled. This resulted in loss of ₹ 5.54 crore to the Corporation owing to allowance of concession to 10,58,544 ineligible passengers. Similarly, under the escort category, 30,184 passengers travelled as against 12,871 tickets for escorts generated, resulting in loss of ₹ 0.08 crore to the Corporation. Thus, there was a total loss of ₹ 5.62 crore to the Corporation due to allowance of concession to excess number of handicapped passengers and excess number of their escorts.

➢ Against the ETIM generated 92,731 tickets of vision impaired, 1,94,137 passengers actually travelled. This resulted in loss of ₹ 0.49 crore to the Corporation owing to allowance of concession to 1,01,406 ineligible passengers. Similarly, under the escort category 6,994 passengers travelled as against 2,661 tickets resulting in loss of ₹ 0.02 crore to the Corporation. Thus, there was total loss of ₹ 0.51 crore to the Corporation due to allowance of concession to excess number of vision impaired passengers and excess number of their escorts.

➢ Although ORS database had the provision for original ticket and reference ticket, the same was missing in ETIM database. In the absence of cross referencing of ticket numbers, authenticity of concessional fares to the eligible passengers could not be verified.

➢ In 5.35 crore cases of physically handicapped passengers and 0.15 crore cases of their escorts, the concession in fare was allowed in excess of the prescribed[20] *per cent.* This resulted in short realization of revenue of ₹ 17.89 crore. Similarly, in 0.47 crore cases of vision impaired passengers and 2.51 lakh cases of their escorts, there was short realization of revenue of ₹ 1.28 crore owing to allowance of concessional fare in excess of the prescribed *per cent*.

Government stated (February 2022) that nine passengers could travel on a single ticket only; hence, cross referencing of escort in case of handicapped passengers was not feasible. Further, a handicapped person booking online ticket may actually travel with escort; hence, cross reference in such case was

[20] For PH passengers, 75 *per cent* concession in fare of Ordinary/Semi Luxury buses and 70 *per cent* concession in fare of Shivshahi buses whereas for their escorts 50 *per cent* concession in fare of Ordinary/Semi Luxury buses and 45 *per cent* concession in fare of Shivshahi buses.

also not feasible in ETIM system. Government further instructed to the Corporation to implement the smart card system on priority.

3.2.8.3 The Government had instructions (May 1989 and October 2018) to grant 100 *per cent* concession in ticket fare to Freedom Fighter[21] (FF) along with one escort only. Our data analysis revealed that;

➢ In ORS database, 17,091 tickets out of 19,902 tickets, booked online under the category of FF were of those passengers, whose age was shown below 70 years at the time of booking of online tickets. Since more than 74 years have elapsed after Indian independence, adequate input age control should have been provided while designing the application for ORS. The age wise analysis of tickets booked under FF category is shown in **Table 3.1**.

Table 3.1: Concession given to ineligible passenger (ORS database)

Tickets booked for passenger having age between				
12 – 20 years	**21 – 30 years**	**31 – 40 years**	**41 – 50 years**	**Above 50 years but below 70 years**
274	2,398	3,089	4,533	6,797
Source: Information obtained from Corporation				

The Corporation stated (January 2022) that necessary changes in the system would be incorporated after getting clarification/guidance from the Government. Government instructed (February 2022) the Corporation to take necessary action.

3.2.8.4 ETIM generated 24,468 tickets under FF category against which 70,242 passengers actually travelled. This has resulted in loss of ₹ 0.21 crore to the Corporation owing to allowance of concession to 45,774 ineligible passengers. Similarly, under escort category 72,084 passengers travelled against 28,470 tickets issued resulting in loss of ₹ 0.27 crore to the Corporation. Thus, there was total loss of ₹ 0.48 crore to the Corporation due to inadmissible allowance of concession to excess number of FF passengers and excess number of their escorts.

➢ 73,097 escorts had availed the concessional fare against 65,443 FF passengers actually travelled during the period covered by audit. In the ORS database, provision for original ticket and reference ticket was made available; however in ETIM database, cross reference of original tickets of FF with the tickets of escorts was not done. 43,145 tickets issued to the escorts were such that they had not travelled with the FF; still concession was granted to them.

Government instructed (February 2022) the Corporation to implement the smart card system on priority.

3.2.8.5 The Corporation circular (August 2000), read with Government Resolution (GR) (February 2000) which granted 100 *per cent* concession in fares to Adivasi Sevak Awardees (ASA) including one escort for each journey performed in Ordinary, Semi Luxury and Luxury bus services. Scrutiny of the ETIM database of 106 depots revealed that (November 2021);

[21] persons who belong to a group that takes part in a movement to liberate a country from an un-popular government.

