5.10 Information technology audit of the Vehicle Registration System in Mizoram

Highlights

Lack of time frame in implementation resulted in backend computerisation taking 3½ years for completion.

(Paragraph 5.10.5)

35,658 vehicle details were recorded twice creating a database of 71316 records resulting in wastage of resources in terms of manpower and storage space.

There were large number of cases of duplicate chassis numbers and engine numbers which were indicative of weak validation controls.

The details of insurance records of 23,630 vehicles were entered two to six times resulting in creation of 70,645 records. There was large number of cases of registration of two or more vehicles with common insurance cover note number.

Data capture was partial in many cases resulting in incomplete database.

Fee of Rs.2.03 lakh was not collected from defaulters for delay in applying for new registration within the mandatory period of seven days

Registering fee of Rs.5.66 lakh and minimum fine of Rs.0.83 crore from 4,158 vehicles whose registrations have expired was realisable.

The department failed to detect 4,561 transport vehicles plying without a fitness certificate resulting in non realisation of fees of Rs.11.72 lakh and minimum fine of Rs.0.91 crore.

There was short realisation of revenue amounting to Rs.15.69 lakh due to charging road tax at a lower rate.

(Paragraph 5.10.6)

There was no documentation of modifications made to the application software, user requirement specification, system design, user manual etc. Physical access control, environment control, logical access control and business continuity planning were not effectively in place.

(Paragraphs 5.10.7)

Recommendations

The Government may consider the following for effective management of registration system:

∗ The Department should maintain documents regarding description of system, tables and columns, linkages of files approved changes/modifications made to the system *etc.*

∗ Appropriate access controls alongwith proper input and processing controls coupled with validation check should be urgently incorporated within the system to prevent entry of duplicate and improbable data.

∗ The system should have inbuilt validation checks to detect duplicate engine/chassis number and link with the system of the State Crime Record Bureau/National Crime Record Bureau to detect stolen/lost vehicles.

∗ Data integrity should be periodically checked and data capture should be complete and should be utilised to increase revenue collections.

∗ Department should ensure that 'VAHAN' database contains information of only those vehicles which are available in "Owner" database.

∗ Exception report should be generated to detect inaccurate data or data which violates the MV Act and Rules.

∗ A disaster recovery plan and business continuity plan should be put in place.

5.10.1 Introduction

Assessment, levy and collection of taxes, fees and fines on motor vehicles are governed in the State of Mizoram under the provisions of the Central Motor Vehicles Act 1988 (MV Act) and Rules made thereunder and the Mizoram Motor Vehicle Act 1996 and Rules made thereunder and various notification issued by the Government from time to time.

In order to achieve faster and better services, transparency and better monitoring of State revenue generated from implementation of MV Act and Rules, Government of India provided a standardised software (Vahan), developed by NIC to the Transport Department of Mizoram. The department was also provided with technical assistance of NIC, free of charge, for customisation and backend integration. The backend computerisation of District Transport Office, Aizawl (DTO) was taken up as a pilot project and completed on 03.08.04 while that of the remaining five DTOs is in progress (March 2005).

5.10.2 Highlight of the application software

VAHAN package was developed on Windows operating system using Visual basic 6.0 for the front end application program and SQL Server 7.0 for the backend database. It automates management of information related to vehicle registration, identity of its owner and technical details of the vehicles. The system also manages information related to tax, fitness, permit, authorisation including interstate aspects and insurance details.

5.10.3 Organisational setup

At apex level Secretary Transport Department, Mizoram is the head of the department. He is assisted by the Director, Joint Direct (MV), Assistant Commissioner Transport, six District Transport Officers and Assistant Project Manager (IT).

5.10.4 Audit scope and methodology

The scope of the review of Information Technology (IT) audit of Transport Department, Government of Mizoram included examination of controls in selected operational applications, *viz* registration of vehicles and its allied activities and collection of fees and road tax with the objective of ensuring accuracy and comprehensiveness of the data and the effectiveness of its application in the management of registration of vehicles and realisation of fees/road tax. IT audit of the department was conducted during June 2005 and October 2005 and covered the period from the date of implementation upto March 2005.

