## 6.3 Working of e-RTA and e-Transport software in the Department of Transport, Goa

***Highlights***

- Absence of wide area network resulted in non-utilisation of smart cards for online checking of licences.

***(Paragraph 6.3.7.2)***

- The software did not have provisions to capture the dual fuel option (Petrol and LPG).

***(Paragraph 6.3.8)***

- Faulty system design provided for closure of a series before exhausting all the registration numbers leaving scope for manipulations.

***(Paragraph 6.3.11)***

- Incorrect mapping of business rules in the system resulted in violation of provisions of the Motor Vehicles Act.

***(Paragraphs 6.3.14.1 and 6.3.14.2)***

- Inadequate physical and logical access controls and system security made the system and data vulnerable to unauthorised access and manipulation.

***(Paragraphs 6.3.15.1, 6.3.15.2 and 6.3.15.3)***

- Lack of input controls resulted in poor assurance regarding completeness, accuracy and reliability of data**.**

***(Paragraph 6.3.16.1)***

- Non-validation of life time taxes resulted in short realisation by Rs 6.24 lakh.

***(Paragraph 6.3.16.2)***

### 6.3.1 Introduction

The Transport Department regulates the levy and collection of taxes on motor vehicles, passenger tax and fees towards licence, registration, fitness certificate and matters regarding the issue of Trade certificate to dealers of motor vehicles, national permits to goods carriages, permits for contract/stage carriage/tourist taxis, etc. and compounding of offences. The Directorate of Transport is the regulatory authority for implementing the various statutory provisions of the Motor Vehicles Act, 1988 and rules made thereunder.

### 6.3.2 Computerisation

The department was initially using the system developed by National Informatics Centre (NIC) at RTOs, Panaji and Margao since May 2000 and July 2002 respectively. In April 2003, the Government decided to have a web portal for a comprehensive computerised management of the Department's activities for which M/s Goa Electronics Limited (GEL), Panaji was assigned the following works:

- development and implementation of e-RTA software for web-based-application with 11 modules to be executed through M/s Maruthi IT. Com Limited (Maruthi). e-RTA was functioning in all the seven RTOs since July 2006;
- development and implementation of e-Transport software for administrative activities with 11 modules[6] was entrusted in September 2005;
- development and implementation of Electronic Motor Vehicle Registration Scheme (e-MVR) for dealer level registration was entrusted in April 2006 for non-transport and January 2007 for transport vehicles; and
- computerisation of permanent driving licences in the form of smart card[7] in April 2006 through M/s Smart Chip Limited.

Windows 2000 server application server, SQL server 2000 database server at the back-end and ASP language at the front-end were used in both e-RTA as well as e-Transport.

The central server at Secretariat is the repository of data of registration and learners' licences (e-RTA).

### 6.3.3 Objectives of computerisation

The objectives of computerisation were to process through system the activities of:

- issuance of learners' driving licenses, driving licenses and its renewal;
- motor vehicle registration, renewal of registration;
- collection of taxes and fees at check posts online;
- issue and renewal of permits online;
- online generation of management information system and reports.

### 6.3.4 Organizational set up

The Directorate of Transport is headed by a Director who is assisted by seven[8] Assistant Directors each heading the respective road transport offices (RTO) in the State. Besides, there are four[9] check posts situated at the borders under the control of the department.

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6 Cash collection, challans generation, demand drafts collection, inward/outward, prosecution, accounts functions, establishment and personnel, STA permits, website interface and maintenance, RTA permits and touch screen kiosk facility.

7 Smart card refers to permanent driving licence in the form of card with features of data storage through which online booking of offences was possible.

8 Panaji, Margao, Mapusa, Bicholim, Ponda, Vasco and Quepem.

9 Pollem, Mollem, Dhargal and Dhudamarg.

### 6.3.5 Audit objectives

The audit objective was to assess the implementation and operation of e-RTA, e-Transport, e-MVR and the smart card module with reference to data integrity, confidentiality and availability. The system compliance to IT objectives of the department, IT security benchmark, achievement of business intended results and efficient use of the resources were examined.