➢ ETIM data base of 106 depot revealed that against 19,671 tickets issued to ASA passengers and their escorts, concession to 81,843 passengers was allowed. This resulted in irregular allowance of concession to 62,172 passengers amounting to ₹ 0.19 crore.

Government stated (February 2022) that the number of ASA and escort travel would not match the number of tickets sold because nine passengers could travel on a single ticket. Again, an ASA person booking online ticket may actually travel with escort; hence cross reference in such case was also not feasible in ETIM system.

3.2.8.6 The GoM (February 1998) allowed free travel to Arjuna, Dronacharya and Chhatrapati awardees of the State in the public road transport and fare so foregone is reimbursed by the GoM. Scrutiny of the table capturing data of ticket details under ORS revealed that;

➢ 215 and 26 tickets were issued to Arjuna and Dronacharya Awardees, but 258 and 28 passengers respectively actually travelled thereon. Similarly, table capturing ticket details under ETIM database revealed that 8,399 and 6,778 tickets were issued to Arjuna and Dronacharya Awardees respectively but 27,894 and 42,356 passengers actually travelled thereon. Thus, 55,073 (19,495+35,578) passengers were allowed the concession irregularly resulting in loss of revenue of ₹ 10.23 lakh. In respect of Chhatrapati awardees, as against 7,129 tickets, 8,644 passengers actually availed the concession resulting in loss of revenue of ₹ 1.19 lakh.

Government instructed (February 2022) the Corporation to implement the smart card system on priority.

3.2.8.7 The Corporation had granted (circulars issued in December 1976 and March 1978), 50 *per cent* concession in fares to Cancer patients for each journey performed up to 1,500 Km distance for each travel. This was revised (October 2018) to 75 *per cent.* TB and Leprosy patients are allowed 75 *per cent* concession up to 50 km distance for each travel.

During data analysis it was revealed that;

➢ 11,990 passengers under Cancer, TB and Leprosy categories travelled as against 5,309 tickets issued by ETIM. This resulted in loss of ₹ 3.60 lakh[22] to the Corporation owing to allowance of concession to 6,681[23] ineligible passengers. It was also observed that in case of 1,34,559 cancer patient passengers, concession of more than 75 *per cent* was allowed resulting in revenue loss of ₹ 5.93 lakh. Similarly in case of 8,431 TB and 3,706 Leprosy patients, concession was allowed beyond the prescribed limit of 50 Km resulting in revenue loss of ₹ 1.62 lakh and ₹ 1.05 lakh respectively. Government instructed (February 2022) the Corporation to implement the smart card system on priority.

3.2.8.8 Data analysis of ETIM database of 12 depots in respect of 'Ticket_IDs' columns containing ticket identification of the 'ticket' table revealed (October 2021) that;

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[22] Cancer-₹ 2.91 lakh, Leprosy- ₹ 0.30 lakh and TB-₹ 0.39 lakh.

[23] Cancer-4768 cases, Leprosy- 889 cases and TB-1024 cases.

➢ In respect of 0.64 crore tickets, out of 34.37 crore tickets issued during the period from 01 October 2016 to 31 March 2021, 'Ticket_IDs' were missing. Thus the integrity of data could not be ascertained.

➢ Sale of 417.15 crore tickets was shown in the 'Ticket table' for the period from September 2011 to October 2014 as pointed out in the earlier audit. However, during the current analysis, the number of tickets for the same period was shown as 417.20 crore, indicating difference of 5 lakh such tickets between earlier and current scrutiny. Thus, the data had changed with the passage of time thereby misgivings on data reliability and its use for MIS purposes.

Government stated (February 2022) that to maintain the accuracy and integrity of data, rolled back feature of RDBMS was used.

3.2.8.9 The ETIMs were programmed to handle all types of tickets, including concessions. However, these were not amended as needed, and as per GRs issued from time to time. To overcome the difficulties in respect of various concessions, a smart card project was separately initiated by the corporation. The Corporation started issuing smart cards in lieu of passes to the passengers eligible for concessional fare under various categories like students, senior citizens, patients *etc.* from the depots. These cards are only read and captured by the ETIMs, for which details of the smart card user need to be entered into the system before issuing it to the user. The smart card reader/writer applicable to desktops was also provided to the bus depots and stations. Our data analysis revealed that;

➢ 32,55,714 smart cards were issued during the period 2019-2021 to the passengers eligible for concession. However, the ETIMs were unable to read these smart cards as these machines started hanging after the card was placed on them. Thus, the conductors were required to enter the data of such passengers manually into ETIMs.