During review, the general operational controls were assessed and data was analysed. Audit findings on the evaluation of the application control, and on the data of registration and taxation of DTO, Aizawl upto March 2005 are discussed in the subsequent paragraphs.

5.10.5 System development

∗ *No time frame was set resulting in delay in commissioning of the project*

The project for introduction of information technology in road transport sector was initiated during January 2001. For this purpose, Vahan software was installed at NIC, Mizoram State unit for carrying out backlog data entry during June 2002. No time frame was, however, set for completion of the task and the work was completed 3rd August 2004 after of 3½ years of the project being initiated.

After this was pointed out, the department stated (June 2005 and September 2005) that the delay was due to funds, preparation of site, customisation of software, installation of hardware and software and networking etc and that the time frame was not set as the project was ventured with NIC.

The reply of the department validates audit contention that lack of time frame for completion of different stages of the project resulted in commissioning the project 3½ years after its initiation.

∗ *Partial utilisation of processing capabilities*

Although Vahan system also manages information relating to permit and its validity, including interstate aspects, enforcement, etc, these aspects had not been computerised so far. This resulted in utilisation of processing capabilities available in the system.

After this was pointed out, the department stated (June 2005 and September 2005) that effort to implement these aspects of the vahan software was being made. Further development is awaited.

∗ *Modification/change management procedures*

The software (Vahan) received from GOI was customised by personnel from NIC, New Delhi at Aizawl to meet the need of the State prior to its implementation. Thereafter minor modifications were carried out by NIC, Aizawl from time to time as and when sought for by the department. The changes/modification sought for and those carried out prior to and after implementation had, however, not been documented. This resulted in complete absence of trail as to whether the changes sought for and those carried out have been duly approved.

After this was pointed out (June 2005) the department justified the necessity for changes/modifications and further stated (September 2005) that hard copies of the executable files which have been changed/modified are available for trailing. The fact, however, remains that there was complete absence of trail as to whether the changes/modifications sought for and those carried out have been duly approved.

5.10.6. Analysis of Databases

∗ *Methodology*

To analyse the data pertaining to DTO, Aizawl, the assistance of departmental personnel was taken to download the data into MS Access . This downloaded data was analysed using CAATs[40] tools *viz*; IDEA and MS Excel.

∗ *Duplicate data*
Analysis of the database ('Owner') revealed that out of 72,349 records 35,568 entries of duplicate registration numbers were found. Out of these duplicate cases, it was seen that the chassis numbers were different in 26 cases (52 vehicles), the engine numbers were different in 23 cases (46 vehicles); the registration date were different in 14 cases (28 vehicles) and owner's name were different in 243 cases (486 vehicles).Thus the data base lacks integrity a primary requirement of any automated system.
After this was pointed out (June 2005), the department stated (June 2005) that the matter had been regarded as serious and would be rectified.

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[40] *Computer Assisted Audit Techniques*

∗ *Lack of control over monitoring of duplicate engine/chassis number*
Engine and chassis number are the unique identification marks of a vehicle which are essential for its registration under the provisions of the MV Act and Rules made thereunder. Analysis of the database revealed that there were 766 cases of duplicate engine numbers involving 1,781 vehicles 267 cases of duplicate chassis numbers involving 543 vehicles.

84 manual records were scrutinised with the combined register of vehicles which revealed that in 10 cases (20 vehicles), the engine numbers in seven cases and chassis number in three cases were same between different vehicles. **(Appendix– XXXII).** Also 23 re-registered vehicles were incorrectly recorded as vehicles from other states/new vehicles in the data base. Audit also found that in 41 cases, the duplicate was due to incorrect entry of engine/chassis number.

This indicated the lack of validation control in the system to ensure uniqueness of the vehicle with distinct engine numbers and chassis numbers. This may lead to allotment of two or more registration certificates for the same vehicle, enabling stolen vehicles to be reregistered and committing various insurance irregularities.