### 6.3.6 Scope and methodology of Audit

The records relating to e-RTA, e-Transport, Smart Card and e-MVR were scrutinised to evaluate the effectiveness of computerised activities of the department with reference to the stated objective. The collection of data through issue of questionnaire, audit requisitions, audit enquiries; test check of sample transactions in registration module and extraction and analysis of data using CAAT was made.

### Audit observations

### 6.3.7 Planning of computerization

#### *6.3.7.1 Development of module for tax collection*

Though the e-RTA system developed by Maruthi had provision to collect road tax from transport vehicles, the department awarded development of a separate module for collection of tax as part of e-Transport to GEL. It was noticed that there was no linkage between the two modules as well to share data. Thus the data already available in e-RTA had to be entered into e-Transport again. Further, as the details of the vehicle registration, licences and their renewals were available in the e-RTA only, the collection module in e-Transport could not be effectively utilised to monitor the revenue for the due renewals.

The department replied (July 2008) that the motive in incorporating a separate cash collection module was to have a single point cash collection for fine/fees and tax and as the date of registration and the latest tax paid date were captured, the system could easily generate the list of defaulters for each RTO. However, it was seen that the RTOs were unable to generate such lists of defaulters as they were not adequately trained to do the same. The reply also indicated poor planning as the facility available in e-RTA was not considered while developing the new module resulting in duplication of data entry besides incompleteness of data.

#### *6.3.7.2 Non establishment of WAN connectivity – Smart Card module*

Work order for issue of smart cards for permanent drivers' license provided for connectivity of all the RTOs with the Headquarters through a wide area network (WAN) and a central server installed in the Transport Commissioner's office. Instead, a server was installed (May 2006) at each RTO with no inter-connectivity and there was no central server installed at the Headquarters. Further, hand held machines (20 numbers) supplied by GEL for enabling online checking of the smart cards also could not be put to use for

want of connectivity leading to non-utilisation of the smart cards for intended purposes.

The department replied (July 2008) that a central server for the smart card driving licence would be installed.

## System deficiencies

### 6.3.8 Registration of new vehicles

There was no provision in the registration module of e-RTA system to select dual fuel (petrol and LPG) option and also to enter the details of cylinder number, batch number and validity. The department replied (July 2008) that the provision for dual fuel would be facilitated in the system.

### 6.3.9 Re-registration of vehicles

In re-registration module of e-RTA system, the registration number of the vehicle being re-registered could be entered either in old format or new format. The new format had State code, RTO code, series and number. It was seen that the details of the state and the name of the RTO were being captured again in the same format to facilitate ascertaining the state and the RTO even though the registration number in new format was already captured. This re-capture of same information was avoidable. There was no validation between the data being captured for the registration number and the data to ascertain the state and RTO as well. This led to inconsistent data in the system.

The department replied (July 2008) that the above suggestions were noted and the required changes would be incorporated into the system.

### 6.3.10 Issue of duplicate RC book

There was provision in the registration module of e-RTA system for issue of a duplicate registration certificate (RC) book. Before issuing a duplicate RC book, it was seen that the original RC book number had to be deleted and the present running number was allotted to the duplicate RC book. The original RC book number could not be retrieved from the system which left scope for misuse of the original RC book through manipulations. The department replied (July 2008) that the suggestion was noted and the required change would be incorporated into the system.

### 6.3.11 Continuity in registration numbers

The Motor Vehicles Act provides that a registering authority shall assign a unique mark in a series to every vehicle at the time of registration. The department had designed the system in such a way that two series in each class of vehicle could be kept open. Before a series is exhausted, no new series should be opened. An analysis of registration data in e-RTA of all the seven RTOs showed that opening of a new series led to closure of the older of the two current series such that only two series were alive at the same time. This

led to non-issue of the balance of the registration numbers in the old/closed series.