➢ The old practice of sale of pre-printed passes still continued as the System Integrator (SI) did not provide adequate smart cards and the revenue earned from these passes were not captured in the database. In absence of this, the Corporation was unable to ensure the validity of passes at the time of travel through the system without human intervention.

➢ Position of data verified related to the concessions claimed in March 2019, March 2020 and March 2021 by all the passenger categories of Nagpur depot (Rural-2) is shown in the following **Table 3.2**:

Table 3.2: Difference in figures of ETIM and Manual computation

Months →	**March 2019**		**March 2020**		**March 2021**	
Items ↓	**ETIM**	**Manual**	**ETIM**	**Manual**	**ETIM**	**Manual**
Number of passengers	47,158	50,010	30,859	33,353	14,927	14,937
Actual fare	46,26,370	57,67,513	28,69,066	35,44,228	14,43,705	14,75,304
Fare recovered (A)	22,32,185	26,94,884	13,29,690	15,79,646	6,44,785	6,56,839
Reimbursement amount (B)	23,85,411	30,72,629	15,38,124	19,64,582	7,95,758	8,18,465
Total amount (A+ B)	**46,17,596**	**57,67,513**	**28,67,814**	**35,44,228**	**14,40,543**	**14,75,304**

Source: Information obtained from Corporation

The table above indicates that the reports generated through ETIM system and those prepared manually were not matching as there were significant difference in figures of number of passengers availing concessional fare, actual fare, reimbursed amount and total amount. Thus, these figures need to be reconciled. This indicated that purpose of computerization of *e*-ticketing system was lacking.

Government instructed (February 2022) the Corporation to implement the smart card system on priority.

3.2.8.10 The table for capturing waybill trip details was designed to generate analytical report on trip-wise revenue earned for decision making process. Data scrutiny of ETIMs database in respect of 12 depots revealed (October 2021) that;

- In 2,909, out of 1.23 crore records, income of ₹ 82.25 lakh was reported to have been generated against route number "**0**", which was not available in the Master table of routes.
- In 4.56 lakh out of 1.23 crore records, cumulative revenue income of ₹ 96.95 crore was reported against analogous Trip number "00000000" which was also not available in the Master table containing trips.
- In 9 depots, 227 blank trip numbers were generated, which indicated manual intervention and compromise of data integrity.

Government stated (February 2022) that to overcome this, the Corporation has been instructed to incorporate the suggested changes in proposed ticket system.

3.2.8.11 The Authorised Booking Agents (ABAs) are allowed to book advance tickets for the prospective passengers by collecting fares from them besides those booked at the ticket booking window. The contractual terms allowed credit limits to ABAs, which provided for retention of the money aggregating to value of tickets sold and the money so collected was to be deposited in the designated bank account by next day.

Scrutiny of the ORS database revealed (October 2021) that;

- In 237 out of 973 cases of ABAs pertaining to the audit period, the data on money value limit specified in the contractual terms was shown as 'Zero' in the limit column contained in the Master table and hence monetary value limit could not be monitored.
- In 58 cases where Corporation employees were authorized as the Booking Agents, the same Agent code with access to more than one Booking Centre (BC) in many different locations were detected and
- In 83 other cases, different BC codes were created for the same Agent at the same location which facilitated the ABAs in availing credit limits beyond the prescribed amount. This indicated inadequacy of input control in the system.

Government stated (February 2022) that prior to introducing the top-up, private agents were allowed to operate even with 'zero' balance. Despite this, there were 205 active ABAs, whose credit limit was shown as 'Zero'.

3.2.8.12 ETIM and ORS database did not contain tables depicting the details of buses available with depots, manual pass collection of data, digitised routes and bus stops, digitisation of data of pass holders, ABA cash collection and remittance data, data pertaining to all passengers eligible to different types of concessions *etc*.

Government stated (February 2022) that audit suggestions would be incorporated in the proposed system.

3.2.8.13 The Corporation is operating its buses outside the state (Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Karnataka, Madhya Pradesh and Rajasthan) under Reciprocal Transport Agreements[24] executed with the respective state Road Transport Corporations (RTCs) to cater to the needs of passengers.

Data analysis revealed (October 2021) that data fields for only five states were created in the table containing ticket details in ETIM and ORS data base though the Corporation had executed inter-state agreements with the above mentioned seven neighbouring State Road Transport Corporations (RTCs).

Government stated (February 2022) that audit suggestions would be incorporated in the proposed system.