∗ *Lack of control over duplicate Insurance Certificate/Cover Note number*
Under the provisions of the MV Acts and Rules made thereunder, every vehicle has to be insured prior to registration.

Analysis of the vehicle insurance database revealed that out of 82,399 records of vehicle insurance detail available in the file, the information relates to only 35,384 vehicles having distinct registration number. The database was found inflated due to multiple data entry (two to six times) relating to 23,630 nos. of vehicles. Further Analysis of 35,384 records revealed 11,729 blank entries in period of insurance, 12,503 blank entries, 1,244 duplicate entries in Cover Note no. indicating lack of validation controls in the system and poor authorisation controls. The level of duplication ranged from two to 612. Moreover, these common cover note numbers was found to be shared by different insurance companies as in two cases involving 10 vehicles common cover note numbers 1,30,502 and 2,00,504 were shared by five different insurance companies **(Appendix- XXXIII).**

Cross analysis of distinct records of 'Owner' and 'Vahans' databases revealed that insurance details of 1583 registered vehicles were not available in the Vahans database. Similarly, although insurance details of 61 vehicles were captured in the Vahans database, the vehicles were not listed in the owner database. These omissions were due to lack of validation/input controls within the system.
The department replied that necessary instruction is being issued to update the records. Further development is awaited (October 2005).

∗ *Registration of vehicles on Sundays/National holidays*

Registration of vehicles is done on a working day of the week.

Audit however found that 167 vehicles were registered on sunday, one vehicle (MZ 01B 7597) on Republic day (26/01/2002) and another vehicle (MZ 01B 2111) on Gandhi Jayanti (02/10/2000) which are either non working days of the week or National holidays **(Appendix- XXXIV).**
Cross verification of cases of duplicate engine/chassis number with vehicles registered on holidays revealed that eight vehicles which share a duplicate engine/chassis number and 12 vehicles sharing duplicate cover note number were registered on sunday.

∗ *Data integrity*

Unusual and improbable data makes the data integrity doubtful and suggests unreliability of data or points to existence of other irregularities. To check such deviations validation control should be inbuilt within the system.

Audit detected that 35 vehicles were registered prior to date of purchase of vehicle. The number of days the vehicle were registered prior to their date of purchases ranged from 1 day to 5,174 days (*Appendix– XXXV*). Similarly, the seating capacity in some cases has been incorrectly entered. For e.g. Two wheelers had been shown to be of between 3 to 23 seater, Palio ED as 999 seater, Maruti Gypsy as 87 seater (*Appendix– XXXVI*). These revealed lack of validation control.

∗ *Incomplete database*
As per Central Motor Vehicles Rules, 1989 (CMV Rules), form 20 has been prescribed for registration of vehicles which contain information about the vehicles to be registered in 34 fields. The Vahan package provides for capture of all the information.

Analysis of database, however, revealed that data capture was partial even in crucial fields (*Appendix- XXXVII*). Data entry pertaining to mandatory fields such as date of purchase of the vehicle, father's name of registered owner, address, vehicle maker's name, vehicle model, engine number, seating capacity, horse power, unladen weight, month and year of manufacture, etc. have not been captured in many cases.

After this was pointed out (June 2005), the department stated (June 2005) that as the date of purchase was not available in the combined register, the column was left blank during backlog entry and that full entry of particulars is being made from the date of computerisation. The reply is not tenable as analysis revealed that many of the above listed data were not captured even after the project was implemented.

∗ *Incorrect data relating to fitness certificate*
As per MV Act, and Rules framed thereunder, the road worthiness/fitness of a vehicle and issue of fitness certificate is a pre-requisite for its registration. In 337 cases, the next fitness due date of the private vehicles was shown to be after 15 to 45 years. Such inaccurate data is reflective of violation of the provisions of the MV Act and Rules and a pointer to lack of process control.