The department replied (July 2008) that the reason for opening of a new series was mainly due to the constant demand from vehicle owners for specific/ choice numbers and there was no apprehension/or cause to believe that there will be any misuse of numbers on account of any gap in the chronological order. The reply is not acceptable as system could have been customised for opening more than two series or not to open new series till series in currency was exhausted. This practice led to the risk of allotment of unused numbers in the closed series through manipulations.

### 6.3.12 Change of driving licence number on renewal – Smart card module

In smart card module, it was observed that the earlier number of the driving licence (DL) was not retained on renewal but a fresh number was allotted**.** Change of DL number on each renewal indicated deficient design as no link was established between old and new numbers due to which tracing the old DL number for a new DL was not possible.

### 6.3.13 Challan and vehicle number entry (Check post module-e-Transport)

- For recording day-to-day transaction, the check post module of e-Transport provides for generation and issue of receipts. The system provided for remittance of day-to-day collection of receipts into bank. It was seen that at the end of the day for generating a challan, the details of all receipts were entered into the system manually though they were already available in the system. This manual intervention posed the risk of wrong entry and manipulation of receipt details and belated remittance of collections into the bank. It was further seen that the receipt details were automatically captured in cash module of e-Transport used at Directorate as well as RTOs but the same was not provided at the check posts.

The department accepted (July 2008) the fact and assured for necessary action.

- The data entry of registration number of vehicles was not uniform in the check posts as a format for such entry was not available in the system. The department replied (July 2008) that maintaining uniformity at the check post with reference to vehicle numbers was not feasible as well as not practical as there were vehicles with different formats of registration numbers from different States entering the check post. The reply could not be accepted since the format of the vehicle registration number applicable to all the states was prescribed in Motor Vehicles Act, 1988 and the format as followed in re-registration module of e-RTA could be adopted.

**Mapping of business rules**

### 6.3.14 Non-compliance of the provisions of the Acts and Rules

#### *6.3.14.1 Registration Module*

The permanent account number (PAN) issued by Income Tax Department had to be quoted in cases of purchase of motor car. However, there was no provision in the registration module of e-RTA system to capture the PAN. The department replied (July 2008) that the provision to enter the PAN card details would be provided in the application.

#### *6.3.14.2 Licencing Module*

- As per section 7(1) of the Motor Vehicles (MV) Act, no person was to be granted a learner's license (LL) to drive a transport vehicle unless he held a driving license (DL) to drive a light motor vehicle for at least one year. This mandatory requirement of populating/capturing in database was not provided.
- As per section 7(2) of the MV Act, no person under the age of 18 years shall be granted LL to drive a motor cycle without gear except with the consent in writing of the person (guardian) having the care of the licensee desiring the LL. There was no provision in the system to record the consent.
- According to section 4 of MV Act, a motor cycle with engine capacity not exceeding 50 cc may be driven in a public place by a person after attaining the age of 16 years and no person under the age of 20 years shall drive a transport vehicle in any public place. In contravention of this proviso, LL was issued in nine cases to persons below 18 years to drive motor cycle with gear and LL was issued in 139 cases to persons below 20 years of age to drive transport vehicles. The system was not customised to exclude person below 18 years from obtaining LL to drive motor cycle with gear and below 20 years from obtaining LL to drive transport vehicles.

### 6.3.15 IT security

#### *6.3.15.1 Physical access controls*

There was lack of access controls to system in directorate office and in five out of seven RTOs. The department had not installed any security devices like finger print reader, card swipe, etc. to ensure only authorised persons had access to EDP room.

#### *6.3.15.2 Logical access controls*

- Logical access controls in the system should prevent any unauthorised access to the system. It was noticed that the access to e-RTA system (both registration and licensing) was through a single common user id and password in each RTO. Thus, with a single user id the users were

allowed to access the system exposing it to unauthorised changes and manipulations which led to deficient accountability.

* The system did not deny access after limited number of unsuccessful attempts.

### *6.3.15.3 System Security*

* Programme developers and support rendering agency were doing the job of data entry from the back-end as corroborated from the fact of presence of two series with the same alphabet viz. GA-08-A and GA-08-a. This was impossible as the registration number is auto generated by the system. Similarly, vehicles of Kadamba Transport Corporation Limited (State owned transport company) at Mapusa RTO were registered from the back-end as the system did not generate the registration number. Use of back-end for data entry or its manipulation is fraught with risk of deficient data integrity.

