

**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<sup>13</sup> (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

<sup>13</sup> 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<sup>14</sup> (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<sup>15</sup> 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

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

<sup>15</sup> 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<sup>16</sup> to different

<sup>16</sup> 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<sup>17</sup> (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<sup>18</sup> 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<sup>19</sup> 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

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

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

<sup>19</sup> 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<sup>20</sup> 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

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<sup>20</sup> 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<sup>21</sup> (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
<i>Source: Information obtained from Corporation</i>				

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);

<sup>21</sup> 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<sup>22</sup> to the Corporation owing to allowance of concession to 6,681<sup>23</sup> 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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<sup>22</sup> Cancer- ₹ 2.91 lakh, Leprosy- ₹ 0.30 lakh and TB- ₹ 0.39 lakh.

<sup>23</sup> 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	
	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
<b>Total amount (A+ B)</b>	<b>46,17,596</b>	<b>57,67,513</b>	<b>28,67,814</b>	<b>35,44,228</b>	<b>14,40,543</b>	<b>14,75,304</b>

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<sup>24</sup> 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<sup>25</sup> 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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<sup>24</sup> 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.

<sup>25</sup> 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<sup>26</sup> 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<sup>27</sup>.

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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<sup>26</sup> 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.

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