∗ ***Non-compliance with provision of Motor Vehicles Rules, 1989***
CMV Rules, provide that an application for registration of motor vehicle shall be made within a period of seven days from the date of taking delivery of the vehicle. Failure to do so attracts a fee of Rs.50 for every subsequent month under the provisions of the Mizoram Motor Vehicles Rules, 1997.

Scrutiny of database revealed that 1,002 vehicles were given new registration beyond the mandatory period of seven days (excluding grace period of two days provided for intervening saturday and sunday for vehicles registered on monday). However, no fee was collected from the defaulters for delay in applying for new registration resulting in non realisation of fee of Rs.2.03 lakh for delayed registration as per the information available in the database.

∗ ***Plying of vehicles with lapsed registration***
As per MV Act, a certificate of registration in respect of a motor vehicle, other than a transport vehicle, shall be valid only for a period of 15 years from the date of issue of such certificate. No such vehicle shall be used in any public place until its certificate of registration is renewed. In case of default a minimum fine for driving without registration at Rs.2,000 for the first offence and Rs.5,000 each for subsequent offence is leviable.

Scrutiny of the database revealed that as on 31 March 2005, 4158 vehicles including 302 Government vehicles had their registrations expired. Neither the vehicles had been reregistered nor had they surrendered their registration certificate. As such, registering fee of Rs.5.66 lakh and minimum fine of Rs.0.83 crore for using unregistered vehicle is realisable.
After this was pointed out, the department stated in June 2005 that necessary action would be taken. Further development was awaited (October 2005).

∗ ***Plying of vehicles without fitness certificate***
MV Act, provides that a transport vehicle shall not be deemed to be validly registered unless it carries a certificate of fitness issued by the competent authority. A minimum fine of Rs.2,000 for the first offence and Rs.5,000 each for subsequent offence was leviable for driving a vehicle without registration.

Scrutiny of the database revealed that certificate of fitness of 4,561 transport vehicles of different category (MGV, LMV, LGV, HMV) expired as on 31 March 2005 which were not renewed. The enforcement staff of the department, however, failed to utilise the information available with them and detect these vehicles plying without a fitness certificate resulting in fees of Rs.11.72 lakh and minimum fine of Rs.0.91 crore remaining unrealised.

∗ ***Short realisation of revenue***
GOI, Ministry of Surface Transport, Department of Road Transport and Highways[41] clarified that as per Section 2(29) of the MV Act, all vehicles constructed or adapted to carry more than six passengers excluding the driver may be classified as 'Omni Bus'. The rate of road tax for Omni Bus plying for hire or for conveyance of passengers in Mizoram is Rs.300 for every authorised seat. The system has not adopted this directive and was charging road tax at a lower rate. This has resulted in short realisation of revenue amounting to Rs.15.69 lakh.

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[41] *letter No. RT-11036/13/97-MVL dated 15th March 2000*

After this was pointed out (June 2005), the department stated (June 2005) that the reply would be furnished in due course. Reply is awaited (October 2005).

∗ *Lack of continuity of registration numbers*
In a single series, 9,999 vehicles (*i.e.,* upto four digits) can be awarded a registration number. The registration numbers should be awarded in a sequence to monitor the year of registration (model) of the vehicle.
Test check of the database (June 2005) revealed that at DTO, Aizawl, registration in a subsequent series was started even before the ongoing series was exhausted. The number registration numbers missing in the four series test checked was as under:

Series	Number of registration numbers found missing in the series
MZ01	2555
MZ01A	1842
MZ01B	671
MZ01C	2679 out of 8619 registration numbers issued till 31/03/05

Moreover, two vehicles were assigned registration numbers MZ01C 8619 and MZ01C on 04/11/1999 and 22/10/1999 respectively even when MZ01A series had not yet started. This indicates misuse of facility for blocking choice number and improper management of registration of vehicles apart from opening up the possibility of misuse of un-registered number.
After this was pointed out, the department stated (September 2005) that the reply will be furnished after the checking and rectification is completed. Further development is awaited (October 2005).