* The changes to data in master tables were effected by the support rendering agency. The department had not put in place any mechanism to ensure the entries made were by authorised persons only and in order. Thus there was a risk and compromised security to the data.

* The data of check posts were delivered in person to RTOs through pen drives without encryption of data. Thus, there was a risk of manipulation or even loss of data.

* **Unauthorised access to infrastructure resources**

  The MV Act through an amendment in January 2005, provided for only registration of vehicles by the dealers. The dealers, however, have been granted access to register as well as to print the RC books in e-RTA. The department attributed (July 2008) that the provision was made with presumption of facilitating dealer level printing of RC book in future. However, the fact remains that printing of RC Book by dealers was not permitted by the Act and the facility needed to be withdrawn to avoid unauthorised printing of RC books.

* The systems in the directorate or in five RTOs and Mollem and Dhargal check posts were not protected through anti virus software.

### *6.3.15.4 Data Migration from the legacy system*

The work of data entry of legacy data in the system related to vehicles registered in manual system was awarded (September 2005) to GEL. However, no time frame for completion of the work was fixed and data entry was yet to be completed (May 2008).

The department replied (July 2008) that though the data was digitised, it had not been verified for its authenticity and hence, was not available in the live e-RTA database. Analysis of legacy data available in e-Transport revealed null or redundant figures for name of the citizen (735 cases), address (1,537 cases), name of city (65,181 cases), model of the vehicle (1,09,814 cases), chassis number (2,462 cases), engine number (2,563 cases), colour of the vehicle (2,452 cases), insurance numbers (24,653 cases), date of registration (1,254

cases) and date of issue of fitness certificate (4,380 cases). The outsourced work of data entry, though deficient, was paid without verifying the completeness and correctness of the data.

The department replied (July 2008) that the records would be checked and updated.

### 6.3.16 Application controls

Application controls are those checks and balances that are incorporated in the developed application for maintaining data integrity. These include input controls, processing controls and output controls.

#### *6.3.16.1 Input Controls*

- The registration number of the vehicle being unique, the re-registration module in e-RTA system should capture vehicle data details automatically in respect of cases already registered through the system whenever vehicles are re-registered on conversion. This inbuilt control was not available in the e-RTA system leading to manual data entry and thus led scope for erroneous data with respect to category of vehicles, price, chassis number, engine number, etc.
- In e-RTA system, duplicate chassis (in 621 cases) and duplicate engine numbers (in 669 cases) after excluding duplicate entries due to re-registration were noticed. In 1,041 cases both the engine number and chassis number were the same.

The department replied (July 2008) that lack in the data validation was noticed almost two years back and the system has been rectified to ensure the uniqueness of engine and chassis number for each vehicle. The reply was not tenable as duplicate engine numbers and chassis numbers could be entered into the system even till April 2008.

- Analysis of data of registration in e-RTA system revealed that null values were present in validity of registration period (1,793 cases) and insurance certificate number and insurance date (492 cases). Similarly, valid date in respect of LL (4,795 cases), class of vehicle (6,587 cases) and citizen number (1,84,351 cases) were missing in issued licences.

Absence of input controls in the system made data incomplete. The department replied (July 2008) that registrations in these cases were not carried out and that the date of registration would not be captured. The reply was not tenable since registration numbers were present in 1,413 cases cited to department. The department further replied (July 2008) that the selection of a 'class' and citizen number was mandatory for issuing a LL but the claim was not substantiated by system data maintained in the department.