3.2.8.14 In the Master table "Depot", details of 297 depots in ORS database and 294 depots in ETIM database were captured as against 251[25] existing depots. So long as the correct data was not captured in the corresponding tables and correct fields, besides error generation, the prospect of difficulties in migration to new system in future, was inherent. Despite this pointed out in the earlier Report (December 2014) this deficiency was noticed.

- Data scrutiny (October 2021) revealed that 135 tables out of 411 tables under the ETIM database and 58 tables, out of 449 tables under ORS database were blank and devoid of any data. Further, 65 Master tables created in ETIM were blank and devoid of any data from Master tables.

Government stated (February 2022) that the database tables were purposely created for working depots. In some of the tables, window booking operation was not operated by SI because of lack of demand from passenger and some tables were created for testing purpose only.

3.2.8.15 In ETIM database, the fields created to capture division name, division code, depot name and depot code were blank in 3,46,176, out of total 34,37,29,142 tickets during the period from 16 January 2016 to 25 February 2018. The Corporation had rectified the error for the current period only and the data for the period from 16 January 2016 to 25 February 2018 was still not rectified.

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[24] In the absence of any agreement between RTCs of two States for interstate operations, the respective State Governments execute such agreements and impose the terms and conditions on such RTCs. Revenue sharing is the major element addressed in such agreements.

[25] 250 depots and one Payment Gateway.

Government stated (February 2022) that during the initial stage of integration of the system, fields pointed out by the audit were blank.

Thus, implementing and maintaining ETIM and Online Reservation System (ORS) did not have sufficient input controls and validation checks in place to have complete and reliable data.

TRANSPORT DEPARTMENT

Maharashtra State Road Transport Corporation

3.3 Unfruitful expenditure of ₹ 4.05 crore

Construction of depot at Manchar by the MSRTC within 30 km of two existing depots against its own policy resulted in unfruitful expenditure of ₹ 4.05 crore

The Maharashtra State Road Transport Corporation (Corporation) through resolutions (passed between February 1981 and March 1999) framed a policy for constructing a bus depot. According to the policy, a depot should not be set up within a distance of 30 km of another depot in a place selected for this purpose simply because it is a Taluka place. However, a depot could be set up if it has the justified traffic density and is economically viable or duly supported by the operational needs and operates more than 100 bus-schedules.

The Corporation decided (June 2012) to construct a depot at Manchar in Ambegaon Tahsil of Pune District. This decision was based on the necessity and importance[26] of the depot at Manchar even though two depots were already existing within 30 km of Manchar *viz*. Narayangaon at 14 km (with 93 bus-schedules) and Rajgurunagar at 20 km (with 90 bus-schedules). The feasibility of this depot was based on the projected generation of an annual profit of ₹ 0.44 crore by it. The work was completed (June 2017) after incurring an expenditure of ₹ 4.05 crore[27].

Audit observed (December 2020) that although the depot was completed in June 2017 it has not been put to any use till date (November 2021). Thus, non-operationalisation of the depot resulted in unfruitful expenditure of ₹ 4.05 crore.

In reply, the Divisional Controller, Pune stated (December 2020) that the permission for the use of depot and appointment of additional staff for its operation was sought (May 2018) from General Manager (Personnel), but the same was denied (July 2018) in order to reduce the administrative expenditure and to bring coordination/uniformity in the functioning of the depots within 30 km area. Hence, the competent authority decided not to operate Manchar depot.

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26 Centre of economic activity, located on national highway, proximity to Bhimashankar Jyotrilinga and a Sanctuary attracting heavy passenger traffic, Sugar Mill and Engineering College, transportation of Agriculture produce to the Navi Mumbai market and Ambegaon taluka being hilly area with tribal population.

27 (₹ 4.05 crore = ₹ 3.60 crore for civil works + ₹ 27.80 lakh for electrical works + ₹ 17.50 lakh for cost of land).

The reply has to be viewed against the fact that the decision of the Board was contrary to their policy and was made after knowing about the existence of two depots within 30 Km of Manchar Depot. Further, the Corporation did not take any measures to operate the newly constructed depot at Manchar since its completion (July 2017), though Vice Chairman & Managing Director, MSRTC was authorized to approve all the expenditure on depot construction including appointment of the officers/ staff. This has resulted in unfruitful expenditure of ₹ 4.05 crore on its construction.

The matter was brought to the notice (August 2021) of the Government; their reply is awaited (August 2022).

Nagpur
The 25 April 2023

(R. THIRUPPATHI VENKATASAMY)
Accountant General (Audit)-II,
Maharashtra, Nagpur

Countersigned

New Delhi
The 26 April 2023

(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India