5.10.7 General Controls
General controls create the environment in which the application systems and application controls operate *e.g.,* IT policies, standard and guideline pertaining to IT security and information protection. The observations in this regard are given below:

∗ *Lack of documentation*
A proper System Analysis requires that each module of the system proposed to be developed should be properly documented. The department does not have a proper written and authenticated documentation of the modules developed for 'Vahan' and implemented so far. Hence the system is not user friendly as it lacks details of installation procedure, details of screens available for data entry, input and output files, linking of files, details of files and tables created and description of the columns thereof. There also was no authenticated user manuals. No documents were also available to indicate the version of the software received and installed by the department.
After this was pointed out (June 2005), the department replied that the documents computerised are all authenticated. The reply is not tenable as audit observations were regarding lack of documents relating to details of

installation procedure, details of screens available for data entry, input and output files, linking of files, details of files and tables created and description of the columns thereof.

∗ *Physical Access Control*

Physical access controls are specifically aimed at ensuring that only those who have been authorised by management have physical access to the computer systems.

During audit it was noticed that for registration, issue of fitness certificate, driving licence, etc, the vehicle owners after duly filling up the necessary and paying the requisite dues, bring the documents to the concerned computer operator at the computer cabin. This single room computer cabin named 'Vahan room' also houses the Compaq ML 350 G3 Server together with the terminals meant for data operators The unauthorised entry of persons coupled with inadequate logical access control puts the system and data at risk of unauthorised intentional/accidental manipulation/destruction *etc*.

After this was pointed out, the department stated (June 2005 and September 2005) that a separate IT cell is recently set up and the server has been shifted to IT cell to safeguard the systems from unauthorised intentional/accidental manipulation/destruction of data.

∗ *Environment controls*

Environmental controls are aimed at ensuring that the assets of the project are not put to risk. This requires that risk assessment and preventive measures be undertaken prior to implementing the project.

During audit it was seen that the department had neither undertaken any risk assessment nor had put any preventive measures in place putting the system and site valued Rs.11.48 lakh at risk.

After this was pointed out (June 2005), the department stated (June 2005 and September 2005) that fire extinguishers would be placed at all sites. Further development is awaited (October 2005).

∗ *Logical Access Control*

It was seen that the system is left open whenever the user take a break or leaves the room. However the system does not have a procedure for blanking the screen and protecting it further by a password. This leaves the system open to unauthorised manipulation/destruction of data.

It was also seen that although each and every operator has different user ID and password the operators of the system in the Vahan room share their password with each other and that in case of absence of any one of them the work of the absent user was being done by the other users by utilising his/her password. The informal methodology adopted is fraught with risk of loss of trail for unauthorised worked done.

After this was pointed out (June 2005), the department stated (September 2005) that orders were being issued to follow audit instruction.

∗ *Business continuity planning*

Business continuity planning is about planning to recover key business processes following a disaster. The objective is to reduce downtime – and hence loss to the business – to a minimum.

Scrutiny of the vehicle registration system revealed that the department has a system of daily backup of data in a re-writable CD. When the system crashed during October 2004 the data, however, could not be recovered as the CD on which the data backup was taken was corrupted. The department also takes monthly backup using a read only CD to supplement the system of backup. A mock test to ascertain the efficacy of the backup had, however, not yet been taken by the department. Further, backup data was stored in the same building housing the computer systems instead of being stored off-site. This was fraught with risk of loss of data in case of an occurrence of a disaster.

After this was pointed out, the department stated (June 2005) that caution of audit will be taken into account.

5.10.8 Conclusion

It was noticed in audit that there was no proper planning for successful implementation of different stages of the project. Various controls such as application controls, process control, validation control, etc were either absent or not effectively in place. The insufficient application controls in the system had led to inconsistent and incomplete database maintained by the DTO. Orders issued by the Government were also not incorporated into the system leading to loss of revenue. The system as a management information system (MIS) was inadequate.

The matter was reported to Government (July 2005); the reply is awaited (October 2005).