### *6.3.16.2 Absence of validation checks*

* **Non-validation of life time tax rates**

The life time tax on non-transport vehicles costing Rs six lakh and above was six *per cent***.** In 59 cases of vehicles registered between June 2004 and April 2008 through e-RTA, tax was not collected at the stipulated rate resulting in short realisation of tax by Rs 6.24 lakh. The department replied (July 2008) that the revised tax structure was incorporated into the system after five days of notification and the tax amount was collected and receipts were issued manually by the RTOs during this period. Reply is not tenable as the short realisation did not pertain to only five days but persisted as on date (April 2008). It was further observed that the system calculated the life time tax correctly, but the same could be edited by the user due to absence of a validation check. Thus, manipulation could not be ruled out.

- **Non-validation of registration period**

As per provisos to the MV Act, the validity of registration in case of new non-transport vehicles was 15 years from the date of registration. The registration module of e-RTA system is not customised to take default valid registration period with the result that vehicles with registration period less than 15 years was observed in 268 cases and registration period with more than 15 years was observed in 50 cases.

The department replied (July 2008) that the cases where the validity of registration was less than or more than 15 years were records where editing was carried out. This confirmed the absence of necessary validations to ensure the validity of registration for 15 years only.

- The insurance of any vehicle was valid for a period of one year. The registration module of e-RTA system accepted the insurance effective date even if it was prior to the date of registration by more than one year. The department replied (July 2008) that the check for the validity of the insurance would be incorporated in the system.

- The registration module of e-RTA system accepted future dates as dates of manufacture indicating absence of validation controls. The department replied (July 2008) that necessary controls would be incorporated in the system.

- **Non-capture of validity of learners licence – licensing modules**

Validity of the LL issued is for six months. The licensing module of e-RTA system was not customised for capturing the default validity period of six months. It was observed that date of validity for LL was not entered (6,633 cases), the validity of LL was more than the prescribed period of six months (1,383 cases) and LL validity was prior to date of commencement of the LL (1,854 cases).

The department recorded the facts and replied (July 2008) that issue regarding renewal after six months was encountered due to a change in the process, as notified by the Government which was not incorporated in the system. Further development has not been intimated (September 2008).

### 6.3.17 Non-utilisation of modules

The system provided for entering the details of alterations carried out on vehicles but the module was not working. As a result, the details of alterations remained outside the database.

### 6.3.18 MIS

The system was not customised for generation of various MIS reports though the required data were available in the system. The department replied (July 2008) that the possibility of incorporating more reports would be explored and added as per requirement.

### 6.3.19 Business continuity plan

The GEL was entrusted with development of various modules for computerisation of the activities of the department. The company on payment of Rs one lakh per month was rendering support services like modifications and enhancements to system implemented, development of new MIS reports, assisting the users in the day-to-day functioning of the system, taking regular back up of data, supervising and verifying the data entry and uploading the data onto department website, since the implementation of e-RTA. The support was periodically extended up to March 2008. The department continued to depend on the support from the GEL to carry out the critical activities and has not prepared any plan to link e-RTA with other modules, complete the entry of legacy data and take over the maintenance of the system.

### 6.3.20 Conclusion

Poor planning in the system development stage has resulted in development of similar modules without integration and unnecessary duplication of work, non-utilisation of smart card system for day-to-day online checking. Deficient system designs and incomplete mapping of business rules paved way for continued dependence on manual interventions and controls. Changes of management controls and documentation of such changes were not satisfactory. Deficient logical access controls like usage of single user id to access the system exposed the system to the risk of unauthorised manipulations. Deficient input controls and validation checks coupled with incomplete migration of legacy data resulted in less assurance regarding completeness, correctness and reliability of data. The system could not be used for an effective MIS system. Thus, the stated objectives of computerising the system of registration, licencing and taxation of vehicles could not be fully achieved.

### 6.3.21 Recommendations

The Government may consider the following recommendations:

* the developed modules for collection of tax should be integrated so as to avoid duplication of work;
* the connectivity should be established and smart card system should be put in use for online checking of the licenses;
* necessary input controls and validation checks should be inbuilt in the system so as to make data complete, accurate and reliable;
* completeness and correctness of migrated data from the legacy system should be ensured;
* physical and logical access controls should be strengthened to make data secure; and
* system should be customised and utilised to generate effective MIS reports for reference and decision making.